



Palacký University
Olomouc

INTERNATIONAL SCIENTIFIC CONFERENCE
**KNOWLEDGE
FOR MARKET USE**

Department of Applied Economics
Palacký University Olomouc
Czech Republic

KNOWLEDGE FOR MARKET USE 2017: PEOPLE IN ECONOMICS – DECISIONS, BEHAVIOR AND NORMATIVE MODELS

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Pavla Slavíčková (Ed.)

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Foreword

The international scientific conference *Knowledge for Market Use* is a traditional event organized annually by the Department of Applied Economics (Palacký University Olomouc, Faculty of Arts) . Since 2006 it has been a meeting place for researchers and practitioners in the fields on Economics, Knowledge Management, Marketing, Management, and related areas. As its name and focus areas suggest, one of the key ideas of this event is interdisciplinarity in research and practical applications.

This year's focus on *People in Economics – Decisions, Behavior and Normative Models* was chosen to inspire a wider debate on the need of (re)opening the doors of Economics to other disciplines, that have much to contribute to the topics treated within the standard economical and managerial context. Psychology, Sociology, Neuroscience, Politology, History, Decision Sciences, Behavioral Sciences and related fields are thus symbolically invited to join forces with the more formal fields of Economics – Econometrics, Operations Research, Financial Modelling, Information Sciences and also the classic areas of Macro- and Micro- Economics, Management, Marketing, Business, Human Resource Management etc. All this in the hope of finding new solutions, new ways of thinking and new methods for the analysis of the economic reality around us.

SOCIAL QUALITY AND KNOWLEDGE CAPITAL

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Abstract: Various studies are focusing on analysing life needs in intention of the specific societies that have become a vision for many EU countries. They mean stage of a learning society, stage of a knowledge society, or stage of a creative society. This effort has special substantiations; each of them requires a specific kind of capabilities that should be implemented in right time in content of the education systems. We realize that also the social quality has its own specificities, which differ from the present forms of coexistence of people. However, in what are these differences, stay to be particularly vague. The existing situation evoked in us the effort to work and explain the professional competencies of worker in the social quality. Our goal will be to present not only its basic characteristics, but above all, to identify the knowledge competencies that are essential for implementation of this new form of society.

Keywords: Social quality, social empowerment, human capital, knowledge (intellectual) capital.

JEL classification: P46, O34, JB

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1. Introduction

At present, new ideas are discussing in the human security, social exclusion, or globalization, but theory of the social quality remains in vagueness, although it overcame them by its global approach to the change of society. It was created in the last century (1997), but it immediately meant shifting priorities and strengthening position of the social dimension in field of policies in the European Union. In Slovakia we do not have possibility to meet it, is still rare.

Authors defined it as "the extent to which people are able to participate in the social and economic life and cultural life, under conditions which enhance their well-being, capacity and individual potential (Beck, van der Maesen & Walker, 2001, p. 6)". From a relatively detailed theory, we only mention the main ideas that will serve as the starting point for further elaboration. Social quality,

according to its authors, is a broad phenomenon continuum, consisting of three dimensions: conditional factors, constitutive factors and normative factors.

From all factors, we focus, in our paper, only on conditional factors and within them on the social empowerment that perceives people as the main actors of socio-economic development. By its nature, it not only determines other factors of the social quality but also is a "source of activities" through which any component of society can be put into "movement."

The sketched circuit of problem, related to the social quality and competence of the workforce within it, evokes in us the effort for processing of the issue, with goal to summarize the specific features of worker of the social quality with the accent on his knowledge competencies.

2. Starting Points for Knowledge Capital in Social Quality

Our opinion is, that in theory of the social quality, the knowledge capital is a part of the social empowerment, that represents people, their qualifications, attitudes, ideas, desires, but also needs that drive them into activities and self-realization.

P. Herrmann regards it as a process relating to development of individual or group and, at the same time environment, in which the individual and group are located. He understands it as "the extent to which people are capable of activating through social relationships" (Herrmann, 2005, p. 6).

The Social empowerment, by itself, does not represent only new characteristics, features of the human capital, but above all, its changes of behavior, which should lead to personal satisfaction but also to achievement the goals of the imminent or wider community in which human lives (Herrmann, 2006, pp. 227-238).

In a society, characterized by the social quality, in our opinion, the human capital will have a qualitatively different form than has in present time. His abilities will be based not only on professionalism but also on ability to develop the social capital, to implement into working process the learning structures, and to use them for benefit of organization. The abilities of sharing of knowledge, their dissemination, as well as non-traditional expression of creativity in solving work problems, using intuition and imagination will be also important. The road to the social quality is therefore "paved" by innovation, which is very closely interconnected with and unattainable without it.

From our point of view, we perceive, that the social empowerment (conditional factor of the social quality) is manifesting as the targeted behavior of people, by their professional competencies, but also by their social learning, knowledge and creative abilities that provide them saturation on personal, individual, social and societal level. These levels come out from the forms of participation of people perceived by P. Herrmann, who created four models in which human is able to activate. They are the model of personal competence, the model of individual competence, the model of social competence and the model of societal competence (Herrmann, 2006, p. 227-238).

The knowledge capital, in theory of the social quality, features as part of the human capital, on which is based essence of the social empowerment as a conditional factor. The knowledge competencies

are on the second stage of achieving progress towards the social quality. These competencies would only have to be developed after obtaining capabilities of the learning capital. This statement is consistent with several authors such as D. G. Mavrididis and K. Vatalis (2012, p. 280).

3. Knowledge Capital and its Measurement

In literature, many definitions of the knowledge capital identify it as the intellectual wealth of nation or organization. This term represents know-how as a result of experiences, information, knowledge, learning and skills. It may consist of the technical information or current experiences or skills required from individuals. It is perceived as the intellectual capital, intangible assets, representing ideas, values, processes, methods, or intuitive talents.

For example, we introduce the definition of OECD experts who regard it as an intangible asset that has the physical nature, creating the economic benefits that enable organizations to expand ... (2008, p. 2). They are speaking about the following three forms of the knowledge capital:

1. Human capital, representing knowledge, skills, know-how of employees. We also under it understand innovation, creativity, experience, teamwork, employee flexibility, motivation, satisfaction, loyalty, and so on.
2. Relational capital, which consists from a system of relations between organization and other subjects, such as customers, suppliers or partners. As an example, we can describe organizational image, customer loyalty, customer satisfaction, and business strength and negotiation capacity.
3. Structural capital, creating the knowledge that remains in organization after leaving it by workers. They acquire the form of processes, systems, culture and databases (2008, p. 10-11).

The presented opinions at the knowledge capital exists more theoretically and is different with situation in the methodological and empirical field. The OECD in its quantification prefer the main indicators as computer information, inventive ownership and economic competencies.

In the EU space, there exist several models, by which authors seek to quantify and measure effects of the knowledge capital. The best-known are the INAN and INANK model.

4. Conclusion

In conclusion, we would like to pay your attention to the dilemmas arising from the perception of both understanding of the knowledge capital as on general level and as the knowledge capital in the social quality. And at the same time we would like to point out the problems that researchers have not solved yet. For clarity, we divided them into three parts: the theoretical background, the methodological assumptions, and the empirical recommendations.

4.1. Theoretical Background

1. We consider the knowledge capital as a subcategory of the human capital, characterized not only by specific forms but also by unique modes of activation of people in the social space that will require consideration in all forms of its exploration.

2. Knowledge, skills and attitudes of the knowledge capital is necessary to develop on the knowledge, skills and attitudes of the learning capital, which will be needed to respect in the implementation process.

4.2. Methodological Assumptions

The theoretical background of perception of the knowledge capital in the social quality presupposes changes in previous methodological approaches in the following sense:

1. To respect the dimensions of the human capital, representing the specific competencies of the workforce.

2. To access more carefully to quantification of each dimensions of the human capital, to identify indicators of the professional capital, the learning capital, the knowledge capital, the creative capital, and the social capital. Do not allow to overlap farthest their indicators and variables. As an example, we can indicate perception of the knowledge capital as a network in organization, what the social capital represents also. Similarly, we can refer at the learning capital, which has become one of indicators of the knowledge capital by D. G. Mavridis and K. Vatalis. We can see intersection of the knowledge and creative capital of authors of J. L. A. Navarre, V. R. Ruiz and D. N. Peña.

4.3. Empirical Recommendations

The accepted theoretical background of the knowledge capital in the social quality as well as in the process of its formation will not allow us to develop on existing methodology of the international research institutions as well as on the experiences of the renowned researchers. In their approach, there is a direct quantification of the human capital within the knowledge capital, by other words; the human capital has become a part of the knowledge capital. We can also meet this problem from side of other authors.

We only have one option: to explore the knowledge capital and its interconnection with the social quality based on new-created indicators with verification of relations between them through own model. It depends only on the financial budget in which form and depth will be investigated activation of the knowledge capital within the four models of P. Herrmann: the personal competence, the individual competence, the social competence and the societal competence.

Literature:

Beck, W. A., van der Maesen, L. J. G. & Walker, A. S. (2001). *Social Quality: A Vision for Europe. Studies in Employment and Social Policy*. Hague/London/Boston: Kluwer Law International. ISBN 90 411 1523.

Herrmann, P. (2003). *Discussion Paper on the Domain „Empowerment“submitted to the Project European Network on Indicators of Social Quality of the European Foundation on Social Quality*. Amsterdam: EFSQ.

Herrmann, P. (2005). Empowerment: The Core of Social Quality. *European Journal of Social Quality*. ISSN 14617919. 5 (1-2), p. 3-24.

Herrmann, P. (2006). Empowerment: The Core of Social Quality. *European Journal of Social Quality*. ISSN 14617919. 5(1-2), p. 227-238.

Mavrididis, D. G. & Vatalis, K. I. (2012). Intellectual Capital Accounting Indicators. *International Conference On Applied Economics (ICOAE) 2012*. Procedia Economics and Finance 1, p. 279-291.

Navarro, J. L. A., Ruiz, V. R. L. & Peña, D. N. (2011). Estimation of intellectual capital in the European Union using a knowledge model, Proceedings of Rijeka Faculty of Economics. *Journal of Economics & Business*. 29(1), p. 109-132

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APPLICATION OF MANAGEMENT ACCOUNTING TOOLS IN BULGARIA

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Abstract: *Bulgaria is a typical post transition economy. Management accounting was introduced to it in the early 90-s of 20 century. First it was just an academic concept, later received some adoption in practice. The process of applying management accounting tools was accelerated by big foreign investments, joint ventures and formation of complex native business structures, by European integration and internationalization of education, knowledge and business practices. Management accounting tools were mostly intuitively used by the greater majority of companies in Bulgaria, being small or medium sized ones. Professionals who had to deal with the management accounting problems, to choose management accounting tools, to search for new ones or more adequate ones, had humble knowledge for them. Managers underestimated the role of management accounting and had no vivid interest in developing it on a company level. The hard transitional process and world economic crisis slowed down the application of management accounting tools. It led to the application of management accounting tools that are more operational than strategic, more traditional than newly introduced, closer to financial accounting and combined often in a contradictory way. That conclusion is confirmed by our survey of the application of management accounting in Bulgaria. It clearly defines the necessity of a broader education in management accounting not only of accountants, but of managers too.*

Keywords: *Management accounting, management accounting tools, management accounting instruments, management accounting techniques, management accounting practices.*

JEL classification: M41, M40, M49

Grant affiliation:

1. Introduction

Management accounting (MA) was introduced in Bulgaria in the early 90-s of 20 century, although some techniques were used before. First- an academic concept, later- adopted in practice to some extend: that was the way of MA development, quite different than the one of developed market economies. The process of applying management accounting tools was accelerated by big foreign investments, joint ventures and formation of complex native business structures, by internationalization of education, knowledge and business practices. Bulgaria is considered to be a

post transition economy, after its integration in European union. The purpose of this paper is to summarize the empirical research results for the application of MA tools in Bulgaria. The data are derived from an original empirical survey performed by us. According to the best of our knowledge it is the first of the kind for the state of MA in Bulgaria (Atanassova, A., 2015).

The study of MA tools is the core of each management accounting university course. But most often there are no definitions of MA tools in specialized publications. As synonyms are used „management accounting tools“, „management accounting instruments“, „management accounting techniques“, „management accounting practices“ and even „management accounting methods“. MA tools are those applicable techniques of quantitative data collection, procession and analysis which prepare information to help decision making of managers in companies. The above is a working definition we use in this paper. There is a huge variety of MA tools. The reasons for that are:

- MA does not have a unified theory and method, hence- no unity about the applicable tools as their range might differ with the different approach of defining and different scope by definitions of MA;
- MA is directed mainly to inside users of information. As it is the case, the useful techniques for different organizations might diverse a lot, due to the specific sector of activity and information needs of management. MA tools reflect the managerial style and organizational aims, company resources too;
- In the strong competition process in the last decades some of the company advantages, including efficient MA tools used, are discreetly kept in silence;
- MA is still strongly influenced by the financial accounting (FA). FA is regulated by obligatory norms. It has its peculiar manifestation depending on the law and accounting system prevailing: Continental (European) or Anglo- American (Anglo- Saxon). MA concepts and tools applied in these two groups of countries differ;
- MA is rapidly developing in the last century. New techniques appear and are tested in practice. Some of them fade with the time passing by, some of them gain publicity and are further developed. The process is dynamic and is going on constantly;
- MA perception and tools might be very diverse due to the uneven level of development of a region, country, and company. Mature companies and a newly started ones will pick up tools that rarely are comparable; companies in a developed market economy and ones in a new market economy might have different set of MA tools to respond to problems in their business process interaction with outer world;
- The size of a company, complex or simple organizational structure, creation of responsibility centres, existence of foreign branches could be another factor for the set of MA tools applied.

2. Classification of Management Accounting Tools

The diversity of management accounting tools could not be studied properly, neither in theory nor in empiric research, if they are not classified in some similar groups. We consider most influential two classification of management accounting tools.

The first is a classification used in an explicit or implicit form in the research publications of the leading Management accounting journals (Duh et al., 2008), (Lindquist and Smith, 2009), (Scapens and Bromwich, 2010), (Chenhall and Smith, 2011), (Lunkas et al., 2013). According to it, MA tools could be grouped into three groups :

- Control (including budgeting);
- Costs and costing;
- Others (including strategic tools).

The second is the classification used by CIMA in its 2009 empirical survey (CIMA, 2009). CIMA research uses the following grouping of management accountings tools:

- Operational;
- Managerial;
- Strategic.

Although there is no unified opinion about the essence, application and future of strategic management accounting, the existence and usefulness of strategic management accounting tools are not questionable. From the other side operating management accounting tools are well known and widely accepted by professional circles in theory and practice as the fundamental level of expertise. The managerial (tactical) management accounting tools are more questionable and lack dedicated research. But as they are included in CIMA empirical survey and they are used in practice, we do not exclude them. We base our conclusions on the second proposed classification.

3. Description of Empirical Research

Our empirical survey took place in the period 2013-2015. It was performed with the help of accounting students, during the time of their obligatory practical job experience, before the last year of bachelor education. Each student received a survey questionnaire in a Word form with the ask to help collecting data from their base job experience enterprise. They handed over the survey questionnaire to the person responsible for management accounting in the companies they visited and collected it back after completion. The period to answer the questionnaire was approximately one month. That longer period and off line form was needed, as the survey included many questions both for the demographic part and for the management accounting section. Each student was researching only one company. The organization of financial function is different in companies and could not be appointed in advance one and only person to who should fill in the questionnaire. In this aspect the personal presence of students was quite valuable. There were no stimulus and

sanctions for not giving back a filled in questionnaire. The survey was fully anonymous. We consider these conditions necessary for collecting truly authentic empirical data. Before the questionnaire was distributed, it was tested among 10 different professionals that have used management accounting in different aspects of their job obligations. After the survey questionnaires were collected there were conversations with 2 focus groups. Our conclusions were built upon the descriptive statistic and opinions expressed by the preliminary and post factum focus groups. The companies that took part in the survey and were not with control functions were 595 for the three years: for 2013- 261; for 2014- 277; for 2015- 57.

The questionnaire was built in two sections. The first section had 15 demographic questions. The second section has 30 questions with two aims: to clarify what is the perception of management accounting by professionals in practise and to investigate the practical usage of management accounting tools in Bulgaria. The demographic section data confirmed that the structure of questionnaires received is fully representative for the structure of Bulgarian companies. That gives us the chance to expand our conclusions on the scale of the whole country.

4. Results from the survey, concerning the application of MA tools

We present a small part of the whole range of empirical data collected- the ones concerning the application of management accounting tools. The information presented is limited by objective volume limitation of the paper. Most of questions demanded an answer in a Likert rating scale ranging from 5 (strongest approval or highest evaluation) to 0 (no acceptance and lowest evaluation of usage or importance).

There was a question asked which aspects of business activity of a company are included in MA with explicitly enumerated choices of operational, tactical, strategic aspects. In all three years the answers for all aspects gravitate around a median of 4 (using the Likert scale for individual answers). But although the median is similar to all aspects, the highest average evaluated answer is that management accounting is addressing strategic aspects of enterprise activity. This is a modern forward looking perception of MA- balancing between the three aspects, with slight domination of strategic one.

Another question aimed to evaluate the importance and usage of management accounting tools in the companies. The highest importance in all the years was given to Cost-volume-profit analysis, Budgeting, Budget control, Profit analysis for a product, client, market, contract (enumerated separately in the questionnaire), Customer relations management, ERP systems, Active staff engagement, Mission and vision, Strategic planning. Very low evaluation received strategic instruments like EVA, BSC, Transfer pricing management; Benchmarking, ABC costing and management, Target costing, Value chain costing and management, Lifecycle costing.

The fact that not all the instruments were evaluated by all survey participants was due to the lack of knowledge for many of the enumerated MA instruments. It was explained in the focus group sessions. This could give us a rating for the knowledge level of MA instruments. An interesting relation connects the highest Likert scale evaluation received with those instruments for which the highest number of participants gave some answers. We suppose that many MA instruments are not

highly ranked because they are unknown in practice. A side confirmation for that was the answer received for a question about the intention of companies to introduce new MA tools in the future. Most participants did not answer this question. The ones who answered, rarely had the intention to introduce strategic MA tools.

In detailed questions asked for costing, budgeting and budget control, pricing, cost- volume profit analysis, it was confirmed that mostly traditional MA operating instrument are used in Bulgarian companies. The importance of strategic aspect of MA is realized, but not used in practice.

5. Conclusion

Management accounting tools were mostly intuitively used by the greater majority of companies in Bulgaria, being small or medium sized ones. Professionals who had to deal with the management accounting problems, to choose management accounting tools, to search for new ones or more adequate ones, had humble knowledge for them. Managers underestimated the role of management accounting and had no vivid interest in developing it on a company level. The hard transitional process and world economic crisis slowed down the application of management accounting tools. It led to the application of management accounting tools that are more operational than strategic, more traditional than newly introduced, closer to financial accounting and combined often in a contradictory way. Our findings are intact with previous researches of management accounting practices abroad (Abdel- Kader, M., Luther, R. (2006), Kallunki, J.P., S. Moilanen and H. Silvola (2008), CIMA (2009, 2010), Albu, N., Albu, C.N. (2012), Mayr, S. (2012), Akmeşe, H., Bayrakçı, S.(2016)). Further details for the reasons of the status quo might be find out by investigating in a statistic way the factors that predetermine the use of management accounting tools. The conclusions, confirmed by our survey of the application of management accounting in Bulgaria, clearly defines the necessity of a broader education in management accounting not only for accountants, but for managers too.

Literature:

Abdel-Kader, M., & Luther, R. (2006). Management accounting practices in the British food and drinks industry. *British Food Journal*, 108(5), p. 336-357.

Albu, N., Albu, C.N. (2012). Factors Associated with the Adoption and Use of Management Accounting Techniques in Developing Countries: The Case of Romania. *Journal of International Financial Management & Accounting*, 23:3.

Akmeşe, H., Bayrakçı, S.(2016). A Research on Use of Management Accounting Tools and Techniques in Fast Food Operations: The Case of Konya. *RSEP International Second Multidisciplinary Conferences on Social Issues and Economic Studies*, November 2016, Madrid, p. 8-21.

Atanassova, A. (2015). *The state of Management Accounting in Bulgaria- empirical research results*, Steno, Varna.

Chenhall, R.H., Smith, D. (2011). A review of Australian management accounting research: 1980-2009. *Accounting and Finance*, 51, p. 173-206.

CIMA (2009). Kovachev, Ivan and Louise Ross. *Management accounting tools for today and tomorrow*. Retrieved July 26, 2017, from www.cimaglobal.com/Documents/Thought_leadership_docs/CIMA%20Tools%20and%20Techniques%2030-11-09%20PDF.pdf.

CIMA (2010). *Management accounting practices of UK SMEs*. Retrieved July 26, 2016, from <http://www.cimaglobal.com/Thought-leadership/Research-topics/Management-and-financial-accounting/Management-accounting-practices-of-UK-SMEs/>.

Duh, R.-R., Xiao, J.Z., Chow, C.W. (2008). An overview and assessment of contemporary management accounting research in China. *Journal of Management Accounting Research*, 20, p. 129-164.

Kallunki, J. P., S. Moilanen and H. Silvola (2008). *Western Management Accounting and Controls in Russian Firms: an Analysis of the Extent of the Use and its Influences*. Faculty of Economics and Business Administration, University of Oulu working papers, 27/2008, December.

Lindquist, T., Smith, G. (2009). Journal of Management Accounting Research: content and citation analysis of the first 20 years. *Journal of Management Accounting Research*, 21, p. 249-292.

Mayr, S. (2012). Management Accounting in Eastern Europe: Cultural influences and Empirical Evidences from Slovakia. *International Journal of Business Research*, 01/2012; 12(3): p. 161-169.

Scapens, R. (2006). Understanding Management Accounting Practice: A Personal Journey. *The British Accounting Review*, p. 1-30.

Scapens, R., Bromwich, M. (2010). Management Accounting Research: 20 years on. *Management Accounting Research*, 21, p. 278-284.

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INVESTMENT INCENTIVES AS A LOCATION FACTOR FOR FOREIGN DIRECT INVESTMENTS IN SLOVAK REPUBLIC

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Abstract: *The present article discusses the role investment incentives play in the location decision making process of the foreign direct investment (FDI) projects, focusing on the case of Slovak republic. The purpose of the paper is to justify (or oppose) the statement that state aid effectively attracts FDI and companies recognize them as a factor that significantly affects destination investment of the investment. We test this theory by examining the database of potential as well as realized FDI projects from an official investment promotion agency of the Slovak Republic SARIO. Using this data, the paper analyses and statistically evaluates the main factors each company is considering in decision making process and, in the case of realized investments, it quantifies and proportionally evaluates the cases when the state aid was the factor that eventually shifted the decision for the given location.*

Keywords: *Foreign direct investment, investment promotion, FDI attraction, investment aid, investment incentives.*

JEL classification: F21, F23, P33

Grant affiliation:

1. The importance of research of investment incentives

Investment incentives are an essential element of many countries' investment promotion strategies. This is also the case of Slovak Republic, where during the time period of 2002-2016 more than 1.7 billion EUR was allocated to support 177 investment projects. This aid was distributed among 148 business entities and all supported activities are to create more than 57,000 jobs. The average cost of one committed job created was more than 30,000 EUR (Ministry of Economy of the Slovak Republic, 2017). From the broader perspective, the estimated amount of investment aid provided in the European Union (EU) in 2015 almost reached 10 billion EUR, while the annual average value of the investment incentives provided in the period 2000-2011 was approximately 11.5 billion EUR (European Commission, 2016). From a global point of view, it is logical to talk about even higher

amounts - the latest available data on the global provision of investment incentives from the World Bank indicates that in 2003 the total amount of aid provided as investment incentives was slightly below € 300 billion. USD (World Trade Organization, 2006).

On the top of that, the number of countries offering investment incentives to foreign and domestic investors is increasing as well as the number of schemes for this purpose. As James argues in his work on the phenomenon of incentives in the world, this form of aid is used in almost every country in the world. His study presents the occurrence of different types of tax incentives among 136 examined countries (James, 2013). A further study by the American economist Oman showed that the number of states in the United States of America (USA) offering different types of incentives doubled between 1977 and 1996 and this trend was also observed with regard to the average number of investment aid programs (Oman, 2000).

Values and numbers stated above are clear evidence that investment incentives play an important role in the world economy. However, little research has been devoted to this issue. It is true, that the available studies usually provide a very detailed overview of the main factors affecting the location of the FDI. In most cases, the most challenging determinants (or so-called 'basic FDI factors') are for example market size, nature and availability of labor, labor costs, general price levels in the country or others. On the other hand, the investment incentives, as one of the factors that play a role in deciding on the localization of the investment, is dealt in substantially less literature. However, the practice shows that the provision of such type of support by the state is becoming more and more frequent, and there are only few countries in the world that compete for FDI without official investment aid schemes, as evidenced by the statistics of various international organizations, such as the WTO (World Trade Organization, 2006).

2. Aim of the research and methodology

The main goal of the present article is to examine to what extent investment incentives can be described as an effective and appropriate FDI policy tool. It statistically evaluates the importance of investment incentives in the decision-making process of multinational companies, which assesses Slovak Republic as a potential destination of their investment project. The research relies on the basic and most frequently presented definition of investment incentives, which implies that their primary purpose is to attract FDI and thus influence investor decision-making in favor of the particular location or country.

Considering the goal stated above, we plan to evaluate the data provided by Slovak Investment and Trade Development Agency (SARIO). The agency evaluates and surveys each investor when it comes to specific factors which should have the greatest impact on the investment location decision as well as whether the investor is interested in receiving the investment aid. In case of realization of the investment, the Agency also has the information on whether the state aid was a factor that eventually shifted the decision for Slovakia. In this regard, we classify investment projects into three categories and subsequently analyze each of them: 1. ongoing projects – an investor is still assessing number of countries and is still in decision making process; 2. accomplished projects – the

investment was realized in Slovak Republic; 3. non-implemented projects – the investment was realized in another country or was not realized at all.

From the perspective of the analyzed timeline, we evaluate accomplished and unsuccessful projects within the time period between the years 2010-2016. As per ongoing projects, there is no limitation in terms of timeline as the projects are continuously 'active'.

The presented methodology has some limitations – first of all, it should be noted that not every investor asking for investment aid is inevitably in contact with the investment agency (this applies only in countries where this agency plays the role of the administrator of investment aid applications, which is for example the case of the Czech Republic). Therefore, such cases are not covered by our statistics. Nevertheless, we still assume that the number of investment projects supported by SARIO agency is a sample representative enough to draw conclusions.

3. Results of the research

We start by evaluating ongoing projects, which is currently at number 75 (June 2016). Based on information provided by SARIO, huge majority of investors declare their interest in state aid, or at least their interest in receiving an information about how the state aid scheme works and what is the probability of support for their project. This is the case in 84 % of all investors currently assessing Slovak Republic.

TAB. 1: Interest in investment incentives, currently ongoing projects

Type of projects (period)	Investors that declare interest in receiving state aid	Investors not interested in state aid
Ongoing projects (x-2017)	63	12

Secondly, we analyze projects successfully realized in Slovakia. This indicator is therefore more 'realistic' than the previous one as the projects are actually being realized (or already have been realized) and we can exactly evaluate the role of investment incentives in their realization process. We presume that if investor has decided to invest in Slovak Republic and applied for state aid at the same time, it is possible to draw a conclusion that investment incentives have had real weight in the decision-making process.

Total number of successfully realized projects in Slovakia between the years 2010-2016 was 53. Out of this number, 37 companies did not apply for state incentives and 16 did (which accounts to only 24.5%).

TAB. 2: Submitted applications for state aid, projects successfully realized

Type of projects (period)	Investors that did apply for state aid	Investors that did not apply for state aid
Successfully realized projects (2010-2016)	16	37

Lastly, we evaluate unsuccessful projects, e.g. the projects that were not realized in Slovakia or were not realized at all. This is the largest category of with almost 450 entries and the reasons why projects were not realized vary. Generally, these reasons could be classified into following categories: 1. project was not realized at all (various reasons); 2. project was realized in another country (various reasons); 3. investor stopped to communicate with the agency and there is no feedback (no reason stated).

TAB. 3: Reasons for non-implementation of the projects

Type of the project (period) / Reason	Project not implemented at all		Project realized in another country			No feedback from the investor
	State aid as a factor	Other factors	State aid as a factor	Cost levels as a factor	Other factors	
Non-implemented projects (2010-2016)	33	133	13	22	51	205

4. Conclusion

The importance of research of the role of investment incentives in the decision-making process of investment localization stems from the often-presented views that investment incentives are ineffective (and therefore inefficient) because they do not have a real impact and investors do not consider them a factor that fundamentally influencing their decision. In this logic, some authors argue that the countries subsidize projects that would end in the country even without support.

Therefore, the present study aimed to verify the importance and the role of the investment incentives in FDI decision making process of multinational companies. By the data provided by official Slovak investment promotion agency SARIO, we assessed how many companies looking to invest in the region indicated it as a factor influencing the final location of the investment.

Based on the result of our statistical evaluation of ongoing projects, we can clearly state that investment incentives are one of the factors being assessed by multinational companies and the data about probability of the support and intensities are part of investment feasibility studies for majority of investors (84 %).

This becomes clearer by assessing the projects actually implemented in the Slovak Republic. The ratio of projects applying for state aid versus projects being realized without requesting government support is much different as only 16 out of 53 investors submitted their application for investment aid to Ministry of Economy (equating to 24.5 % of all successfully realized projects).

Evaluation of non-implemented projects draws another interesting conclusion. First of all, huge number of investment enquires that are dealt by the agency ends with unclear status as investor provides no feedback on the development of the project (almost 49%). These cases were therefore excluded from our calculation. From the perspective of incentives, only 46 out of 252 projects were

not implemented in Slovak Republic (or not implemented at all) because of the state aid as a factor. Investors were either not eligible for the support in Slovakia or there was higher probability and intensity of support in another country. In majority of cases (133 out of 252), projects were not implemented at all due to other reasons. This can be explained also by the fact that year 2010, which is included into analysis was the year when large number of projects was postponed or cancelled due to global economic crisis and negative outlooks of the companies.

Nevertheless, the data clearly show that majority of investors looking to invest in Slovakia evaluates options of state aid and thus, this determinant is part of their evaluation process. However, examining the actual state-aid-application rate as well as assessing the reasons of non-implementation of the projects, the paper finds that investment incentives as a location factor are usually not considered as being crucial, but more as a 'nice to have'.

Literature:

Ministry of Economy of the Slovak Republic (2017). *List of business entities authorized to be provided by the regional investment aid*. Retrieved June 24, 2017, from <http://www.economy.gov.sk/zoznam-podnikatelskych-subjektov--ktorym-bolo-schvalene-poskytnutie-regionalnej-pomoci-1/146712s>.

European Commission. (2017). *State Aid Scoreboard 2016: Aid by main objectives in 2016 constant prices (Absolute amounts)*. Retrieved June 23, 2017, from http://ec.europa.eu/competition/state_aid/scoreboard/index_en.html.

World Trade Organization. (2006). *World Trade Report: Exploring the links between subsidies, trade and the WTO*. Geneva. Retrieved June 27, 2017, from https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf.

James, S. (2013). *Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications*. Washington, Investment Climate Advisory Services of the World Bank Group.

Oman, C. (2000). *Policy competition for foreign direct investment. A Study of Competition among Governments to Attract FDI*. Paris, OECD.

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KAREL ENGLIŠ'S VIEW ON COMPETITION

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Abstract: *The paper first describes the understanding of the protection of competition towards the end of the 19th and in the first three decades of the 20th century which was different from the current conception. It then discusses the opinions of an outstanding Czechoslovak liberal economist and politician, Karel Engliš (1880–1961), on competition. Engliš defined the individualism and solidarism economic systems in theoretical terms, as well as the relation of the state to competition. He explained the attitude of the contemporary science of economics to syndicates and cartels.*

Keywords: *Economic systems, competition, market, cartels, syndicates.*

JEL classification: *B 25, B 40, B 53*

Grant affiliation: *Project GACR No. 17-07252S Analysis of the legal regulation of the competition in the Czech Republic in the legal-historical context and international theoretical comparison.*

1. Introduction

The purpose of the paper is to analyse the opinions of Karel Engliš, an outstanding liberal economist and politician, in the context of competition and cartel agreements as understood towards the end of the 19th century and in the first three decades of the 20th century. His economic theory was based on the Austrian School which rejected any state interventions, including interventions aimed at the protection of competition. On the other hand, he could not ignore the economic context of the crisis of the 1930s and increased state regulation. In addition, the views on competition, syndicalisation, cartel agreements, and their legal regulation differed radically at that time from the current conception of competition.

2. The understanding of competition at the turn of the century

At present, it is an accepted fact that monopolies are subject to regulation and that cartel agreements are void and subject to sanctions, but this was not always the case, as European views

on competition were radically different for a long period of time. In the 19th century Austria was the only country in Europe where cartel agreements were regulated by Coalition Act No. 3/1870 ř.z. Under this act, agreements could be voided only if a member of the cartel claimed that the agreement was invalid. In practice cartels were not sanctioned, in fact they were considered private agreements between entrepreneurs. In the 1890s cartels dominated all key German and Austro-Hungarian industries. Cartels were understood exclusively as official written agreements between direct competitors on the same level of the market, i.e., horizontal agreements, and such agreements were commonly made.

In Czechoslovakia discussions on the role of cartels began at the beginning of the 1930s. The expert discussion was brought about by the global economic crisis as well as the calls, by theoreticians, for interventions of public (state) power in the national economy and, last but not least, by the preparation of a law regulating the position of cartels.

It was Act No. 141/1933 Sb. z. a n., ("the Cartel Act"), that entered into effect of 1st September, 1933. Section 1 of the act defines cartel agreements as agreements of independent entrepreneurs whereby the contracting parties undertake to limit or exclude free competition among them by adjusting the conditions of production, sales, commercial terms, prices, or rates, and the purpose of the agreements is to gain control of the market in the most efficient manner. According to the Cartel Act, such agreements were valid if made in writing and registered in the cartel register kept by the State Statistical Office. Hence the conception prevailed that cartels are acceptable in the economy if they are kept under control and if the benefits for society (cost savings, optimum pricing, minimum losses due to production volumes agreed in advance, etc.) outweighed the drawbacks.

3. A brief biography

Karel Engliš was born in Hrabyně near Opava in Silesia on 17 August 1880. Between 1899 and 1904 he studied law at the Czech Law Faculty of the Karl-Ferdinand University in Prague. In addition to law, he focused on the theory of economics. In 1918, in his capacity as a Deputy in the Czechoslovak Parliament, Engliš substantially contributed to the founding of Masaryk University, and its Law Faculty, in Brno. His academic position as a full professor of economics continued until 1939. Starting in the mid-1920s, Engliš had a substantial influence upon Czechoslovak fiscal and monetary policy; he was appointed the Minister of Finance between September 1920 and March 1921 and between 1925 and 1931. He acted as the Governor of the National Bank of Czechoslovakia between 1934 and 1939. In 1939, Engliš moved to the Law Faculty of Charles University in Prague as a professor; on 21st April 1947 he was elected rector of Charles University. However, after the Communist coup d'état in February 1948 Engliš was compelled to resign. He died in Hrabyně in 1961 (Vencovský, 1997, pp. 194-199).

4. The economic systems, competition, and market

Despite his engagement in high political and economic posts, Engliš remained very active in his academic career. Karel Engliš came from the Austrian School (Bažantová, 2016), but went beyond its

limits and became a founder of a new teleological school of economics sometimes denoted as the “Brno School”.

In his concept of economic systems Engliš (1938, 1946b) distinguished between two fundamental theoretical systems – individualism and solidarism; he provided three model examples of the economic functioning of a society within their framework. Individualism may assume an individualist-capitalist nature, or a nature of individualist and national cooperation (ethocratic). In solidarism only one model – solidaristic – is practicable. “Here there is a fundamental difference between the individual as agent exercising care for himself and as the object of care exercised by someone else.” (Engliš, 1946a, p. 45).

Engliš considered the “individualism” economic system to be the only possible realistic system, what is more, he considered it to be the most effective and democratic. “If an individual is to exercise care for himself he must be free to acquire resources (i.e., labour as productive activity), to use his resources (i.e., to consume), and he must have control of his resources (control of things is ownership).” (Engliš 1946a, p. 46).

4.1. Individualism

In the circumstances of specialised production, business may be conducted only if the markets are operating properly. A purely individualism-based state ensures the proper operation of markets by providing the “transport rules”, such as units of measurement and weights, currency, forms of contracts, legal certainty, etc., and leaves the rest up to private initiative. The state has primarily a legal and organisational role in relation to the market (organisation of exchanges, prohibition of certain types of transactions, enabling and support of fairs and international exhibitions).

Free competition is beneficial to the growth of productivity and helps to make production cheaper, if the product is both good quality and cheap. If an individual buyer is intentionally misled concerning quality (referred to as unfair competition by Engliš) or concerning price (Engliš refers to this as usury), the state combats both (by punishment, fine, withdrawal of trade licence). This protects the consumers as well as fair producers.

The common conduct of business is based on private initiative and does not require incentives from the state. The aim of the state is to keep private initiative within reasonable limits. The state supports specialist education through a system of schools and prevents the entry of unqualified persons on the market through the use of trade permits and by other similar means in areas requiring trustworthy licensees (pharmacy, ammunition, etc.).

5. Restraint of competition

Neither Engliš’s theoretical books nor his course books could ignore the economic reality. In an individualism system of a capitalist nature or even individualism with elements of cooperation (cooperatives and cooperation within public sector) there are, according to Engliš, elements of partial solidarism (1938, p. 27 et seq.) and the role of the state and state policy becomes more active. The state attains its aims by orders and prohibitions, the legal order, and/or the state economy. This

changes the essence and functions of the state as opposed to a pure individualism system (Engliš 1932, p. 116).

Engliš explained (1938, p. 445) the existence and functioning of natural monopolies as public (state-owned or national) enterprises (railroad transport, mail). The purpose is to satisfy public needs that would not be satisfied by individual business activities motivated by making a profit. The existence of national enterprises may also have historical reasons (agricultural property of a monarch, *jus regale*, the original exclusive rights of the monarch) or defence and security reasons (national forests, mail, telegraph, telephone, radio). Even in such cases it is necessary to balance costs and income and to rationalise. Insufficient rationalisation of public administration reduces its productivity.

The efficient operation of the economy requires prices to be created on the market in free competition, on the basis of free contracts. There are exceptions, however. A price created in free competition is not appropriate in emergency, in war, and in autarky preparing for a war. The state must maintain lower prices and distribute goods on something other than the market principle (e.g., bread coupons, centres for distribution of raw materials, coal, metals). A competitive price is not appropriate for residential leases in the case of high inflation, the state should not allow rents to be increased in proportion to currency devaluation (Engliš 1938, p. 634).

5.1. Syndicates and cartels

According to Engliš (1938, p. 633), the state sometimes also accepts a higher price than that created in free competition. A typical example is a syndicate. The first and foremost purpose of a syndicate is to maintain a higher sales price than the price that would be created through competition. Syndicates work in cases where production is concentrated in a small number of large companies, because it enables the companies to maintain the agreed price (price cartel) and production volume through consent, self-discipline, and order. The state showed a legal indifference towards syndicates and the cartel agreements of private entrepreneurs. It neither punished them, nor protected them, it did not enforce compliance with such agreements, and hence syndicates existed only due to the discipline of their members, who benefited from compliance with the agreements.

Such attitude of the state was explained by Engliš as follows: "At first cartels brought only increased prices, worse conditions for buyers and consumers, and reduced productivity, which is brought by every deviation from the free market price at equilibrium, and later they brought order and discipline in production, reduction of deadweight loss, division of labour, and so forth. Such an arrangement excluding overproduction and crisis caused by overproduction started to be appreciated as a positive effect of production syndicalism as opposed to its negative effect on prices." (1938, p. 454). Cartelisation in foreign trade contributed to balancing price differences and supported exports, which was explained by Engliš through the examples of the sugar cartel, grain monopoly, or alcohol monopoly.

Engliš (1938, p. 455) showed that the "[s]yndicate becomes an instrument of state policy" in the example of the United States. The development there progressed from a ban on syndicates in the Sherman Act to the forced syndicalisation introduced by Roosevelt's New Deal, which was designed to address the global economic crisis of the first half of the 1930s. The state thus becomes responsible for the positive as well as the negative aspects of syndication and it has no other option

than to become directly involved in the administration and management of syndicates and to seek or enforce respect for the interests of the national economy and social welfare.

6. Conclusion

Since the time of Adam Smith, the science of economics has considered the individualistic system as the main domain of its theoretical research, and economic policy was considered an applied science. The elements of a social system depend on the economic and political opinions of those who rule the nation, and therefore also on the political construction of the state government. According to Engliš (in 1936) it is impossible to forecast the psychological development of the mankind, however, based on the development to date it is possible to conclude that the development from individualism towards cooperation and solidarism is in progress (Engliš 1938, p. 725). This is why Engliš focused on the analysis of various economic systems and views on competition.

Literature:

Bažantová, I. (2016). *Czech economist Karel Engliš and his Relation to the Austrian School in the First Half of the 20th Century*. Prague Economic Papers, 25(2), 234-246.

Engliš, K. (1932). *Theorie státního hospodářství*. Praha: F. Topič.

Engliš, K. (1938). *Soustava národního hospodářství*. Vol. 2. Praha: Melantrich.

Engliš, K. (1946a). *Národní hospodářství*. Praha: published by the author.

Engliš, K. (1946b). *Hospodářské soustavy*. Praha: Všehrd.

Vencovský, F. (1997). *Dějiny českého ekonomického myšlení do roku 1948*. Brno: Nadace Universitas Masarykiana.

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AGE MANAGEMENT AND ITS IMPACT ON BUSINESS ACTIVITIES. CASE STUDY IN A SELECTED COMPANY OF THE CZECH REPUBLIC

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Abstract: *The proportion of older people is growing at the expense of the declining proportion of productive population. Based on this fact the aim of the presented study was formulated. The main aim of this paper is to suggest ways of application of age management and to analyse its impact on business activities. The result of the case study in a selected company of the Czech Republic has proved the interest in the implementation of age management. In order to solve the research task, there were used quantitative and qualitative methods. The sample of the quantitative research consists of 184 respondents in the selected company. All respondents filled questionnaire focused on their perception and experience with age management. The research was complemented by qualitative analysis of 4 depth interviews with the management of the selected company, which were analysed by qualitative software MAXQDA. Theoretical and managerial implications of these findings are discussed.*

Keywords: *Age management, aging, working ability, business, human resources.*

JEL classification: J10, J11, J14

Grant affiliation: *This paper was supported by The Ministry of Education, Youth and Sports, Prague, Czech Republic: LD – COST CZ, project: LD15065 titled Gender dimension of active aging implementation in the Czech private and public sector in comparison with western countries.*

1. Introduction

Aging is a concept which is gaining prominent role today. According to (Vernon, 2010), aging is one of the most important problems in the world. This phenomenon affects various areas of public life. The length of employment in aging people is also discussed. There are two different points of view to this problematic. One is the senior's perspective, the other one is the macroeconomic point of view. If the Czech Republic's economy is to be growing, and the pension system stable, the potential of older employees will have to be used, too. As proved by Špírková et al. (2015) the crucial factor for an enterprise to be successful is social capital and social innovation. This will necessitate changes in the

way the employers view their elderly employees and their professional capacity (Rašticová et al., 2013, see also Putnová, 2014). Fabisiak and Prokurat (2012) have pointed out that age management can be examined from the individual, organization or macroeconomic labour market policy perspective. Their findings confirm that recruiting, training, development and promotion of employees' age optimization, implementing lifelong learning programmes, health and safety programmes and flexible forms of employment could be the main measures and tools to maintain the core competencies and competitiveness in organization. Aging is also associated with new human resource management problems. The growing percentage of elderly people shows that attention should be paid to issues such as equal employee's opportunity assurance (Dromantiene, Kanapiene, 2004), workforce labour shortages, staff attracting and retaining (Loomes, McCarthy, 2011), avoidance of valuable institutional knowledge losses (Davidson et al., 2007). Age management and age diversity should be the concern of all the key actors in the labour market, including government, employers' organisations and trade unions. At the heart of this concern is the employment contract: the relationship between workers and employers. If employers have a duty to create the conditions in which individuals can manage their own careers and aging, then workers themselves have a parallel duty to take advantage of all opportunities to improve their workability.

2. Method

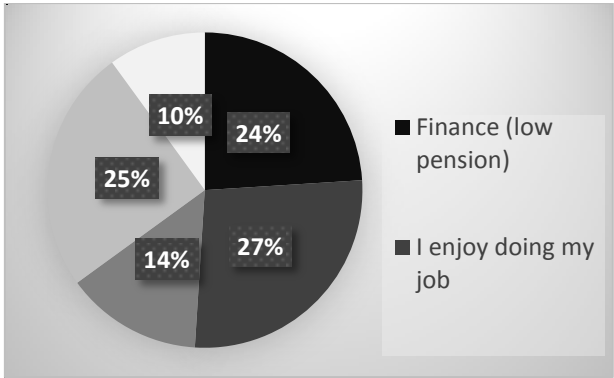
The main aim of this paper is to suggest ways of application of age management and to analyse its impact on business activities. In order to solve the research task, there were used quantitative and qualitative methods. The quantitative questionnaire has been designed in a way that it would allow to analyse main age management dimensions which are important at the organizational level. The total sample of respondents was 184, from which 64% of respondents were male and 36% were female. The age of respondents ranged between 18 and 64 years. The greatest part was created by respondents in the age of 35 to 44 years, in total there was 35%, 26% of respondents was in the age of 45 – 54 years, 23% of respondents was in the age of 25 – 34 years, 12% of respondents was in the age of 55 - 64 years and 4% of respondents were younger than 24 years. Results of the quantitative research was described by descriptive statistic. In order to better reflect the given issue, there was also chosen a qualitative research. Based on studying of secondary data, there were set up questions for a semi-structured interview, which was carried out with 4 managers of the selected company. The interviews were rewritten and analyzed by the grounded theory. The interviews were subsequently analyzed by the qualitative software MAXQDA, designed for the data processing of the qualitative research, enabling simple sorting, structuring and analysis of a large quantity of text by a code of segment. Based on the relationship between the area and sub-areas, there is illustrated the strength of interconnection by MAXmaps.

3. Results

Figure 1 shows whether respondents were willing to remain in the labor market after reaching the age of 65 and for what reasons. The answers were very divided with 52% advising they were not willing and the remaining 48% willing to accept the idea that they would remain in employment. The

following figure 1 shows the reasons for staying in employment, most often it was love for the job or the concern of becoming inactive in older age and lacking a professional and personal direction. In "The other reasons" category lists responses to the fact that these respondents would certainly go to the pension right as soon as they were entitled to it.

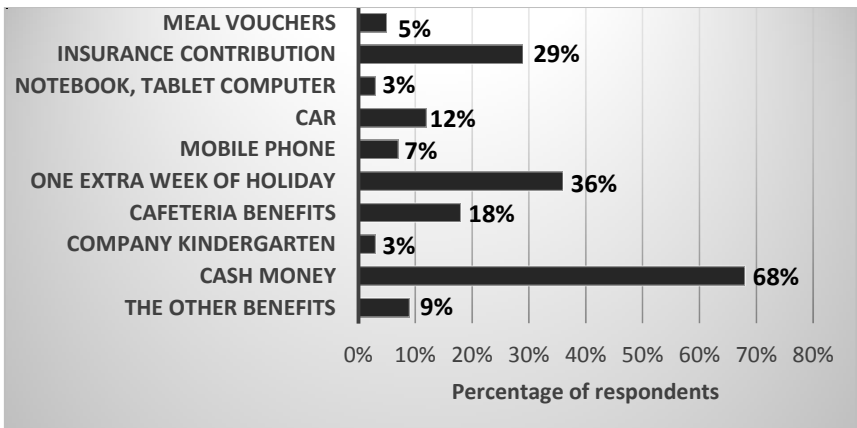
FIG. 1: The reasons for staying in the labor market



Source: Own research

Generally for employers it is extremely important to know how to stimulate their employees and what makes employees feel motivated. As is evident from, figure 2, the majority of respondents listed money as the highest motivation. The other favourite forms of motivation include one extra week of holiday, insurance contribution or material benefits. Respondents also expressed an interest in a „Cafeteria benefit system“ which allows employees to choose their benefits individually according to them. Participants in this questionnaire were also able to present their own answers to the question of motivation. In a few cases, respondents expressed an interest in sharing the success of the company as a whole through employee shares as well as career growth and progression. The last tool of motivation is commendation, respondents would appreciate being praised more and treated with regard and respect.

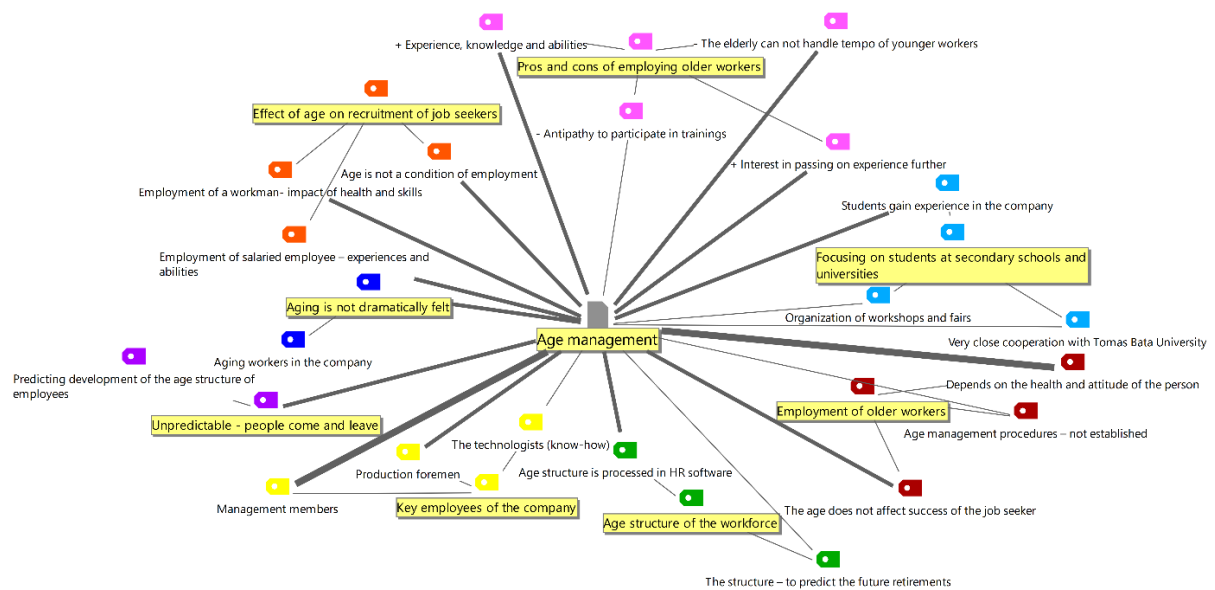
FIG. 2: The best forms of employee’s motivation



Source: own research

In relation to age management, it has been investigated how the company plans the quota of employees ahead of time and also predicts the development of the age structure. As the aging of the workforce is already felt in the company, in the opinion of the interviewed managers, older worker development was very important. Figure 3 shows that focusing on the management of an aging workforce takes a very positive stand on the employment of older workers. Throughout, members of management specifically noted that it always depends on the individual attitude and health of the job seeker whether or not the worker responds to this type of management.

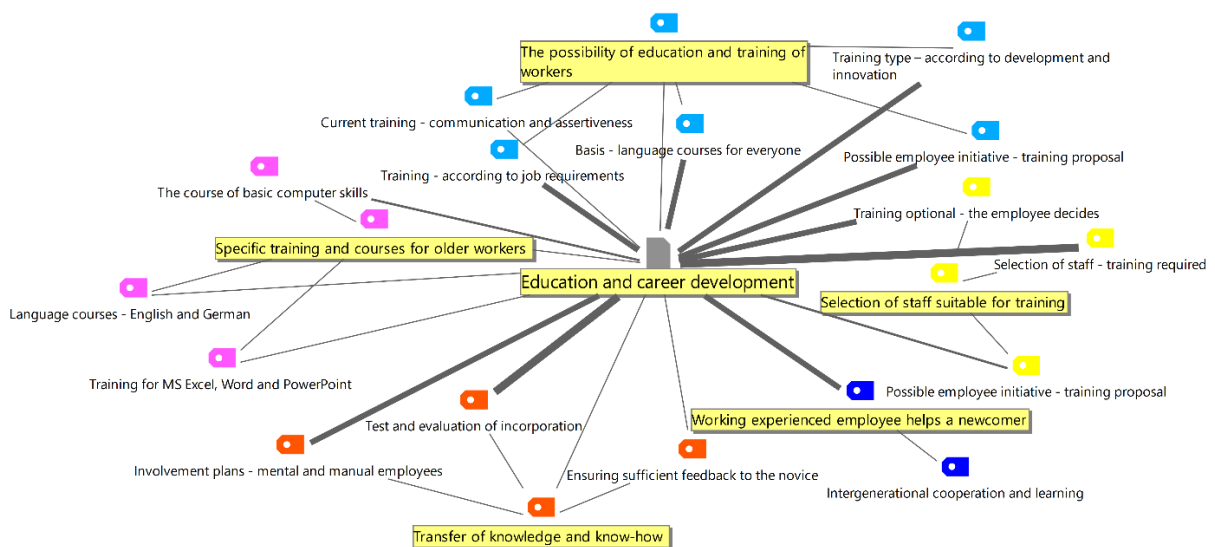
FIG. 3: MAXmap of Age management based on qualitative research



Source: Own research

Figure 4 shows that the company provides a very wide selection of courses based on language and other courses are offered in relation to job position and interest. The employees are not obliged to attend the courses but are encouraged to design a training course they consider to be beneficial for their professional development. The company's goals are to give its employees new experiences and intergenerational cooperation to facilitate the process of training new staff.

FIG. 4: MAXmap of Education and career development based on qualitative research



Source: Own research

4. Discussion

Based on the results are suggested several ways of application of age management and analysed its impact on business activities.

- Cooperation with the personnel agency: The advantage of working with human relation is to leave all recruitment activities in experienced hands, which will undoubtedly save time.
- Creating the company websites: The company would be able to present the imported changes on its website as an age management program to increase overall reputation and image. Among other things, corporate websites would serve as a place to communicate the company news, attractions and organized trade fairs.
- Retraining courses: Nowadays many production plants face the lack of job seekers or their lack of skills. One of the solutions lies in training applicants with basic technical knowledge for the respective job position.
- The "Internal Mentor" programme: Another suggestion for training newcomers is the use of older and experienced employees as their mentors. The correct transfer of knowledge and experience is very important for the company, and moreover, they will create other positions in the company to shift employees to the senior.
- Training for older workers: This training would be targeted at the workers over 50 with a focus on computer and technical skills. Participation in training for employees is obligatory, mainly because we encounter the reluctance of older employees to use the offered forms of education.
- Paid leave for studying workers: This proposal for implementation of age management aims to support employees who are planning to expand their education or are currently studying.

- Competition for "Employee of the year": This type of competition, organized by the company, is a good tool for increasing motivation and also work efficiency.
- Hiring an other human resource officer: All proposed changes are undoubtedly administratively very demanding so it is essential to consider the admission of another staff member to the department of human resources. In case that management does not take this into consideration, the implementation of age management may fail before it actually begins.
- Benefit system "Benefity Café": This system serves to manage employee benefits. Practically, it works by allocating the amount to an individual worker, creating a list of employees who are entitled to benefit, and pass it on to „Benefity Café“. After that, employees within the budget can begin to order the benefits they are most comfortable with.
- Job sharing: Job sharing allows the older employees to stay in the workplace and at the same time enjoy their spare time for retirement. The biggest drawback of this proposal lies in the poor communication between the employees who share the job. The employees must define their competencies and tasks from the beginning and crucially set a checklist of duties and targets for the respective shift.
- Earlier departure from the work: This proposal allows workers with children to leave their work earlier once a week. The length of time that the worker leaves the job earlier would need to be completed the following week. However, it might be a partial solution to reconcile personal life with work, giving employees time to have their personal rest or spend the afternoon with their family.

Literature:

Davidson, G., Lepeak, S., Newman, E. (2007). *The Impact of the Aging Workforce on Public Sector Organizations and Mission*. International Public Management Association for Human Resources.

Dromantiene, L., Kanapiene, V. (2004). *Demografinis senėjimas ir socialinė politika pagyvenusiams*. Socialinis darbas, 3 (2), 12–23.

Fabisiak, J., Prokurat, S. (2012). Age Management as a Tool for the Demographic Decline in the 21st Century: An Overview of its Characteristics. *Journal of Entrepreneurship, Management and Innovation*, 8, 83-96.

Loomes, S., McCarthy, G. (2011). The aging workforce: how can Australian universities address future workforce challenges? *25th Annual ANZAM Conference 2011*. Wellington, New Zealand: ANZAM.

Putnová, A. (2014). *Can a Social Audit Prevent a Company from Going Bankrupt?*. In *Crafting Global Competitive Economies: 2020 Vision Strategic Planning & Smart Implementation*. IBIMA. International Business Information Management Association (IBIMA), 2014. (pp. 1663-1669). ISBN: 978-0-9860419-3- 8.

Rašticová, M. et al. (2013). *Age Management: Actual Challenges and Promising Solutions Regarding the Aging European Population*. Brno: Akademické nakladatelství CERM.

Špírková, D., Caganová, D., Manan B. (2015). *The Social Capital Influence on Entreprises Competitiveness in V4 Countries*. Ed. Juan Gabriel Cegarra Navarro: Proceedings of the 7th European Conference on Intellectual Capital hosted by Technical University of Cartagena, Spain, 9-10 April, 2015, (pp. 314-323). ISBN 978-1-910810-01-9.

Vernon, K. (2010). *Aging: Impact on Companies in Asia*. Diversity & Inclusion in Asia Network. Community Business.

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CSR AND ITS EDUCATIONAL POTENTIAL FOR ECONOMIC SUBJECTS

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Abstract: *The European Strategy emphasizes the educational aspect of CSR (Corporate Social Responsibility) which is one of its primary tasks for the economic subjects. The aim of the paper is to evaluate the content, core, and scope of the CSR concept in relation to its educational possibilities. A systematic overview of primary studies by data collection methods of the qualitative and quantitative content analysis was the methodological approach. The basic research question was in which scientific disciplines the CSR concept is included. The selection of data from 75 papers based on predefined categories was recorded in the coding book. This was the basis for the quantitative and qualitative evaluation of the content, scope, and core of the CSR concept as an educational tool. The outcome of the analysis has revealed that the core of CSR is embedded in scientific disciplines in economics and management, however not in andragogy. The CSR concept takes the andragogic significance in its content and extent from which the educational potential of CSR can be derived for economic subjects.*

Keywords: *Corporate Social Responsibility, primary research, economics, management, andragogy.*

JEL classification: *M12, M14*

Grant affiliation: *Innovation voucher: CZ.01.1.02/0.0/0.0/16_045/0007362.*

1. Introduction

Corporate Social Responsibility (hereinafter CSR) is interpreted as a shift in the perception of the organization's role from the level of "profit" to the level of 3Ps – "profit, people, planet". 3Ps represent the requirement to focus the organization beyond its main economic activity ("profit") as well as on social development ("people") and environmental protection ("planet"). CSR is related to the issues of business economics, organization management, public interests, ethics.

The definition of the European Union: "... describe it as a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis ..." (COM, 2001), it characterizes CSR as the accepting of commitments above the legal framework. The voluntary acceptance of CSR by organizations and, at

the same time, the community-wide need for responsible attitudes go against each other and create an interesting reality. Therefore, the EU's goal (COM, 2001) is to promote CSR, educate, provide consultancy for companies, create networks and formulate CSR principles.

CSR is a social phenomenon that accompanies an adult as a citizen, employee, public official, manager, professional. The scientific discipline of andragogy deals with mediating the understanding of the social phenomena. It can be assumed that there is a relationship between the andragogy and CSR.

Andragogy (Bartoňková, 2001, Beneš, 2008, Šimek, 2006) covers the thinking about upbringing and education of adults. Its subject is an adult learner and learning in all its aspects. Andragogy is multidisciplinary in viewing adults and it does not isolate the adult learner from his work and social roles. Andragogy helps people to cope with changing demands of society. It is aimed at supporting the practice, identifying themes from the practice and thus it influences the practice. It influences it directly – an innovation of education methods or organization management, indirectly - consulting and expert activities, mediately - training of the qualified staff in adult education. The education is a tool which helps the adult to cope with demands of life, to enable solve problems of the society and to prepare adults for these solutions.

2. The Role of Andragogy in CSR – Research

The main aim of the research is to find and name the relationship between the CSR concept and the scientific discipline of andragogy. In more detail, three research questions have been dealt with in the stages:

1. How is the CSR concept grasped in science, 2. what is its content, core and scope, 3. what is its relation to andragogy?

The professional interpretation of the CSR concept lies in the statements and opinions formulated by CSR specialists. The research works with reviewed texts presented in scientific publications (Greenhalgh, 2003). The basic research file included 128 full-text papers from around the world from 1953 (introduced by H.R. Bowen) to 2010 when CSR is already infiltrated in practice. The specified research criteria complied with 75 papers in English (Pokorná, 2012).

The research design is a systematic review (Greenhalgh, 2003). The evaluation of the content of the papers was done by the quantitative method of analysis. The basis was the work with the coding units recorded in the coding book (Pokorná, 2012) and their subsequent analysis. This analysis was complemented by analysis based on qualitative data evaluation. The initial scientific disciplines for the CSR concept are economics, management, ethics, politics, and adult education. The relationship of CSR and Andragogy can be manifested at different levels of interdependence:

1. in the core of the CSR concept given by the way of CSR definition in the papers, 2. in the content of the concept given by topics of papers, 3. in the scope, i.e. in the wider understanding of CSR given by the key theories.

2.1. Quantitative Research

The research related to the first research question focused on: source and place of publication, year of publication, author according to the name, nationality and expertise, topic of papers according to scientific disciplines, key words and the so-called authorities (most cited authors in literature references - at least 10x reference to the same publication), type of paper, the definition of CSR according to the originality and the author.

Worldwide, CSR is a scientifically grasped concept, particularly in the fields of economics and management, with andragogy having a marginal representation in these results:

- there are published papers in the type of case studies (6.67%), which prove that the CSR concept is also processed for the needs of studying, teaching, transfer of “best practice” and know-how;
- the largest number of authors according to the expertise are economists (35.92%) and managers (34.51%), ethics, political scientists and andragogs are involved serenely 2-5% (three andragogs from the field of corporate education);
- andragogic terms repeatedly occur among the key words - theory of the potential, case study, moral motivation, learning, attitudes of employees, typology of employees, learning and research, educational institutions, students, legitimization, entrepreneurial education, socialization.
- According to the analysis of the paper topics, right after economic (38.67%) and managerial topics (21.33%) are equally represented andragogic and ethical topics (10.67%), the least represented are political topics (6.67%).

2.2. Qualitative research

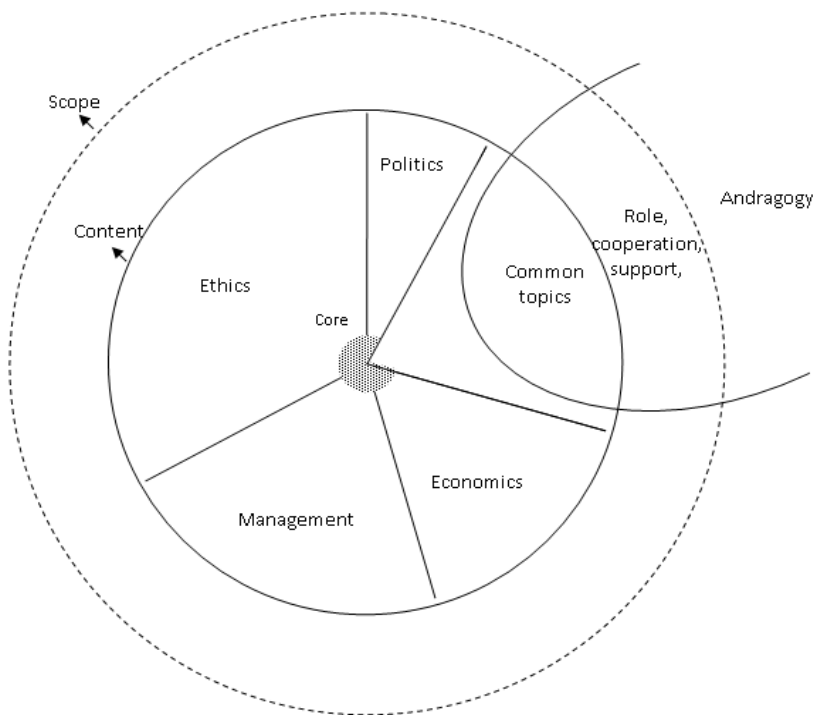
The analysis consisted of the evaluation based on the relation to scientific disciplines, occurrence of specific terms in the definitions, paper topics and theories of authorities and the whole meaning sequences in CSR definitions (Strauss, Corbinová, 1999).

In the core of the CSR concept, the largest representation has ethics (37.27%), then management (32.73%) and economics (23.64%), andragogy does not occur.

Andragogy occurs in the content of the CSR concept (10.67% = 8 papers with the main topic, 7 papers with a secondary topic) as the issue of motivation and change of attitudes towards CSR, the way of CSR education has lower occurrence.

Within the scope of the CSR concept, andragogy is unambiguously present. From the total of ten theories, five were analysed, expressing directly the CSR concept (other are devoted to the history or systematization of the concept). All theories include andragogy in meaningful sequences about managers' learning to implement CSR as part of their work, implement a CSR strategy into an organization, learn from each other as an organization, change the environment of organizations. The PICT. 1 shows the synthesis of CSR context outputs with andragogy:

PICT. 1: Relationship between CSR and andragogy



Source: own work

Andragogy does not interfere into the core of the CSR concept, it is a part of the content and scope of the CSR concept. The role of andragogy is to provide methods of how to understand CSR and how to cope with CSR in practice.

For andragogy is CSR in its content and scope in the manifest form a curriculum for training, in the latent form a moral value for learning in a broader sense and attitude for influencing people. CSR can be seen as a socioeconomic issue on which andragogy responds within its interaction with the environment. As long as CSR is a voluntary business approach it is a current social issue. In the role of preparation of educators, it is essential for andragogy to look for effective learning methods influencing values and attitudes to CSR.

3. Discussion

In an andragogic conception, CSR is either a topic of contemporary life that people, employees, entrepreneurs, and managers must intentionally learn to understand, or is a natural part of the moral values to which each person is unintentionally shaped. The intentional learning introduced by the system of lifelong learning can take (Beneš, 2008) the intentional form - CSR learning on purposeful educational events, and the incidental form - unintentional and accidental situations as a part of other activities. In the view of the authors of the Oxford Handbook the intentional education is schematic, driven by inappropriate methods for creating values and attitudes. Teaching does not lead to the ability to apply CSR in practice. (Crane, 2008). The research among business students in the US

has not found any benefits in student attitudes towards CSR after completing the course (Kleinrichert, Tosti-Kharas, 2013).

Incidental learning of CSR is more effective - continuous adult formation, his or her attitudes, values, manners, ethical approach to the surrounding environment through appropriate methods and unintentional impulses. The individual values of individuals, lifestyle attitudes are also reflected to the relationship to CSR. Incidental learning of CSR is related to the CSR image which is spread in the society. It does not matter on theory though on experience and public interpretation.

Today's practice uses tools combining both intentional and incidental learning, such as publicly shared self-awareness questionnaire for the CSR index (see Innovation voucher, 2017) can also be a useful method. The measurement tool was developed in an innovative voucher led by MUCO and prepared for publication in 2018. Its users will include separately profit organizations, non-profit organizations, municipalities and individual citizens.

4. Conclusion

CSR, in its core, is the ethical, managerial, economic and partially as well political concept. It is the management activity of the company emerging from its economic foundations that have ethical intentions and political context. It is necessary to address what this activity requires to be realizable and implemented. This includes andragogy, especially in the form of incidental learning. The relationship of andragogy with the CSR concept can be described as a way of providing the understanding of the relationship between business and society.

Literature:

Bartoňková, H. (2004). *Foucaultovo andragogické kyvadlo*. Praha: MJF.

Beneš, M. (2008). *Andragogika*. Praha: Grada.

Commission of the European Communities. (2001). *Green Paper*. Promoting a European Framework for Corporate Social Responsibility. (18.7.2001. COM (2001) 366 final). Brussels.

Crane, A. et al. (2008). *The Oxford Handbook of Corporate Social Responsibility*. Oxford: Oxford University Press.

Greenhalgh, T. (2003). *Jak pracovat s vědeckou publikací – Základy medicíny založené na důkazu*. Praha: Grada.

Inovation voucher (2017). *Index společensky odpovědného chování*, (MS2014+) CZ.01.1.02/0.0/0.0/16_045/0007362, OP PIK PO-1 „Rozvoj výzkumu a vývoje pro inovace“.

Kleinrichert, D., Tosti-Kharas, J., Albert, M., & Eng, J. P. (2013). The effect of a business and society course on business student attitudes toward corporate social responsibility. *Journal of Education for Business*, 88 (4), p. 230-237.

Pokorná, D. (2012). *Koncept společenské odpovědnosti: obsah, podstata, rozsah*. Olomouc: Univerzita Palackého.

Strauss, A. L., & Corbinová, J. (1999). *Základy kvalitativního výzkumu: postupy a techniky metody zakotvené teorie*. Brno: Albert.

Šimek, D. (2006). *Metodologická východiska integrální andragogiky*. In D. Ryšavý (Ed.), *Acta Universitatis Palackianae Olomouensis*. (p. 97-101). Olomouc: Univerzita Palackého.

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VALUATION OF A COMPANY FOR THE PURPOSE OF MANDATORY SQUEEZE-OUT OF SHARES ON A SELECTED EXAMPLE

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Abstract: *Mandatory squeeze-out of minority shareholders by majority shareholders, without the need for their consent, is regulated by law. If the entity is not listed on a regulated market, the process of valuation of shares for minority shareholders becomes more important. The purpose of this article is to describe methods and methodology of valuation of a company for the purpose of mandatory buyout of minority shareholders. Scope of the article includes legal framework of squeeze-out and the premises and constraints of mandatory buyout. The empirical part presents methodology of equity valuation based on the example of company of ORLEN Capital Group. Results of valuation in the income-based and market-based approach were discussed. Sensitivity analysis of valuation was also performed.*

Keywords: *Squeeze-out, minority shareholders, valuation of a company.*

JEL classification: *G34, G39, G190, G290, G340*

Grant affiliation:

1. Introduction

Polish legislation governs the institution of mandatory buyout of minority shareholders by majority shareholders. This institution, also called squeeze-out, allows removal of small shareholders from shareholder structure without their consent. This exclusion means acquisition by majority shareholders of a minority shareholding at a price estimated by valuation process.

If an entity is not listed on a regulated market, equity valuation process for minority shareholders takes place, which is the basis for (mandatory) settlements between shareholders. Valuation should take into account the specifics of the minority shareholdings as non-controlling. The purpose of this article is to describe methods and methodology of valuation of the company for the purpose of mandatory buyout.

Scope of the article takes into account the essence of company valuation and the legal constraints of squeeze-out. In the empirical part, methodology of valuation of equity for the purposes of determining the price of mandatory buyout is presented on the example of valuation of the one of companies from ORLEN Capital Group, which is not quoted on regulated markets. Results of the valuation in the income and market approach were discussed. An analysis of sensitivity of the valuation, which showed the possible ranges of equity valuation of the analyzed Company was also performed.

2. Company valuation and mandatory buyout

Most of definitions of enterprise valuation in the literature refers to the measurement of a company and its assets, or expected benefits (Kamela-Sowińska, 1996, p. 6, Szczepankowski, 2012, p. 187). On the other hand (Zarzecki, 1999, p. 39) draws attention to the entity's distinction in the valuation process. At the same time (Nita, 2007, p. 51) emphasizes the need to adhere to certain rules in order to obtain expected degree of objectivity of valuation results. The enterprise value estimation process usually takes the form of models (Zadora, 2010, p. 27), where financial statements and financial projections are typically sources of information. Mentioned literature distinguishes asset-based pricing models (estimates of net assets or liabilities), income-based (discounted cash flow estimates), and a comparative model (valuation of a business using a benchmark). Based on described models, methods of asset valuation, income, comparative, mixed and unconventional methods were developed (Szczepankowski, 2012, p. 199).

The institution of mandatory buyout is one of the most controversial statutory provisions (Law, 2000), as the Code of Commercial Companies serves in principle protecting rights of minorities, while the rules governing the mandatory buyout of minority shareholders protect majority shareholders' rights by depriving minorities of their rights against their will (in public companies is governed by regulations (Act, 2005)). According to the provisions (Law, 2000, Article 418 § 1), the general meeting may adopt a resolution on the mandatory buyout of minority shareholders representing not more than 5% of the share capital by no more than five shareholders holding not less than 95% capital. The only condition is that each shareholder owns not less than 5% of the share capital. Redemption of shares is made at a price quoted on a regulated market, according to the average quotations of the last three months prior to the adoption of the resolution or when the shares are not listed on the regulated market at the price determined by the auditor.

The Code of Commercial Companies does not determine motives for squeeze out, and the rules apply only to formal aspects. Among the conditions of compulsory buyout literature most often mentions reduction of operating costs of existence of minority shareholders (Rojek, Hajdecki, 2008, p. 75), easier acquisition of the investor (Pinior, Wyżykowski, 2009, p. 9), and sometimes for public companies it is the stage of withdrawing the company from stock exchange (Królik-Koltunik, 2015, p. 292). Polish legislation also provides for a number of exemptions for mandatory squeeze-out, such as for employee shares (in period they cannot be traded), held by shareholders with personal privileges, or adopted in certain acts (Law, 2005, art. 82; Act, 1996).

Valuation of shares for forced squeeze-out needs to take into account the fact that it is related to the value of non-controlling stakes. Empirical studies clearly demonstrate that shares included in controlling stakes have a higher value than those grouped in non-controlling stakes. The literature discusses several possible causes for this phenomenon. However, results of empirical studies (Barclay, Holderness, 1989, pp. 371-395; Dyck, Zingales, 2004, pp. 537-600; Nicodano, Sembenelli, 2004, pp. 227-244; Massari et al. 2006, pp. 77-111; Trojanowski, 2008, pp. 2017-2038, P. Mielcarz, pp. 97-120) most often indicate that benefits of controlling shareholders (private benefits) are the primary reason for differentiation of share prices in different stakes.

3. Methodology of valuation of selected company

Analysed entity is one of the companies included in the ORLEN Capital Group, which is not listed on regulated markets. The valuation was made for the purpose of squeeze-out of shares owned by minority shareholders of the Company (0,82% of equity), using the income-based approach - the discounted cash flow method and supporting method within the market approach - comparable listed companies method.

Applied method of discounted cash flows assumes that the value of enterprise measured at the valuation date is equal to the present value of all future cash flows. Valuation of analyzed Company was carried out using the DCF method based on FCFE (Szczepankowski, 2012, p. 64), based on the assumption that cash flows result from operating and investing activities when the real debt level in the examined enterprise is assumed.

Value of equity is the sum of discounted free cash flows to shareholders during the financial projection period (up to 2040) and the discounted residual value of the firm after the projection period, which is then adjusted for non-operating assets, including financial assets. Residual value was estimated as the present value of the normalized cash flows after the financial projection period (e.g. by equalizing the depreciation and capital expenditures) and the assumptions on the rate of return in the residual period. The residual value was determined using the Gordon model with a growth rate of 2.5% reflecting long-term inflation.

For the purposes of the FCFE method, the cost of equity under the Capital Asset Pricing Model was estimated. The risk-free rate of 5,1% was estimated on the basis of Treasury bonds analysis. The market premium of 5,5% was based on expert analyzes. For valuation purposes, a beta of 0.9 was estimated based on the benchmark beta of listed companies. This ratio was then leveraged using leverage of 16% and 19% of the tax rate, resulting in a beta value of 1,02. The cost of equity was further adjusted for a premium of 1.2% for low capitalization. The discount rate is equal to the cost of equity and is 11.9%.

The valuation of the Company's equity includes a non-controlling discount. The control premium is defined as an additional fee for the acquisition of a controlling stake. The methodology for calculating the control premium is averaged by the analysis of market transactions in which a stake of more than 50% of a company's shares is acquired. The control premium estimated in Mergerstat's "Control premium study" is 27%. Valuation of the Company's equity for the purpose of mandatory squeeze-out of a 0,82% stake is treated as a minority shareholder valuation and therefore includes a

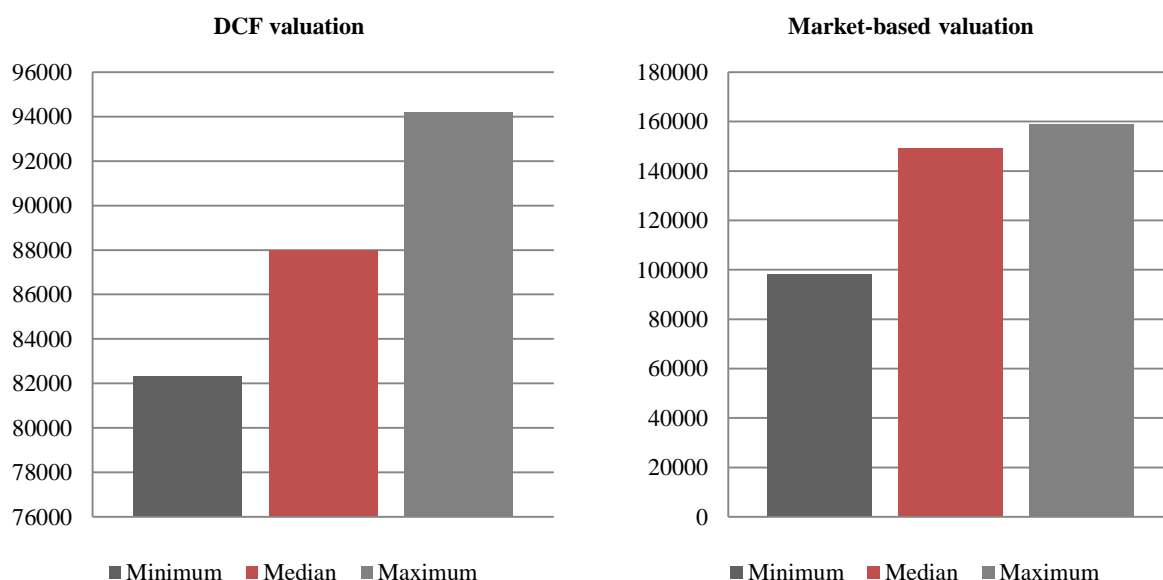
discount of 21,3%. This valuation does not include the discount due to lack of liquidity, since the value of such discount depends on the subjective assessment of the buyer.

Estimating the equity value in the market approach (as a supporting method) assumes a comparison of the value of companies of similar size, potential, operating in the same industry and in a similar financial situation. For the purpose of this valuation, 20 entities that meet the basic comparability requirements were analyzed in detail, but only 9 entities were included in the final valuation. The reason for the rejection of most companies was the value of multiples, which could not be interpreted. Five multiples were selected for the valuation; Invested capital/revenues, invested capital/EBIT, invested capital/EBITDA, market capitalization/gross profit, market capitalization/net profit. Multiples of comparable companies were additionally adjusted for coefficients resulting from differences in the capital structure, size and risk of country of operations.

4. Results of valuation and sensitivity analysis

Figure 1 presents a summary of results of the equity valuation of the analysed Company at a valuation date, subject to a discount due to lack of control, but before taking into account the potential discount due to lack of liquidity (discount due to lack of liquidity could be close to 15%). Value of the Company's equity valued by the discounted cash flow method ranges from PLN 82,3 million to PLN 94,2 million. After recalculating the received values per share, a range of values ranging from PLN 42,99 to PLN 49,20 was received, with a median of PLN 45,96.

FIG. 1: Summary of the results of valuation of the Company's equity before discounting due to lack of control ['000 PLN]



Value of the Company's equity as at the valuation date, after discounting for non-control interest, was estimated at PLN 98m to PLN 149m (from PLN 51,19 to PLN 83,05 per share, with a median of PLN 77,82). Taking into account significant limitations of market approach, conclusions on the Company's value for the purpose of mandatory buyout was based mainly on DCF method, indicating Company's value in the range of PLN 82,3 million to PLN 94,2 million, with a median of PLN 88,8 million, which means a price recommendation of PLN 45,96 per share.

In the years preceding the mandatory buyout, there were two smaller transactions on the Company's shares related to voluntary redemption from minority shareholders. The parent company acquired 25,2% of shares from the State Treasury for PLN 55,30 per share, while 3,27% of shares of minor shareholders were bought out for PLN 44,24 per share.

In determining the purchase price of the minority shareholders of the Company, sensitivity analysis was also performed with regard to the growth rate in the residual period and the cost of equity. The analysis was carried out using the discounted cash flow method.

TAB. 1: Analysis of valuation sensitivity due to change in growth rate during the residual period and cost of equity (net of non-controlling discount)

		Growth rate during the residual period				
Cost of equity		1,50%	2,00%	2,50%	3,00%	3,50%
	10,9%	100 800	100 900	100 900	101 000	101 100
	11,4%	94 100	94 100	94 200	94 200	94 300
	11,9%	87 900	88 000	88 000	88 100	88 100
	12,4%	82 300	82 300	82 300	82 400	82 400
	12,9%	77 000	77 100	77 100	77 200	77 200

Source: Self-elaboration.

Table 1 illustrates sensitivity of Company's equity to changes in the growth rate in the residual period and change in the cost of equity after discount for non-controlling loss. Analysis showed that possible value of firm's equity valuation ranged from PLN 82,3 million to PLN 94,2 million, with changes in equity of 10,9% to 12,9%, as well as changes in the growth rate from 1,5% to 3,5%.

5. Conclusion

Subject of this article was an analysis of valuation of a company in terms of its importance and role in the decision-making process of mandatory squeeze-out of minority shareholders. In the empirical part results of equity valuation for the purposes of determining the price of mandatory buyout on a

selected example have been presented. Valuation results in the income approach and in market approach, which estimated value of the Company's equity in the range of PLN 82 million to PLN 149 million, were presented. After conversion of obtained values on a per share basis and estimation of applied methods, price of shares for mandatory buyout was recommended at PLN 45,96, including the discount for non-controlling stake. An analysis of sensitivity of the valuation was conducted, which showed that the possible valuation values are not significantly different from previous estimates.

Literature:

Barclay, M., Holderness, C. (1989). Private Benefits from Control of Public Corporations. *Journal of Financial Economics*, Vol. 25, pp. 371–395.

Dyck, A., Zingales, L. (2004). Private Benefits of Control: an International Comparison. *Journal of Finance*, Vol. 2, pp. 537–600.

Control premium study, retrieved May 20, 2016, from <http://www.documbase.com/Mergerstat-Control-Premium-Study-2014.pdf>.

<http://www.raportroczny.orken.pl/> (Read on 2016.04.18).

Kamela – Sowińska, A. (1996). *Wartość firmy*. Warsaw: PWE.

Królik-Końtunik, K. (2015). *Przymusowy wykup akcji na giełdzie papierów wartościowych w Warszawie*. Lublin: Annales Universitatis Mariae Curie-Skłodowska, Vol. XLIX 4, pp. 291-299.

Massari, M., Monge, V., Zanetti, L. (2006). Control Premium in Legally Constrained Markets for Corporate Control: The Italian Case (1993–2003). *Journal of Management and Governance*, p. 77–111.

Mielcarz, P. (2009). *Przepływy ekskluzywne a metody wyceny akcji wchodzących w skład pakietów kontrolnych i nie kontrolnych*. Warsaw: Bank i Kredyt 40 (2).

Nicodano, G., Sembenelli, A. (2004). Private Benefits, Block Transaction Premiums and Ownership Structure. *International Review of Financial Analysis*, Vol. 13, pp. 227–244.

Nita, B. (2007). *Metody wyceny i kształtowania wartości przedsiębiorstwa*. Warsaw: PWE.

Pinior, P., Wyrzykowski, W. (2008). *Przymusowy wykup i odkup akcji w spółkach publicznych i niepublicznych*. „Prawo Spółek” 2008, no 9.

Rusek, J., Hajdecki, P. (2008). *Squeeze out, czyli wyciskanie akcjonariusza mniejszościowego*. „Nasz Rynek Kapitałowy”, no 5.

Szczepankowski, P. (2012). *Wycena i zarządzanie wartością przedsiębiorstwa*. Warsaw: PWN.

Trojanowski, G. (2008). *Equity block transfers in transition economies: Evidence from Poland*. *Economic Systems*, Vol. 32, p. 217–238.

The Law on Commercialization and Privatization, dated 30 August 1996 (*Journal of Laws* 1996, No 118, item 561, with later amendments).

Act of 15 September 2000 of the Code of Commercial Companies (*Journal of Laws* No. 94, item 1037, with later amendments).

Trading in Financial Instruments Act dated on 29 July 2005 (*Journal of Laws* 2010 No. 211, item 1384 as amended).

Act of 29th July on Public Offering and Terms of Introduction of Financial Instruments to an Organized Trading System and on Public Companies (*Journal of Laws* 2005 No. 184, item 1539 as amended).

Zadora, H. (2010). *Wycena przedsiębiorstw w teorii i praktyce*. Warsaw: Stowarzyszenie księgowych w Polsce.

Zarzecki, D. (1999). *Metody wyceny przedsiębiorstw*. Warsaw: Fundacja Rozwoju Rachunkowości.

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ETHICS IN ACCOUNTING IN THE CONTEXT OF CORPORATE SOCIAL RESPONSIBILITY

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Abstract: *The dynamic changes taking place in the economy of the 21st century force organizations to assume responsibility for the adverse social effects of their operations, such as pollution of environment or elimination of jobs. A company is expected primarily to operate in a socially responsible manner and take into account needs of society. One of the most important elements of the concept of CSR is ethics. This translates directly into accounting as a system responsible for generating useful economic information about a business entity. Ethics is a prerequisite for the smooth functioning of the accounting system. Recipients of financial statements expect that information contained in the financial statements accurately reflects the economic reality, are reliable, accurate, prospective and understandable. The overriding principles of true and fair view applies also in this case. The paper presents a synthetic presentation of the concept of corporate social responsibility and presents the most important areas of ethical dilemmas of contemporary accounting.*

Keywords: *Corporate social responsibility, ethics, accounting.*

JEL classification: M40, M41

Grant affiliation:

1. Introduction

Twentieth century was a period of rapid industrial and, therefore, modern technology development. It was also a time of globalization, information age, new challenges and threats as well as economic crises. Businesses functioned, implementing words of one of most prominent economists Milton Friedman. The phrase "business of business is business" has become a determinant and reflection of real goal of economic activity. This perception conditioned identification of business responsibility with the use of resources and engaging in activities leading to permanent profit growth as long as it is in line with the "rules of the game" (Friedman 1970). In the last two decades, however, we can observe changes in the approach to functioning of company in market environment. Our "today" is a difficult and special time for both enterprises and for each of us. We live in times of continuous

change in both economic and social terms. Entrepreneurs have entered the era of a knowledge-based economy, with simultaneous declining importance of material resources. These changes, which are economic, social, ethical and political, have led to increasing demand for information and transparency of business activity. At present, corporate managers are responsible not only for building shareholders value, but are for their surroundings, employees and natural environment. They are also expected to be ethical. At present ethics is experiencing a kind of "renaissance". This translates directly into accounting as a system responsible for generating useful economic information about business entity. Challenges encountered in contemporary accounting often result in ethical dilemmas. Desire of entrepreneurs to make money quickly, often by means of fraudulent methods, places accountants in difficult situations, forcing them to make choices that are not always in line with their sense of dignity (Mazurkiewicz 2015, p. 68). On the other hand, recipients of financial statements expect that information contained in financial statements is reliable, credible, prospective, understandable and accurately reflects economic reality. The overriding principles of true and fair view play a very important role.

The paper presents a synthetic presentation of the concept of Corporate Social Responsibility and presents most important areas of ethical dilemmas of contemporary accounting.

2. Corporate Social Responsibility vs. Ethics

Ethics is a philosophical science that tells us how to live, what choices to make, what to crave and what to avoid. By analogy with the definition of Aristotle's philosophy, one can also define it as a knowledge of the meaning and purpose of human life, causes and rules of action. Ethics is also expected to show what activities are right, decent, good, why we consider them, and how we can change people's consciousness and social reality (Kopka 2013, p. 15).

Corporate social responsibility, on the other hand, is a response to challenges faced by businesses in a constantly changing environment. Its essence is more ethical, responsible, and multifaceted behavior of businesses towards social groups and environment that they interact with through their activities. Business activities are presently very carefully analyzed by broadly understood economic environment. Activities of individual economic actors are interested not only in direct stakeholders but also consumers, non-governmental organizations or local community. Origins of business responsibility can be attributed to origins of first companies, because there were always owners who took into account needs of employees or society, taking responsibility for the business they were running and their surroundings (Andrejczuk 2015).

Recently, when we are dealing with a growing economic and social crisis, this concept is becoming increasingly important in the debate on environmental, social, but also economic future of our globe. This forces a change in attitude towards companies operating on the market. Companies are expected to a larger extent, in addition to taking efforts to maximize profits and value for its owners, take a concrete stand against social, environmental and ethical issues. Ethical dimension should be a dominant element, especially today, in a time of rapid globalization, when new opportunities and threats, temptations and challenges emerge, and dilemmas for ethical reflection are experienced by companies (Cieciura 2014, p. 75). CSR concept is associated with issues of ethical principles in two ways: on the one hand, corporate social responsibility is by nature an expression of ethical behavior

in business, on the other hand it should be connected with an ethical way of communicating activities and achievements of CSR outside (Fijałkowska, Sobczyk 2013, p. 124). CSR reporting is associated with potential risk of unethical behavior in the enterprise. There is a danger that a company, by communicating about CSR activities, will want to influence its stakeholders, so it can manipulate selection of information to achieve opportunistic goals.

3. Ethics and modern accounting system

Modern world is a world of constant change. The pace of good and not necessarily positive changes is tremendous. Rapid flow of information, rapid commercial transactions, rapid asset multiplication, and rapid monetization are expected. Observed changes concern therefore also accounting where an urgent need for environmental key diagnoses and observations arises, as there is an impression that what is happening in the field of accounting is absolutely unprecedented and probably not entirely safe (Karmańska 2013, p. 125).

Accounting is one of the most important components of functioning of any organization (economic, social, public), and it is a specific bloodstream. It is the system responsible for generating, processing and presenting economic information that not only accurately depicts integrity and performance of business entities but primarily allows them to be managed. Unquestioned purpose of accounting is to create a credible picture of the business of entity, mainly in a form of financial statements, assessment and opinion of the report. In achieving this goal, it is essential to correctly quantify reflections of economic life "in numbers". Financial statements are a source of important information that shape valuation of particular assets, especially intangible assets. Increasingly, use of fair value valuation draws attention to ethical aspect of contemporary accounting (Micherda 2012, p. 75). Lack of appropriate standards, principles, rules and procedures that form a basis for decision making during main stages of information generation process in financial statement i.e. recognition, valuation, disclosure and presentation, enable "falsification" of reality. In order to prevent this, a principle of faithful and honest accountability must be respected. This principle reinforces proper behavior of people dealing with preparation of financial statements and sets a proper direction of development of accounting regulations. However it should be underlined, that although the message on the true and fair view rule is significant, no financial statement can reflect all events occurring in the entity or meet all information needs of its users. In addition, an image of a company in financial statements depends not only on events, but also on assessment, attitudes and intuition of people responsible for preparation of financial statements. While the rule of true and fair view assumes that moral and ethical principles are respected while preparing financial statements, this is not a guarantee that they are in fact complied with (Martyniuk, Jasińska 2014, p. 192). Business executives often strive to become overly rich by presenting a false image of the company in financial statements. This often involves a variety of pressures (taking advantage of the fact that accounting law allows some kind of freedom in presenting certain events and economic facts) over accountants. This is a cause of ethical dilemmas faced by accountants (Mazurkiewicz 2015, p. 67). There is a man behind every ethical crisis. Lack of honesty, reliability, knowledge or objectivity is a cause of breaking ethics, which in long run leads to negative social consequences. Ethics of accounting includes social behavioral standards, but also behavioral standards that are specific to accounting profession. Since ethical decision-making is more than just making choices, it includes critical thinking, which assumes

existence of multiple points of view and values, often conflicting. Hierarchy of ethical decision-making involves: acting in accordance with law, rules of profession, or code of conduct and on the basis of moral values and philosophical reasoning from the area of good and evil (Cieślak, 2011, p. 205). Unfavorable changes in the market environment, economic crisis and numerous failures of Polish companies have led the Association of Accountants in Poland (SKwP in Polish abbreviation) - to promote broader ethical behavior in economic space. To this end, in order to maintain high professional status of accountants, the Committee on Ethics and Professionalism of the Accounting Profession of the Scientific Council of the SKPP has developed the Code of Professional Ethics in Accounting, which was adopted in June 2007¹. This Code is a collection of principles and ethical-moral and professional values that should be possessed by people dealing with accounting and related fields, as well as attitudes and behaviors expected of public trustees, including accountants, financiers and related professions. This study fills in a certain way the gap between inaccurate accounting law and moral attitude of accounting staff. It is also the basis for defending their ethical dilemmas in confrontation with business executives. According to the Code of Professional Ethics in Accounting (2012), it is expected that work of accountant, regardless of where it is done or the nature of employment, is expected to meet the following criteria: 1. it follows a number of professional standards, 2. its purpose is to achieve the highest quality work carried out, 3. ensure reliability of results of conducted activities. Work done by accountant can be considered ethical if he or she meets the principles of professional competence and high quality of work.

In addition, since 2006, this committee has initiated process of establishing the Bank of Ethical Dilemmas. The Bank of Ethical Dilemmas should, in principle, include a variety of case studies, which will contribute to development and dissemination of ethical awareness in the area of accounting.

4. Conclusion

In conclusion, ethical question in the area of accounting is very complex. Economic crisis and market scandals make ethical aspect of business as well as credible and ethical communication with stakeholders essential. Scope of responsibility of today's enterprises gained a new dimension. Increasingly new dilemmas arise e.g. how can we achieve good results, stay competitive and at the same time be faithful to ethical procedures? How to behave in order to stay in line with your good intentions? Ethical principles can not be forced on anyone. True ethics should penetrate interior of man, and consequently his thoughts, intentions and deeds. It should be borne in mind that ethics in accounting does not have to involve only falsification of financial statements prepared in accordance with legal regulations. It is not just an understatement or overstatement of a financial result or a juggling of assets and liabilities in such a way as to maintain the balance sheet principle². These are all sorts of smaller or larger dilemmas that accountants need to cope with. However, ethical conduct is profitable because it gives a sense of security, a sense of dignity and a peaceful sleep. Fair, reliable, high-quality data and financial reports can benefit the company, as employees will have a stable job, and the company will be able to perceive value of their investment in the eyes of their counterparts.

¹ An example of an international code of ethics of an accounting profession is the Code of Professional Ethics for Accounting, prepared by the International Accounting Standards Board for Accountants (IESBA), which is an independent statutory body within the International Federation of Accountants (IFAC). Professional ethics in the International Code does not cover all professional accountants (IFAC classifies statutory auditors, as well as IFAC members as professional accountants), nevertheless, this code may serve as a benchmark for creation of own codes of ethics by other organizations grouping individuals dealing with accounting.

² Interesting view on above-mentioned dilemmas can be found in (Żuraw, 2013, Żuraw 2014).

Literature:

Andrejczuk M. (2015), *Odpowiedzialność biznesu i etyka biznesu – rozwój koncepcji w myśli społecznej*. Retrieved from <http://odpowiedzialnybiznes.pl/artykuly/odpowiedzialnosc-biznesu-i-etyka-biznesu-rozwoj-koncepcji-w-mysli-spoecznej>.

Cieciura M. (2014), *Etyczne aspekty rachunkowości w kontekście społecznej odpowiedzialności biznesu*. [in:] H. Lelusz, R. Burchart (red.), *Współczesne problemy rachunkowości w teorii i praktyce*, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, Olsztyn.

Cieślak M. (2011), *Podejście etyczne w rachunkowości a jakość sprawozdań finansowych*. Wydawnictwo Uniwersytetu Ekonomicznego, Poznań.

Fijałkowska J., Sobczyk M. (2013), *Wiarygodność i etyka a sprawozdawczość społecznej odpowiedzialności przedsiębiorstwa*. [in:] Sułkowski Ł., Ignatowski G. (edited), *Etyka w służbie biznesu*, Wydawnictwo Społecznej Akademii Nauk, Łódź.

Friedman, M., 1970, The Social Responsibility of Business Is to Increase Its Profits. *The New York Times Magazine*, September 13.

Karmańska A. (2013), *Nauka rachunkowości, proces poznawczy, paradygmaty i prawda w rachunkowości – garść ustaleń i refleksji*. Zeszyty Teoretyczne Rachunkowości. v. 71 (127), SKWP, Warszawa.

Kopka J. (2013), *O koniecznej tożsamości etyki biznesu i etyki ogólnej*. [in:] Sułkowski Ł., Ignatowski G. (edited), *Etyka w służbie biznesu*, Wydawnictwo Społecznej Akademii Nauk, Łódź.

Martyniuk T., Jasińska W. (2014), *Etyka w rachunkowości w kontekście odpowiedzialnego społecznie biznesu*. [in:] H. Lelusz, R. Burchart (edited), *Współczesne problemy rachunkowości w teorii i praktyce*, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, Olsztyn.

Mazurkiewicz G. (2015), *Dylematy etyczne w rachunkowości jako efekt problemów współczesnej gospodarki światowej*. Zeszyty Naukowe Uniwersytetu Szczecińskiego no 890, Ekonomiczne Problemy Usług nr 120, Szczecin.

Micherda B. (2012), *Aspekty etyczne współczesnej rachunkowości*, „*Studia Ekonomiczne*” UE w Katowicach, no 125, Za i przeciw wartości godziwej w rachunkowości. Teoretyczne aspekty wartości godziwej, Katowice.

Żuraw P. (2014), *Dylematy etyczne osób zajmujących się rachunkowością a problem skutecznego zarządzania organizacjami*. [in:] H. Lelusz, R. Burchart (edited), *Współczesne problemy rachunkowości w teorii i praktyce*, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, Olsztyn.

Żuraw P. (2013), *Przykłady dylematów etycznych zarządzania w obszarze rachunkowości i finansów przedsiębiorstw*. [in:] Sułkowski Ł., Ignatowski G. (edited), *Etyka w służbie biznesu*, Wydawnictwo Społecznej Akademii Nauk, Łódź.

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ABOUT ONE MODEL OF GREENHOUSE GAS EMISSIONS FORECASTING

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Abstract: *How will economic and social developments drive environmental change to 2030? The OECD Environmental Outlook to 2030 provides analyses of economic and environmental trends to 2030. The greenhouse gas emission is an issue which requires an urgent attention. The increasing world's population, economic development resulting in higher level of production, consumption, as well as energy consumption, influences an increase of emissions production. Our article is focused on a mathematical model forecasting the development of emissions of greenhouse gases and their relation with GDP.*

Keywords: *Greenhouse gas emission, forecast.*

JEL classification: Q56, Q51

Grant affiliation: *This paper is an output of the science project 1/KKMaHI/2017, FPEDAS, University of Žilina.*

1. Introduction

The 20th century was a time of a great progress for human civilization. On the other hand, a growth of construction materials, ores and minerals, fossil fuels, and biomass extraction was associated with that. This expansion of consumption was not equitably distributed, and it had substantial environmental impacts. Over-exploitation, climate change, pollution, land-use change, and loss of biodiversity has become the most discussed issues. One result was that “sustainability” became an over-arching global social, environmental and economic imperative among governments, international organizations, and the private sector. Leaders increasingly understood that making progress towards a more sustainable economy requires an absolute reduction in resource use at a global level, while human well-being demands that economic activities should expand and environmental impacts diminish (Fischer-Kowalski & Swilling, 2011). One of the most serious questions is the decrease in emissions of Greenhouse gases (GHG). The primary sources of GHG emissions are: electricity production, transportation, industry, commercial and residential areas, land use and forestry, and agriculture. EU policy sets a broad framework for resource efficiency and climate change policy by climate, energy and mobility EU flagship initiative "Resource efficient

Europe" to help to decouple the economic growth from the use of resources, by decarbonising economy, increasing the use of renewable sources, modernising of transport sector and promoting energy efficiency (EC, 2010).

2. Methodology and data

The relationship between economic growth and the state of environment has been widely discussed since the second half of the last century. There is a considerable academic debate about whether population change and economic growth can be decoupled from growth in material and energy use in the long term e. g. (Ward et al., 2016). Many authors argue that continued economic growth in a finite world is not possible, therefore the use of material resources to produce economic growth cannot go on forever e.g. (Anderson, 2010). Different indicators have been used to measure both the economic and environmental variables. The economic variable is usually gross domestic product (GDP), either in absolute or per capita form. GHG emissions, CO₂ emissions, wastes, Sulphur dioxide, ... are used as environmental variables.

In 2001, Organization for Economic Cooperation and Development (OECD) prioritized decoupling as one of the main objectives of the Environmental Strategy for the first decade of the 21st century. Increasing production normally leads to a growing environmental pressure. Decoupling occurs when an economy develops with a lower increase or even decrease of rate of environmental pressure (OECD, 2002). Decoupling can be either absolute or relative. Absolute decoupling occurs when the environmental indices are stable or decreasing, while the economic index (GDP the most often) increases. In relative decoupling, however, both the economic and environmental indexes increase, but the environmental index grows more slowly than the economic index. Tapio (2005) described how GDP and traffic volume in Finland are related from 1970 to 2001 by proposing eight scenarios of decoupling situations. Vavrek & Chovancova, (2016) used this terminology to analyse the relationship between GDP and GHG emissions in V4 countries.

3. Results and Discussion

The aim of our study is to quantitatively assess the relationship between GDP and greenhouse gases emissions in Slovakia in the period of 2000 – 2015 and forecast their rapport in 2030. The data was obtained from the databases of the Eurostat (29.06.2017): main GDP aggregates per capita in current prices, €, and greenhouse gas emissions on thousand metric tons of CO₂ equivalent per capita. The ratio of changes was calculated as the ratio of percentage units of changes of GHG production and percentage units of changes in GDP yearly. The result is decoupling elasticity e :

$$e = \frac{\% \Delta GHG}{\% \Delta GDP} \quad (1)$$

Tapio's study divided decoupling situations into three categories of "decoupling" (i.e. GDP growth rate is obviously higher than that of transport volume), "coupling" (i.e. GDP growth rate is slightly higher or lower than that of transport volume), and "negative decoupling" (i.e. GDP growth rate is apparently lower than that of transport volume). Tapio's decoupling terminology further established

several subcategories under each main category. We adopted this terminology and Table 1 lists all eight possibilities of decoupling situations and their elasticity values.

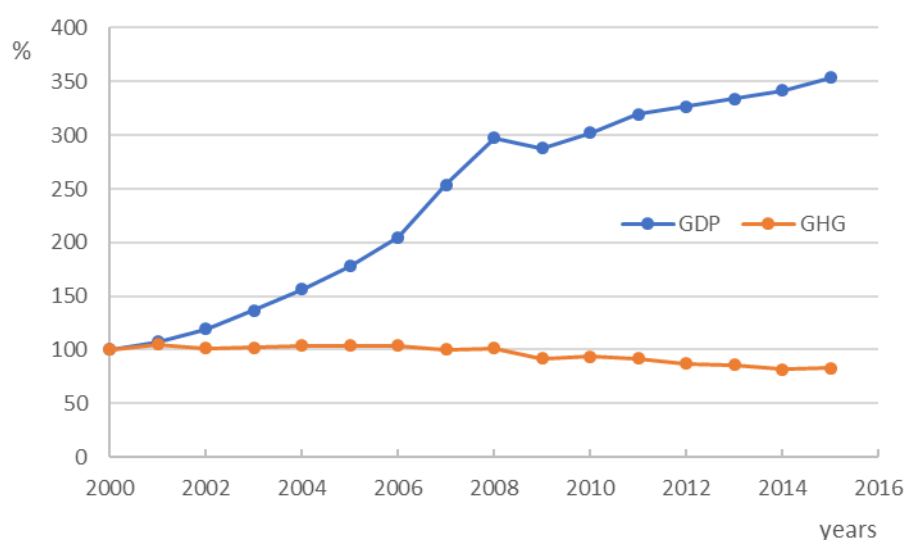
TAB. 1: Categories of Decoupling Possibilities

		Increase of Environmental Pressure ($\% \Delta GHG$)	Increase of Economic Activities ($\% \Delta GDP$)	Decoupling Elasticity (e)	State
Decoupling	Weak Decoupling	$\% \Delta GHG > 0$	$\% \Delta GDP > 0$	$e \in \langle 0; 0.8 \rangle$	<i>A</i>
	Strong Decoupling	$\% \Delta GHG < 0$	$\% \Delta GDP > 0$	$e < 0$	<i>B</i>
	Recessive Decoupling	$\% \Delta GHG < 0$	$\% \Delta GDP < 0$	$e > 1.2$	<i>C</i>
Coupling	Expansive Coupling	$\% \Delta GHG > 0$	$\% \Delta GDP > 0$	$e \in (0.8; 1.2)$	<i>D</i>
	Recessive Coupling	$\% \Delta GHG < 0$	$\% \Delta GDP < 0$	$e \in (0.8; 1.2)$	<i>E</i>
Negative Decoupling	Expansive-Negative Decoupling	$\% \Delta GHG > 0$	$\% \Delta GDP > 0$	$e > 1.2$	<i>F</i>
	Strong-Negative Decoupling	$\% \Delta GHG > 0$	$\% \Delta GDP < 0$	$e < 0$	<i>G</i>
	Weak-Negative Decoupling	$\% \Delta GHG < 0$	$\% \Delta GDP < 0$	$e \in \langle 0; 0.8 \rangle$	<i>H</i>

3.1. The relationship between GDP and GHG in Slovakia

Figure 1 reveals the increase of GDP and the decrease of GHG emissions for Slovakia in the period 2000-2015. The values of the year 2000 were taken as the initial values. Next values were calculated as a ratio of the value in the given year and the initial value in percentage.

FIG. 1: GHG emissions versus GDP, 2000 - 2015, Slovakia



Source: authors

The decoupling elasticity was calculated by using (1) on annual differences. The values and the appropriate decoupling are in Table 2.

TAB. 2: Elasticity and Decoupling

Period	2001	2002	2003	2004	2005	2006	2007	2008
Elasticity	0.71	-0.33	0.07	0.10	0.01	-0.01	-0.14	0.08
Decoupling	weak	strong	weak	weak	weak	strong	strong	weak

Period	2009	2010	2011	2012	2013	2014	2015
Elasticity	2,83	0,37	-0,35	-2,42	-0,45	-2,36	0,41
Decoupling	recessive	weak	strong	strong	strong	strong	weak

It is seen that apart of the year 2008-2009 (due to economic crisis) $\% \Delta GDP$ is greater than zero (weak or strong decoupling). The values of decoupling elasticity are about zero in the period of 2002-2008, from the year 2009 the values are different from zero, and the strong decoupling occurs in the period 2011-2014.

3.2. Forecasting of decoupling elasticity for Slovakia in 2030

Many studies have been concerned how economic and social developments will drive environmental changes to 2030, e.g. the OECD Environmental Outlook to 2030 that provides analyses of economic and environmental trends to 2030, and simulations of policy actions to address the key challenges. Our aim was to estimate the decoupling elasticity for Slovakia in the year 2030 by using mathematical means. We forecasted the value of GDP per capita in 2030 and GHG emissions via linear regression. The data was obtained from the databases of the Eurostat (29.06.2017): main GDP aggregates per capita in current prices, € in the period 2000-2015. The regression equation for GDP was

$$y = 782.65x + 3135$$

with the sufficient coefficient of determination $R^2 = 0,9521$. The predicted value for the year 2030 with the shift $x = 31$ was 27 397 € per capita. Similarly the regression equation for GHG emissions on thousand metric tons of CO₂ equivalent per capita was

$$y = -0.1409x + 10.064$$

with the sufficient coefficient of determination $R^2 = 0.7936$. The predicted value for the year 2030 with the shift $x = 31$ was 5.695 thousand metric tons of CO₂ equivalent per capita. The decoupling elasticity $e = -0.82$ was calculated by using (1). It means the strong decoupling is expected.

Although the major feature of the Kyoto Protocol is that it has mandatory targets on GHG emission for the world's leading economies, there are many varying impacts on emissions. In this part we drew attention to uncertainty in this process and we adopted Markov chain analysis to forecast the probability of decoupling. We defined eight states $\{A, B, C, D, E, F, G, H\}$ for Categories of Decoupling Possibilities as in Table 1. The property of Markov chain means the probability that the chain moves in one time step from a state to the other state depends only on the state that it occupied before the time step. Let p_{ij} denote the transition probability of going from the state s_i to the state s_j in one time step (one year in our case). Let the (8×8) matrix of elements p_{ij} (transition matrix) is denoted P . The state vector $\vec{p}(t_n) = (p_A(t_n), p_B(t_n), \dots, p_H(t_n))$ describes the probability distribution of the

states of the chain at time t_n . The Markov property implies that the probability distribution at time t_{n+1} can be obtained from that at time t_n by

$$\vec{p}(t_{n+1}) = \vec{p}(t_n) \cdot P. \quad (2)$$

We worked with data from the databases of Eurostat for ten selected European countries in the period 2000-2015, so we calculated 150 values of the decoupling elasticity and we assigned them appropriate states A, B, \dots, H . Then we calculated the transition probabilities p_{ij} between states. The maximum likelihood method was applied to estimate the transition probability matrix under the certain assumptions (Bhat, 2002). Therefore the transition probability p_{ij} can be obtained by the relative frequencies observed in the sample, i.e. $\hat{p}_{ij} = n_{ij}/n_i$, where n_{ij} denotes the number of transitions from state s_i to state s_j and $n_i = \sum_j n_{ij}$ (Vojteková & Blažeková, 2016).

Consequently, the transition matrix P was estimated:

$$P = \begin{pmatrix} 0.25 & 0.575 & 0.05 & 0.075 & 0 & 0.05 & 0 & 0 \\ 0.27 & 0.46 & 0.143 & 0.031 & 0 & 0.048 & 0 & 0.048 \\ 0.235 & 0.118 & 0.235 & 0.118 & 0.118 & 0.058 & 0.118 & 0 \\ 0.167 & 0.833 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0.5 & 0 & 0 & 0 & 0 & 0.5 \\ 0.5 & 0.5 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0.5 & 0 & 0 & 0 & 0 & 0 & 0 & 0.5 \\ 0.5 & 0 & 0.333 & 0 & 0 & 0 & 0 & 0.167 \end{pmatrix}.$$

The year 2015 was denoted as the time t_n to forecast the elasticity in 2030. The state vector $\vec{p}(2015) = (1,0,0,0,0,0,0,0)$ represented the position of Slovakia in the year 2015, since the decoupling elasticity was in state A . The probability of decoupling elasticity in following years was calculated by using (2) and the probability distribution on 2030 was

$$\vec{p}(2030) = (0.274, 0.434, 0.128, 0.049, 0.015, 0.042, 0.015, 0.043).$$

The most probable state is the state B , it means strong decoupling ($e = 0.434$) and weak decoupling may occur with the probability 0.274. The forecasted values can be seen as positive and hopeful, but we must be realistic. Decoupling elasticity does not reveal the environment's capacity to sustain, absorb or resist various pressures. The values cannot confirm whether the economic growth is sufficiently decoupled from negative environmental impacts.

4. Conclusion

There is a wide scientific consensus that GHG emissions are responsible for global warming, with potentially dramatic economic, social, and environmental consequences at global level. The values of decoupling elasticity for Slovakia in the period 2000-2015 as well as the forecasted value for the year 2030 showed a positive trend but due to the already high emissions level and long residence time of greenhouse gases in the atmosphere, a continuation of present emission levels or a negligible reduction of those will aggravate the global warming.

Literature:

Anderson, D. A. (2010). *Environmental economics: and natural resource management*. London: Routledge.

Bhat, U. N., & Miller, G. K. (2002). *Elements of applied stochastic processes*. Hoboken, NJ: Wiley-Interscience.

EC (2010). *Communication from the Commission: EUROPE 2020 - A strategy for smart, sustainable and inclusive growth*. (n.d.). Retrieved July 11, 2017, from [http://ec.europa.eu/eu2020/pdf/COMPLET_EN_BARROSO_007 - Europe 2020 - EN version.pdf](http://ec.europa.eu/eu2020/pdf/COMPLET_EN_BARROSO_007_-_Europe_2020_-_EN_version.pdf).

OECD (2002). *Indicators to Measure Decoupling of Environmental Pressure from Economic Growth*. Retrieved July 11, 2017, from [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=sg/sd\(2002\)1/final&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=sg/sd(2002)1/final&doclanguage=en).

Fischer-Kowalski, M., & Swilling, M. (2011). *Decoupling natural resource use and environmental impacts from economic growth*. A report of the Working Group on Decoupling to the International Resource Panel. UNEP.

Vavrek, R., & Chovancova, J. (2016). Decoupling of Greenhouse Gas Emissions from Economic Growth in V4 Countries. *Procedia Economics and Finance*, 39, 526-533. doi:10.1016/s2212-5671(16)30295-7.

Vojteková, M., & Blažeková, O. (2016). *Using Markov Chains Analysis in Trading* (pp. 574-579). Olomouc, Czech Republic: SOCIETAS SCIENTIARUM OLOMUCENSIS II. Retrieved from http://knowledgeconference.upol.cz/downloads/2016-Knowledge_for_Market_Use_Proceedings.pdf.

Ward, J. D., Sutton, P. C., Werner, A. D., Costanza, R., Mohr, S. H., & Simmons, C. T. (2016). Is Decoupling GDP Growth from Environmental Impact Possible? *Plos One*, 11(10). doi:10.1371/journal.pone.0164733.

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PUBLIC FINANCING IN SPORT - ZLÍN REGION

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Abstract: *The main topic of the article is public financing in sport, particularly in Zlín Region where I come from. In Zlín Region the sport plays an important role. Therefore, a high level of sport policy and sport funding from public sources is provided there. Every year many sport clubs and events are supported by public sources of funding. We have focused on the amount of this support, the providing grants and the interesting investments in the region. The most of public finance in Zlín region is used to organize sport of children and youth. In fact, sport and physical education contribute to the healthy development of the population.*

Keywords: *Sport policy - sport funding - public sources – support.*

JEL classification: Z230, R53, Z280

Grant affiliation: IGA_FF_2017_011 *Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

Public financing in Sport, Physical Education and Recreation represents a support at local, regional and national level. We will focus on public financing in Zlín Region as a support at regional level.

The Zlín Region is the 8th most populated region of the Czech Republic. About 583 026 people live in the region, the most in Zlín, Uherské Hradiště, Kroměříž and Vsetín. The Regional Authority is situated in Zlín. From here goes a lot of funds to support sport throughout the region. For you to get an idea, in the years 2013 to 2016, the sports activities were supported by the sum higher than CZK 126 million.

The main task of the Zlín Region is to create the conditions for sport, particularly:

- ensuring the development of sport for all and the preparation of sports talent, including disabled citizens,
- ensure the construction, reconstruction, maintenance and operation of its sports facilities,

- ensure financial support for the sport from its budget (from 0 % to 3% of the budget - subsidies, investments, lands).

2. Public financing in sport - Zlín Region

In the Zlín Region, activities of local sports clubs are supported. Every year, many sporting events are organized there. The great mass of funds is reserved to the support of:

- Amateur & Professional Athletes,
- Children & Youth Sport (clubs, young athletes, talents),
- Disabled Athletes,
- Sports Event Management and Organisation at local or regional level (for example, the annual McDonald's Cup Football Tournament, the traditional Barum Czech Rally Zlín or UEFA European Under-21 Championship 2015 which took place also in Uherské Hradiště, Zlín Region).

As for the existence of sports clubs, many of them could not operate without public financing in sport. Respectively, without support at regional or municipal level. Team sports are the most popular in the region – football, hockey, handball, volleyball and floorball. Nevertheless, smaller sports have pointed out that support by public sources of funding depends on members and performances. But it must be said that the Ministry of Education, Youth and Sports (MEYS) should support 240 sport clubs by the amount of CZK 21 million and some investment projects by the amount of CZK 41 million.

The Zlín Region contributes financially to some projects. Individual aid has increased five-fold since 2013 (more than CZK 15 million in 2016). The construction and reconstruction of school playgrounds is going to be supported. For example, a new playground for CZK 9 million will be constructed in 2016. A new Sport Hall in Valašské Meziříčí should be funded by public sources and finished in 2018.

Municipalities that have less than two thousand inhabitants, may apply for funding from the budget of the Region (program to support rural recovery). The subsidy of CZK 27 million may be used, inter alia, for the construction or reconstruction of sports facilities or premises used by local clubs. The new multi-purpose playground will be built for example in Nedachlebice or Machová.

The development of non-traditional forms of tourism is also related to sport. We talk about activities such as the pilgrimage tourism, maintenance of cross-country trails or bike trail. Further, the development of active tourism, spas or cultural tourism. Rural tourism can be promoted by the development of its modern forms – those are biking, farm tourism, religious tourism, horse riding or canal and river routes.

The sum of almost CZK 800 thousand is reserved to modify 170 km of cross-country trails. The subsidies might be divided among these seven entities: Mikroregion Holešovsko, Sportovní klub Brumov-Bylnice, Podhostýnský mikroregion, Sport centrum Kohútka, běžecký areál Pustevny, sdružení Valašsko – Horní Vsacko, společnost B+M Javor.

The Regional Authority issued the Zlín Region's mission statement for the period 2016-2020. In the future, we can look forward to:

- the new program "Youth Sports Coaches to small clubs",
- the increase and transparent allocation of finance to the sports environment,
- support the active involvement of children and young people in sport (promotion in schools, in the media and on the website of the Zlín Region),
- the financial support of major sporting events (Barum Czech Rally Zlín),
- support the Czech Olympic Committee in the project "Olympic games for Children and Youth" (summer and winter) which the Zlín Region has already hosted twice (2008, 2013).

In general, the regional council members emphasize sports clubs and societies which are engaged in the Zlín Region. This is not just about financial support, but also about the personal support. It is often so regional council members become active participants in events organized by locals and thus promote their activities. Children & Youth Sport is supported the most prominently. We will look at it in more detail.

3. Children & Youth Sport in the Zlín Region

One of the main task of the Zlín Region is to create the conditions for Children & Youth Sport. We propose some aspects which could influence choosing a sport for children and young people:

- price and availability of sports sector (parents and their financial possibilities, distance from home),
- natural conditions,
- price of basic equipment,
- membership fees,
- interest in sport,
- health risks.

Children & Youth Sport in the Zlín Region is financed by the regional budget. The amount is increasing from year to year.

TAB. 2: Public financing in Children & Youth Sport – Zlín Region (2013–2016)

Year	2013	2014	2015	2016
Support in CZK (in millions)	14	15.6	16.4	22*

*In 2016, approximately 70 clubs and more than 300 events were financially supported (as part of Fund of the Zlín Region).

Financing in Children & Youth Sport has become one of the priorities of the region. Fund Youth and Sport has managed to raise each year. In four years 2013–2016, were funded:

- organisation of 1 306 events - almost CZK 17 million,
- activities of 81 clubs (at regional and national level) - over CZK 16 million,
- individual investment subsidies - 29 applicants, over CZK 33 million,
- Olympic games for Children and Youth - CZK 7 million.

A total of 120 one-off sporting events for children and young people in the 2nd half of the calendar year 2016 were financed by the regional subsidy of nearly CZK 2 million. The same amount, CZK 2 million, is prepared for financing one-off events in the 2nd half of the year 2017.

The regional council members approved the Children & Youth Sport support in the form of grants of CZK 16.2 million. In 2017, the amount should be used for:

- 91 sport clubs,
- 135 events (in the first half of the year 2017),
- traditional sports or disciplines (football, hockey, athletics, cycling, skiing),
- others (archery, golf, rugby, skittles, diving).

3.1. Sport education in the Zlín Region

School Sports Clubs Association (Asociace školních sportovních klubů AŠSK) is the largest multisport club whose main activity is the promotion and organisation of physical activities in school sports clubs in the Czech Republic. The Zlín Region financially supports the efforts of School Sports Clubs Association in primary schools.

Through the Sports Centres, the School Sports Clubs Association with the Ministry of Education, Youth and Sports support sports activities of children outside of school. It is possible to ensure these activities technically and personnel thanks to the subsidy resources. In the school year 2015/2016 were organised over 300 events in more than 30 sports and their modifications.

If we're talking about sports-focused education of Children and Youth in the Zlín Region, the primary school named after famous athlete Emil Zátopek is situated in Zlín (swimming, hockey and athletics). There is also the secondary school where a four-year study programme is offered to students (athletics, basketball, handball, swimming, and volleyball). Both schools are financed by public sources.

4. Conclusion

The Zlín Region financially supports sports clubs, sporting events, amateur and professional athletes, children and youth sport or disabled athletes. A lot of sports clubs and sporting events were funded

by public resources in the years 2013-2016 and some financial support was approved also for the next years.

We could write another work about the positive effects of sport-on health, on physical and mental well-being or about using sport for prevention of socially pathological phenomena among children and young people. For this mostly positive impact, sport is so much supported by public sources of funding in the Zlín Region.

Literature:

Krajské dotace pomohou pořadatelům sportovních akcí pro mládež. In: *Okno do kraje*. August 2016, volume XII, p.4.

Do mládežnického sportu jde ze Zlínského kraje každým rokem více peněz. In: *Okno do kraje*. September 2016, volume XII, p.4.

Asociace podporuje sportování dětí ve školách. In: *Okno do kraje*. September 2016, volume XII, p.12.

Dobrý kraj stojí na dobrém vzdělávání. In: *Okno do kraje*. October 2016, volume XII, p.9.

Spolky přispívají k dobrému fungování obcí, říká Josef Novák. In: *Okno do kraje*. October 2016, volume XII, p.12.

Zlínský kraj se letos postaral o úpravu běžeckých tras. In: *Okno do kraje*. March 2017, volume XIII, p.5.

Programové prohlášení Rady Zlínského kraje pro volební období 2016–2020. In: *Okno do kraje*. April 2017, volume XIII, p.7.

Dotace míří také ke sportovním lezcům či biatlonistům. In: *Okno do kraje*. May 2017, volume XIII, p.4.

Kraj a město spojí síly, chtějí postavit sportovní halu. In: *Okno do kraje*. May 2017, volume XIII, p.4.

Pomoc obcím. Míří k nim 27 milionů korun. In: *Okno do kraje*. May 2017, volume XIII, p.5.

Děti na hřišti: vede tradiční fotbal, prosazuje se i florbal. Kvůli penězům. In: *Zlínský deník*. November 2016, p.12.

Osmáci vážící mnohdy okolo sta kilogramů? Bohužel už nic výjimečného. In: *Zlínský deník*. November 2016, p.12.

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WHAT ATTRACTS INVESTORS TO EQUITY-BASED CROWDFUNDING? RESULTS FROM AN EXPLORATORY SURVEY IN FINLAND

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Abstract: *This paper studies equity-based crowdfunding and more specifically tries to uncover what issues attract investors to participate in equity-based crowdfunding. This research is based on an exploratory online survey administered in Finland in the fall of 2016. The results show that while funders are partially guided by financial motives the social and the company / product specific issues are also important determinants interest in crowdfunding. These results are in line with and confirm similar earlier results. The results are relevant to both academics and to the financial industry.*

Keywords: *Equity-based, crowdfunding, exploratory, survey, Finland.*

JEL classification: *G21, G23, G24*

Grant affiliation: *NA*

1. Introduction

Crowdfunding is fundraising by way of pooling funding from a large number of funders (the crowd), who typically each participate with a relatively small contribution. Crowdfunding is not a new phenomenon, but it has previously been used from time to time to finance large undertakings, e.g., the pedestal for the Statue of Liberty was crowdfunded and the “March of Dimes” to finance the research to conquer polio that lead to Jonas Salk inventing the first polio vaccine was nothing else than crowdfunding. The modern renaissance of crowdfunding owes to the advancement of technology and typically involves an open call through the internet for financing.

Crowdfunding allows financing seeking entities an access to the public and thus an access to capital, but also to market intelligence. This means that the crowd can also be a source of feedback for the “project” for which financing is sought – this is what can be argued to separate and to make different crowdfunding from traditional sources of financing (Belleflamme, 2014). Crowdfunding may be based on donations, rewards (physical or immaterial), lending (debt), or transfer of incorporated project

ownership (equity). This means that crowdfunding can also act as a source for corporate financing, including initial public offering (IPO) of incorporated firms.

Crowdfunding is becoming more wide-spread and gaining in importance however many important questions, e.g., about the drivers for successful crowdfunding campaigns, about what motivates funders, and about what incentivizes to seek crowdfunding (Brüntje & Gajda, 2015). In this vein, the objective of this research is to increase our understanding of what attracts funders (investors) to participate in equity-based crowdfunding, i.e., in making an investment in a company's shares offered via a crowdfunding platform. The research is based on an empirical study carried out by way of an online questionnaire administered during October 2016. The questions were formulated in order to obtain data about the attitudes towards investing in equity-based crowdfunding, investor motives for investment, signals of quality, and what creates interest in equity-based crowdfunding.

We find that what underlies the motivation to invest in equity-based crowdfunding is a combination of company specific, social, and financial motives. Equity-based crowdfunding seems to be often perceived as a way to invest in young and emerging start-up companies. Our findings are in line with previous studies that found that while investors are not indifferent with regards to financial motives the social and company specific motives seem to be more significant (Belleflamme, 2014; Collins & Pierrakis, 2012). We find that the interest to fund (invest) is affected most positively by high quality human capital, relevant company information, and by the product or service underlying the to-be-funded company.

2. Methodology - on-line survey

The data for the study was collected with an online survey administered in October 2016. The SurveyMonkey software was used and the survey consisted of a customized introduction, ten survey questions, and a thank you page. A link to the survey was distributed through social media during the period 3.10-30.10.2016. Initially the link was shared through one Facebook-account, two Twitter-accounts and two LinkedIn-accounts. The total number of connections to which the link was made initially available was over a thousand. These social media updates were subsequently shared by several recipients through their personal accounts. The survey was distributed in two languages, in Finnish and in English depending on the social media account that was used. The content in the different language versions was identical. A total of 86 respondents answered the survey and make the sample of our study.

The questionnaire questions were organized into five themes (see Table 1 on the next page) in order to obtain an individual investor's; attitude toward investing in equity based crowdfunding, perception of equity based crowdfunding, assessment of signals of quality in firms seeking funding, assessment of signals of quality in crowdfunding campaigns, attitude towards service providers and obstacles in investing in equity crowdfunding. In each of the questions and sub questions respondents were given multiple choices from among which to choose from. When relevant questions featured the alternative "other" they were asked to specify their answer. Here the results from the first three themes are discussed.

TAB. 1: Main and sub questions in relation to the research objective discussed in this paper

Themes	Question / Sub question
Theme 1	Demographics
Q1	Which category below includes your age?
Theme 2	Familiarity (with equity-based crowdfunding)
Q2	Are you familiar with equity-based crowdfunding?
Q3	If yes, have you invested in equity-based crowdfunding?
Q10	Are you planning to invest in equity-based crowdfunding?
Theme 3	Motives
Q4	In your opinion, what does equity-based crowdfunding offer an investor? Choose one or several.
Theme 4	Signals of quality (of a equity-based crowdfunding project)
Q5	In your opinion, what are important factors when choosing a company to invest in (the investment target)? Choose one or several.
Q6	In your opinion, what factors make a funding campaign interesting? Choose one or several.
Q7	In your opinion what factors would make a funding campaign more interesting? Choose one or several.

3. Results

The survey received a total of 86 completed responses. One person responded only to the age question and was therefore removed from the sample. The Finnish version received 60 responses and the English version 26 responses. Most respondents were within the 26-35 (35%), the 36-45 (41%), and the 46-55 (19%) age brackets. 64% of the respondents were familiar with equity based crowdfunding, while 34% were not familiar with the topic. We asked the respondents about their prior investment experience and found that 10% of respondents had already invested in equity based crowdfunding. This, we feel is a rather high percentage. In the following sub-sections we present question-by-question results in more detail.

3.1. Motives (to possibly invest in equity-based crowdfunding)

The respondents were asked what they think equity-based crowdfunding offers investors (see, table 2). Interestingly all the given response choices were chosen by more than 30 respondents (roughly one third of the respondents), which signals that all the chosen alternatives were felt to be relevant. The popularity of the different given alternatives ranged from 36% to 64% of the respondents. The respondents typically chose multiple alternatives, which signals that the motive to invest in equity-based crowdfunding is actually a combination of motives. Surprisingly “Financial gain” (36%) was chosen as a motivation least often, followed by “Access to start-up companies and a possibility to find a firm that will make a break-through in their industry (new facebook)” (42%). The most popular alternative was: “An easy and transparent way to invest in small unlisted companies” (64%). Next came “A way to support an interesting company” (55%), “A new alternative to diversify” (52%), and “A way to invest in growth companies thus supporting employment and economical growth” (48%). Other answers were: “Ability to invest smaller amounts of money”, “Possibility to participate in trendy flows”, and “To hear about new seed-phase innovations”.

Entrepreneurship, startp-ups, growth companies and such are very visible, perhaps even glorified, in our modern society. Through a crowdfunding campaign investors seem to get acquainted with

companies in an intimate way - investors can buy shares of publicly traded companies, but the interaction seems more limited and impersonal. In equity-based crowdfunding the investor typically connects with a smaller group of stakeholders.

TAB. 2: Motives to invest in equity-based crowdfunding

Q4. In your opinion, what does equity-based crowdfunding offer an investor?		
Response alternatives	Responses	
A way to invest in growth companies thus supporting employment and economical growth	48%	41
An easy and transparent way to invest in small unlisted companies	64%	55
Access to start-up companies and a possibility to find a firm that will make a break-through in their industry (new facebook)	42%	36
A way to support an interesting company	55%	47
A new alternative to diversify investments	52%	45
Financial gain	36%	31
Other		3

The owners and the management of the company most often participate in funding campaigns so there is “proximity” between the (pre-money) owners and the potential investors. Our finding is that equity-based crowdfunding is most often perceived as a way of investing in early-stage (emerging, start-up, growth...) companies.

3.2. Signals of quality

In question five the respondents were asked what they consider to be important factors, when they choose investment targets (see Table 3). We found evidence to support the claim that investors look for “signals of quality”, when they seek to find high quality venture investments. We selected eight potential signals of quality and the alternative “other” into a total of nine answer alternatives to see how they resonate with the respondents. The offered alternatives included issues that have to do with “human capital” in the entrepreneurs and in the investors involved in the potential investment target, risk and return, and the financial status of the target. All answer alternatives were chosen by multiple respondents, validating that they are relevant factors in the respondents’ investment criteria. Specifically, the respondents find most important the previous industry experience of the entrepreneurs and the management (69%), when choosing a target company. The education level of the entrepreneurs and management (20%) seems to be less important. Our results confirm that “human capital” is a strong signal of venture quality, but it seems that industry experience outweighs the importance of educational background. The role of owners (entrepreneurs) and the management is very significant for our sample group and, it seems that in order to attract investors, owners and management should be actively involved in the funding campaign. It seems that human capital has a considerable impact on investor interest and therefore is likely to affect crowdfunding campaign success. Reliable financial projections were found to be of importance to over half of the respondents (54%).

The “other” alternative, filled in by the respondents, included issues such as “business idea”, “business plan”, “sales history”, “past performance”, and “current operations” to mention a few. From these (and the above) it can be inferred that high quality information about the company is understood as a signal of quality for the “whole operation” and it seems that the respondents use it

as a part of their investment criteria. High equity retention ratio has been shown to reduce uncertainty that affects campaign success positively and in our sample 33% of the respondents found it important. Involvement of professional investors was found by 32% of the respondents to be an important factor. High expected return was considered important by 34% of the respondents, which corresponds to the earlier findings about respondents with financial motives. The percentage of respondents interested in high expected returns is roughly the same as those motivated by financial gain in question four (36%), visible later on. Only 13% of the respondents chose low risk as an important factor, when investing in equity-based crowdfunding. It seems that the respondents associate equity-based crowdfunding with a high risk level and look elsewhere for low risk investments.

TAB. 3: Important factors for choosing an investment target

Q5. In your opinion, what are important factors when choosing a company to invest in (the investment target)		
Response alternatives	Responses	
Education of owners/ management (1)	20%	17
Equity retention ratio, aka the percentage of shares left to owners (2)	33%	28
Reliable financial projections (3)	55%	47
Industry experience of owners/ management (4)	70%	60
High expected return (5)	34%	29
Low risk (6)	13%	11
Involvement of professional investors (7)	33%	28
Other	16	

The sixth question (see, Table 4) was aimed at studying the factors that make a funding campaign interesting. The given answer alternatives were designed to test for the impact of path dependency, social and human capital, financial and operational information, and for personal involvement. We found that all the given alternatives are factors that seem to impact the respondents. The answer alternatives most frequently found to make crowdfunding campaigns interesting were “Thorough action plan of company operations” (77%) and “Extensive information about company financial status” (67%). Again we find that the respondents are interested in financial and operational information about the company. The results support the finding that high quality information about the company is a signal of quality. Intellectual (38%) and social capital (35%) both seem to influence the respondents, while they are not the single most interesting factors.

TAB. 4: Factors that create investor interest

Q6. In your opinion, what factors make a funding campaign interesting		
Response alternatives	Responses	
Ratio of funds collected to funding target, aka the popularity of the campaign (1)	27%	23
Thorough action plan of company operations (2)	77%	66
References and endorsements for company (3)	35%	30
Possibility to impact company operations, for example through shares with voting rights (4)	27%	23
Intellectual capital for example patents rights (5)	38%	33
Extensive information about company financial status (6)	67%	58

Other	2
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The ratio of funds (already) collected on the way to reaching the funding target, demonstrating campaign popularity, was important for 27% of the respondents. Previous research has pointed to the existence of path dependency or “herding effect” that can be found in crowdfunding, where investors follow prior funding patterns of other investors before them. The fact that more than one fourth of the respondents openly state that interest of others affects them is remarkable and points to a conclusion that presentation (of the popularity of) a campaign may have an effect on how well it fares. The “Possibility to impact company operations, for example through shares with voting rights” appealed to 27% of the respondents. Earlier research (LEY AND WEAWEN) has found that value added by professional investors to early stage ventures may be critical to success, but that the crowd lacks these value-adding capabilities.

In question seven we asked what would make a funding campaign (even) more interesting (see, Table 5). We asked about the relevance of human and social capital, visual representation, and active campaigning. In addition we asked about the impact of the product or the service underlying the venture. It seems that the factors that most affect the respondents’ interest are related to the product or service of the company. Sixty percent of the respondents found a comprehensible product or service to add interest and having a unique product was felt to be an interest adding issue by 53% of the respondents. A product or a service that the respondent herself would purchase increases the interest of 49% of the respondents. On the human capital side of things we found that face-to-face meetings with company management would increase interest of 45% of the respondents, while social capital measured by extensive networks of stakeholders increased interest among 29% of the respondents. These figures support the findings from the previous questions that suggest that albeit both human and social capital increase interest, human capital is more important.

TAB. 5: Factors that would make a funding campaign (even) more interesting

Q7. In your opinion, what factors would make a funding campaign more interesting		
Response alternatives	Responses	
Face-to-face meeting with company management (1)	45%	39
Comprehensible product/ service (2)	60%	52
Video or other material to visualize company operational model (3)	43%	37
Extensive network of stakeholders for example contacts on socia media (4)	29%	25
Active campaigning through frequent campaign updates (5)	16%	14
Product/ service you yourself would purchase (6)	49%	42
Unique product/ service (7)	53%	46
Other		2

Visual material was associated to a grown interest by 43% of the respondents. The least popular alternatives offered were “Extensive network of stakeholders for example contacts on socia media” selected by 29% of the respondents and “Active campaigning through frequent campaign updates” selected by 16%. Other factors listed by respondents included: “Diligent management of company operations and especially the right content of central contracts (=contracts are not self- drawn to save expenses, but compiled with professionals)” and “How business is used to further well-being

and sustainable development". It seems that there is a "worry" among some of the respondents about the quality of management of young companies.

4. Discussion and conclusions

The main objective of this study was to understand what attracts investors to equity-based crowdfunding. The crowd seems to have many motives for engaging in crowdfunding projects. There are intrinsic, social, good-will, and financial motivations and typically the reason to participate is a combination of these elements. We also found that financial motivation was not the strongest motivator in our sample group. Our findings are in line with the results from previous studies (Belleflamme, 2014; Collins & Pierrakis, 2012). Most likely investors are not indifferent about financial gains, but they see equity-based crowdfunding at this time to be most interesting to other than financial reasons. In fact, we found that equity-based crowdfunding was most often perceived as a (new) way of investing in emerging companies.

We studied potential signals of quality of equity-based crowdfunding and found evidence to partially support previous findings by (Mollick, 2014), who found that (three) signals from venture capitalists: "team pedigree", "outside endorsements", and "extensive preparation" to be highly influential to the crowd. Our survey did not find outside endorsements to be as important as team pedigree and a clearly well managed business. Human capital seems to be a very significant signal of venture quality, but our respondents seem to value industry experience over educational background of the entrepreneurs.

We found that our respondents find a "clear and significant" underlying product or service to be a key significant signal of quality, signaling commercial potential, and possible profitability. In addition, our findings emphasize the importance of face-to-face meetings with the entrepreneurs and of visual materials. This is also in line with earlier findings (see, e.g., (Agrawal, 2016)) that suggest the inability to on-line materials alone being able to transmit many positive qualities. Information about intellectual and social capital were found to be positive for campaign popularity, but their impact seems to be smaller than that of human capital.

Finally, we found evidence to support the existence of path dependency in crowdfunding, meaning that previous investments by others may increase the propensity to fund a campaign for a significant portion of our respondents. This finding is in line with earlier findings, see, e.g., (Agrawal, Catalini, & Goldfarb, 2015).

Many of the issues we found confirmed earlier findings by others, this means that a pattern of better understanding what drives succesful (equity-based) crowdfunding campaigns is emerging. Future research will concentrate on better understanding the role and the effect of different attributes of service providers / crowdfunding platforms on the success of crowdfunding campaigns.

Literature:

Agrawal, A. (2016). Are Syndicates the Killer App of Equity Crowdfunding? *California Management Review*, 58(2), p. 111-124.

Agrawal, A., Catalini, C., & Goldfarb, A. (2015). Crowdfunding: Geography, Social Networks, and the Timing of Investment Decisions. *Journal of Economics & Management Strategy*, 24(2), p. 253-274.

Belleflamme, P. (2014). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing*, 29(5), p. 585-609.

Brüntje, D., & Gajda, O. (Eds.). (2016). *Crowdfunding in Europe: State of the Art in Theory and Practice*. Switzerland: Springer International Publishing.

Collins, L., & Pierrakis, Y. (2012). *The Venture Crowd*. Crowdfunding equity investment in business. London, UK: Nesta.

Ley, A., & Weaven, S. (2011). *Exploring agency dynamics of crowd funding in start-up capital financing*. Academy of Entrepreneurship Journal, 17(1), p. 85-110.

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29(1), p. 1-16.

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PROVIDING OF INVESTMENT INCENTIVES IN THE SLOVAK REPUBLIC

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Abstract: *Investment incentive is consider as the main measure of the governments to attract foreign direct investment. This tool is used in order to encourage the allocation of investment in the country or particular region. The providing of investment incentives has to comply with the principles of competitiveness and cannot disadvantage other market subjects. Investment incentives has to be supplementary, not the principal determinant in attraction of investment. The fundamental determinants are GDP or its growth, business environment, wages infrastructure domestic demand and location. However, the similarity in these determinants heighten the importance of the aid that might be provided for investors. Properly set of investment incentives providing might enhance the performance of the economy by the support of the less developed regions. Paper brings the analysis of investment incentives in the Slovak Republic on the regional level concerning various variables such as the volume of incentive per one created job.*

Keywords: *Investment incentive, foreign direct investment, regions, job creation.*

JEL classification: F21, E22, H25

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1. Introduction

To attract foreign investors (FDI), country has to dispose favourable business environment, economic and political stability, suitable legal system, well developed infrastructure and plenitude of labour force as well. Along with these conditions, the important is the size of the domestic demand if the production will be supplied to local market or location of the country if production will be exported. In other words, investors realize investments in order to use one or more advantages of the host country. The OLI paradigm (Dunning, J., 1993, 2000) captures in three lines all advantages that might investors gain. Presently, many countries offer similar conditions to conduct a businesses. This leads to the situation that small differences or factors determine the decision about the allocation of investments. The providing of investment incentives, the forms of incentives as well as the volume of investment aid is one of these factors. A convenient system of providing of investment incentives

might induce investors to overlook some imperfection in potential countries or regions. However, the prime determinants cannot be recompensed by the incentives. The Slovak Republic usually compete for the investments with other Central and Eastern Europe countries, mostly with closest neighbours together with Slovakia belonging to the Visegrad group - Czech, Hungary and Poland (V4 countries). These countries have similar conditions, location in the central Europe and stable political environment. The paper deals with the providing of investment incentives in the Slovak Republic.

2. Literature review

The primary literature associated with the investment incentives is the publication Incentives by UNCTAD (UNCTAD, 2004) that gives the basic definition, explanation and various views on investment incentives, the publication Tax Incentives and Foreign Direct Investment - A Global Survey (UNCTAD, 2000) focuses on the issue of the tax incentives, their characteristics and various applied forms of tax incentives among countries. The paper by Blomström and Kokko (Blomström, M. & Kokko, A., 2003) analyses whether the externalities from the functioning of foreign companies established by the FDI inflow are sufficient to justify subsidizing by host country. It means, whether the companies that have received any form of incentive are able to "requite" this amount in the form of due taxes, employment, social improvement or increasing the economic performance of regions or countries. OECD paper (OECD, 2002) prepared by Blomström has similar content. Tuomi gives the theoretical view on the best practice in attracting investment analysing the investment incentives (Tuomi, K., 2012). Paper shows the use of various fiscal, financial and other incentives in some developing countries with the duration of their providing. It also provides the case studies and lessons from the use of incentives in attracting concrete investments.

3. Data and Methodology Chapter

The data source for the investment incentives is the Ministry of Economy of the Slovak Republic (MH SR, 2017). The indicators that we will focus on are calculated from the data by the author. These are mainly the parameters such as number of incentives, regional distribution of incentives, incentive per one investment project, average volume of incentive and investment cost for the Slovak Republic and for regions as well, number of job created, average job per investment, incentive per one created job and share of incentive on investment cost. The last parameter should be considered as the cost of the encouraging or supporting the FDI inflow to the country or particular region. This cost might include the government expenses (e.g. subsidy to wages for new workers, subsidy to purchase the assets) or the future decrease in tax collection (e.g. tax allowance). Slovakia is administratively divided to 8 regions. The most developed is the Bratislava region. To contrary, the less developed is the Prešov and Banská Bystrica region. These are located in the east, respectively in the middle south of the Slovakia.

4. Analysis of Investment Incentives

The investment incentives are regulated by various Acts and Decrees. A summary of the most important rules for obtaining investment aid is given by SARIO (SARIO, 2017).

Data on investment incentives is available since 2002. Until this time, there wasn't systematic providing of incentives. In period of 2002-2016, the 176 investment incentives (tax allowance, subsidy for purchase assets, subsidy for job creation, subsidy for retraining, transfer of assets for lower as market price) were provided for 148 companies with the level about 1.65 milliard Euro. The related investment projects have created 56,095 jobs and the cost for one created job was 30,291 Euro. To start with the analysis of investment incentives, we have to know the volume of investments flowing to the country, respectively particular regions. The investment cost represents the volume of investments that were provided with the investment incentives in particular region. To be precise, we have to mention that it is not all FDI inflow to the country, but only investments that have received the aid from the authorized authorities. The important information is the average investment cost supported by the investment incentive. This sum is 46,394,046 Euro. The highest average investment cost is in the Trnava region (151,696,632 Euro) that is almost twice as high as the second Žilina region with the average of 85,930,760 Euro. To contrary, the lowest average investment was in Prešov region (10,961,235 Euro) and Banská Bystrica region (17,871,885 Euro). Even analysing the volumes of investment cost at levels, the highest volume of investments were realized in Žilina and Trnava region (1,890,476,730 Euro and 1,820,311,580 Euro). To contrary, it was only 153,457,288 Euro in Prešov region and 446,797,119 Euro in Banská Bystrica region. As seen, the less developed regions has attracted only minor investors when comparing the most developed regions.

To analyse investment incentives, the highest amount of incentives were provided for Trnava and Žilina region. Both regions receive each about 22% of all incentives. To contrary, the less incentives received Prešov (3.46%) and Banská Bystrica region (7.96%) with exclusion of most developed Bratislava region that is presently not authorized to receive an investment aid. Analysing the volumes, the highest volume of incentives have received Trnava region (355,896,537 Euro), the lowest volume Prešov region (57,274,637 Euro). Talking to number of provided incentives, the highest number of incentives has received Košice region (39), Nitra region (29) and Trenčín region (27). On the other side, the minimum incentives has received Bratislava region as the most developed part of the Slovakia (8) followed by the Trnava and Prešov region (12 and 14). The average investment incentive for the Slovak Republic in the period 2002-2016 is 9,393,171 Euro. This sum represents the expenditure of each inhabitant has to pay to attract FDI in the form of investment incentives of the last 15 years. The highest average is 29,658,045 Euro in Trnava region. A far away is the second Žilina region with the average incentive of 16,162,928 Euro. Rest of the regions do not achieve the average incentive higher than 9 million Euro with the lowest average of 4,091,045 Euro in Prešov region and 5,263,252 Euro in Banská Bystrica region. The analysis of investment incentives that were provided in the Slovak regions shows the insufficient support of the less developed regions while considering this indicator of FDI attraction and improving economic performance of regions.

The second important information in the system of providing of investment incentives is the share of the investment incentives on the total cost of the investment projects. This ratio shows how much is the country involved in the investment project. To explain, if is this ratio 20%, the fifth of the

investment project was funding by the host country. Contrariwise, the highest the ratio, the less own funds has investor to use to capture total investment. The ratio for the Slovak Republic in the period 2002-2016 is 20.25% but it differs among the Slovak regions. The highest share of the incentives on investment cost is in Prešov region with the ratio of 37.32%. Thus, the Slovak government is willing to support the investors in this less developed region with such high ratio of incentives. The second highest share is in Banská Bystrica region with the ratio of 29.45% followed by Košice region with the ratio of 27.74%. If considering this indicator as the effort of the government to attract investments to less developed regions, providing of the investment incentives would be the measure to reduce regional disparities by supporting the investors to allocate investments in these regions. However, the indicator investment incentive per one job acts not in such manner, while supporting more developed regions as we will see further.

The indicator investment incentive per one planned created job shows the willingness of the government to subsidy investors in order to create new jobs. This sum for period 2002-2016 represents 30,291 Euro. However, the average incentive per created job differs among the years and regions. 18 investments have received the incentive per one job higher than 50,000 Euro and 5 of them even higher than 70,000 Euro. On the other side, the lowest incentive per job was at the level about 3,000 Euro. The regional disparity is obvious and the sum range from the 18,080 Euro in Trenčín region to 55,018 Euro in Žilina region. However, the less developed regions rank at third and fifth place (Banská Bystrica - 20,025 Euro, Prešov - 28,537 Euro). The highest value of this variable is in Trnava and Žilina region. These regions are also regions with the highest volume of provided investment incentives. The subsidizing jobs in these regions is related to the FDI inflow by automotive companies PSA Peugeot/Citroen and Hyundai/KIA, as well as by subcontracting companies. As seen, the less developed regions rank in the lower half of the ranking. However, if country effort is to support the development of the less developed regions, the incentive per one job should be highest in Banská Bystrica and Prešov region.

TAB. 1: Investment cost and Investment incentives 2002-2016

Region	Investment cost	Average investment cost	Investment incentives	Number of incentives	Average incentive	Share of incentives on investment cost (%)	Incentive per one job
Bratislava	555,700,359	69,462,545	62,779,915	8	7,847,489	11.30	18,470
Banská Bystrica	446,797,119	17,871,885	131,581,302	25	5,263,252	29.45	20,025
Košice	858,878,802	22,022,533	238,226,894	39	6,108,382	27.74	24,580
Nitra	1,138,755,315	39,267,425	252,698,299	29	8,713,734	22.19	30,545
Prešov	153,457,288	10,961,235	57,274,637	14	4,091,045	37.32	28,537
Trenčín	1,300,974,898	48,184,255	199,156,097	27	7,376,152	15.31	18,080
Trnava	1,820,311,580	151,692,632	355,896,537	12	29,658,045	19.55	49,720
Žilina	1,890,476,730	85,930,760	355,584,411	22	16,162,928	18.81	55,018
Slovakia	8,165,352,091	46,394,046	1,653,198,091	176	9,393,171	20.25	30,291

Source: MH SR. (2017)

5. Conclusion

FDI and thus related incentives is located in the most developed regions. On the other side, there is a lower attraction of investors for the less developed regions. In order to make these regions more attractive, government shall increase or change the regulation in favour to less developed regions. It means that the average investment incentive, the incentive per one job or the share of the incentive on investment cost would be the highest in Prešov and Banská Bystrica region. However, only the last indicator acts accordingly. To contrary, previous indicators are the highest in the most developed regions of Trnava and Žilina.

The analysis of investment incentives in the Slovak regions shows that their providing is not fundamental determinant of FDI inflow to regions. Even if the share of incentives on the investment cost is very high, investors have no interest to allocate investments in these regions. The fundamental determinants are still the economic performance of the region (regional GDP), unemployment rate, wage level, location and access to the market (domestic or foreign demand) or infrastructure (road and rail density). The providing of investment incentives is only supplementary and might encourage investors to allocate investments in particular regions in case of similar conditions in different regions.

Literature:

Blomström, M., & Kokko, A. (2003). *The Economics of Foreign Direct Investment Incentives* (NBER Working Paper 9489). Cambridge, MA: National Bureau of Economic Research. Retrieved July 19, 2017, from <http://www.nber.org/papers/w9489> (25pt).

Dunning, J. (1993). *Multinational Enterprises and the Global Economy*. 2. ed. Wokingham: Addison-Wesley Publ. Co.

Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International Business Review*, 9 (2000), p. 163-190.

MH SR. (2017). *Zoznam podnikateľských subjektov, ktorým bolo schválené poskytnutie regionálnej pomoci*. Retrieved July 19, 2017, from <http://www.mhsr.sk/investicne-stimuly/146691s> (4pt).

OECD. (2002). *The Economics of International Investment Incentives*. New York and Geneva: United Nations. Retrieved July 19, 2017, from <https://www.oecd.org/investment/investment-policy/2487874.pdf> (19pt).

SARIO. (2017). *Investičná pomoc na Slovensku*. Retrieved July 19, 2017, from <http://www.sario.sk/sites/default/files/content/files/sario-investicna-pomoc-2017.pdf> (2pt).

Tuomi, K. (2012). *Review of Investment Incentives: Best Practice in Attracting Investment*. Working Paper. London School of Economics and Political Science: International Growth Centre. Retrieved July 19, 2017, from <http://www.theigc.org/wp-content/uploads/2014/09/Tuomi-2012-Working-Paper.pdf> (22pt).

UNCTAD. (2004). *Incentives* (UNCTAD Series on Issues in International Investment Agreements). New York and Geneva: United Nations. Retrieved July 19, 2017, from http://unctad.org/en/Docs/iteiit20035_en.pdf (100pt).

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NEET PHENOMENON IN LABOUR MARKET

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Abstract: *The aim of the post is to point to a new phenomenon, which is NEETs (not in education, employment, or training). According to the European Commission NEETs Part applies to people who currently do not have a job, participate in a training and are not classified as students. It is a measure alienation from the labor market and consequently society in general. In the paper, we are focusing on finding solutions for the NEET category with an emphasis on motivation for learning, which is the basis for acquiring and using knowledge and skills in the market.*

Keywords: *NEETs, unemployment, education, young people.*

JEL classification: *A 2, 125, H 52*

Grant affiliation:

1. Introduction

Unemployment of young people is an actual problem which brings long term psychological, social, economic and political consequences. If young people do not learn or acquire work habits their absence is evident during the whole life and negatively influences their effort to integrate into a working process.

It is important to attract attention to a new phenomenon, noticed worldwide referred to as NEETs (not in education, employment, or training).

2. NEETS as heterogeneous group of young people

NEETs present a heterogeneous group which contains a set of subgroups which have different characteristics, typical features and needs. It is possible to identify five main subgroups: the biggest is presented by unemployed young people who are long-term unemployed and not interested in work. The next group includes young people who actively look for a job, are willing to requalify but despite

that they do not possess suitable skills required by a labour market. The other group are young people without job but having parental responsibilities and young people who are handicapped. A specific subgroup are young people who devote most of their time to free time activities such as travelling, art, etc. There is also a subgroup of young people who are satisfied with asocial style of living (Cílek, 2008). Division of NEETs points out that there is no a classical type of NEETs. Young people can be in one or more than one of the above mentioned groups due to their attitudes towards education and repeated integration into a working process.

Other division of NEETs category:

Open to learning and education – usually concerns young people who have already worked but the job they had due to different reasons was not the right choice and they are out of the working process but they still are looking for a suitable opportunity to get back to this process. A lot of them are secondary schools or even higher education graduates. They see and speak about their future optimistically and look for new challenges. The group has the biggest chance to leave the group of unemployed.

Not decided – these young people are able to create their opinion about what they want to do or in what area they want to be educated, but in the region where they live they will not get a job in institutions or companies which they would like to join.

Permanent core – young people are considered to be typical representatives of NEETs, because they have no motivation to be educated or to work. They often have no employment background and achieved only a low educational level, have weak social background and often suffer from behavioural disturbances. This group is divided into two subgroups:

1. a risky subgroup presented by young people according to a standard characteristic of NEETs, i.e. unemployed and not being educated, coming usually from less stimulating or risky social environment and having symptoms of problematic behaviour,
2. a positive group including young people who for example work as volunteers, they travel do some sports, etc. This group is not threatened by economic and social problems (Cílek, 2008).

European Union called its member states to ensure young people aged under 25 after finishing their school education or losing a job an opportunity to get a new job and continue in the educational process. European Union is willing to provide its support in a form of finances from European funds, exchange of reliable procedures among member countries, monitoring of social programmes and organizing of information campaigns.

There is also a case when young people prolong the period of unemployment by several years, as a result of their free will when they decide for a chaotic moving in a space of so called transition period of their life and they connect their unemployment with a chance to attend a short course, to have a part time job or only brigade-work (Buchtová, 2013). They often leave their jobs since they travel abroad to do a short time work with the aim to get and improve their language skills and to get known other countries, etc.

After finishing their education young people usually do not feel a necessity to find a permanent job which is not lucrative and highly paid. They are aware of their qualities and do not respond to offers

of non-qualified jobs. But this actually irrational “mixture” of knowledge and skills acquired in different courses and short time jobs can later be seen and perceived as required competency of an individual in proving his consequent professional competency.

individual in proving his consequent professional competency.

3. Presentation of selected results of the research

The research was carried out in a form of questionnaire, distributed to the respondents in an electronic way. We addressed 271 respondents – all were unemployed people. Research sample consisted of 139 females and 132 males who live in the region of east Slovakia. The research was carried out from October 2016 to March. Research area was the region of east Slovakia.

If you study the data provided in the previous table, several questions come to our mind – “is unemployment conditioned by the structure of education?”, or “is there a connection between the monitored characteristics?” To verify our assumed answers, we designed two-dimensional table containing the scale – age and education.

TAB. 1: Structure of respondents due to their age and education

	A1	A2	A3	A4	A5	A6
< 19	0	2	1	0	0	0
19 - 25	0	11	41	42	1	0
26 - 30	0	12	6	11	11	0
31 - 40	1	8	1	6	32	1
41 - 50	1	8	1	10	53	3
> 50	2	1	0	0	2	3
Σ	4	42	50	69	99	7

Source: own processing

The following assumption was formulated as a hypothesis:

H0: Monitored phenomena do not depend. In the structure of unemployed people which is monitored, education is not a critical factor.

H1: Monitored phenomena depend. In the structure of unemployed people which is monitored, education is a critical factor.

To verify the hypothesis, we utilized chi-quadrat test at the level of significance equal to 0.05. A condition to utilize Pearson’s chi-quadrat test is the assumption that frequencies in individual categories achieve at least the value 5, we modified the categories by their connection with the logically nearest category. After processing the number of monitored categories is 3 for age and 3 for educational part. The value of probability $p=6,03587E-20$ is remarkably lower than commonly used levels of significance, i.e. remarkably lower than selected value 0.05. The value of testing criteria is $\chi^2_{test}=150,7875$, critical value $\chi^2_{0,05;3;3}=16,91898$. Also in this case the testing value significantly

exceeds the critical value. Based on the results we recommend to accept the alternative hypothesis H1, since the monitored signs are statistically significantly dependent.

For illustration we provide data concerning unemployment of young people within the EU in 2017 based on statistics of Eurostat: in February 2017 there were 3.9 million young unemployed people at the age to 25, unemployment of young people went down by 475,000 compared to February 2016, in February 2017 the rate of young people unemployment was in EU 17.3 % compared to 19.3 % in February 2016.

The differences in young people unemployment are big in individual European Union countries – from 6.6 % in Germany up to almost 45.2 % in Greece and 35.2% in Italy. Due to the share of young unemployed people aged below 25 within 28 European Union countries Slovakia is on the sixth uncomplimentary place. According to the data of European statistic office Eurostat the unemployment rate of young people was 24% in Slovakia in 2016. European average is lower, equal to 18.8 %. Spain faces the highest share of unemployed young people for the long time and almost every other young person aged below 25 years has no job and there is about 40% unemployment rate causing problems in Italy. The biggest number of graduates was registered by employment agencies in Slovakia socio-scientific specializations. Almost a half of unemployed graduates (45.44 %) was unemployed for more than half a year (Eurostat).

Based on the data we obtained we wanted to find out how this fact reflects in the age structure of the respondents, i.e. what is the relation between the monitored phenomena.

Is the length of unemployment period related to the age of respondents? Which age category of job applicants is most threatened by unemployment? The answers are in the table 2:

TAB. 2: Structure of respondents due to their age and length of registered unemployment

age	A1	A2	A3	A4	
< 19	0	4	2	2	8
19 - 25	35	17	20	23	95
26 - 30	3	22	9	6	40
31 - 40	6	7	18	15	46
41 - 50	25	7	2	42	76
> 50	0	0	2	4	6
	69	57	53	92	271

Source: own processing

To verify it we again used Pearson's Chi-test at level 0.05. To fulfil conditions of its utilization we connected the categories of the youngest and the oldest respondents with the nearest age category. Our assumption was formulated in a form of zero and alternative hypothesis.

H0: Age does not have an effect on the length of registered unemployment, there is no significant difference in the length of registered unemployment among age categories.

H1: Age has an effect on the length of registered unemployment, there is a significant difference in the length of registered unemployment among age categories.

TAB. 3: Modified structure of respondents

age	A1	A2	A3	A4	
< 19					
19 - 25	35	21	22	25	103
26 - 30	3	22	9	6	40
31 - 40	6	7	18	15	46
41 - 50	25	7	4	46	82
> 50					
	69	57	53	92	271

Source: own processing

After application of chi-test which is a part of EXCEL, the probability $p=4,552E-13$ is remarkably lower than the value 0.05. We recommend to refuse zero assumption and accept alternative statement. So age is the factor which significantly effects ability to employ – and not only in the region we monitored.

4. Conclusion

A personal situation of an individual on a labour market, his employment or unemployment, self-employment or entrepreneurship is assessed in different ways according to cultural norms including social expectations depending on roles of men and women. There is a cultural tradition based on which unemployment of women is not so catastrophic. There is always an alternative for a woman to assert herself in the area of family life development, in a form of looking after children, taking care of household and if necessary also in taking care of old or sick parents. But the role of a man to ensure income for the family is emphasized as well as the role of women to look after and ensure household operation.

Literature:

Buchtová, B. a kol. (2013). *Nezamestnanosť – 2. prepracované a aktualizované vydanie*. Praha: Grada. 2013. ISBN 978-80-247-4282-3.

Cílek, V. (2008). Hikikomori: příliš inteligentní a příliš líní. In: Krok - *Knihovnická revue Olomouckého kraje*, 4/2008. Vědecká knihovna v Olomouci. ISSN 1214-6420.

Cílek, V. (2008). Příliš inteligentní a příliš líní. In: *Psychologie dnes*, č. 3/2010.

Černá, Ľ. (2010). Flexibilita a istota na trhu práce. In: *Hospodářská politika v členských zemích Evropské unie: Sborník příspěvků VIII. mezinárodní vědecké konference*. 8.-10. září 2010, Opava: Slezská univerzita, 2010. S. 49-55 s. ISBN 978-80-7248-601-4.

For more see: <https://www.employment.gov.sk/sk/praca-zamestnanost/podpora-zamestnanosti/zaruka-mladych-ludi-sr/>.

For more see: <https://europskenoviny.sk>.

For more see: <http://www.europskaunia.sk/eurostat>.

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COMPARATIVE ANALYSIS OF FINANCIAL DISTRESS PREDICTION MODELS FOR SLOVAK COMPANIES

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Abstract: *Analysis of financial state of the company and prediction of its future development or the risk of imminent bankruptcy is very important not only for company management, but also for its creditors, employees and other company stakeholders. For this reasons are nowadays bankruptcy prediction models in the center of attention of economists all over the world. In the paper we focus on verification of prediction ability of bankruptcy models created in countries of V4. We analyze the most used models from these countries and compare the accuracy of their prediction of financial distress for several selected companies using real data from last years.*

Keywords: *Prediction models, Bankruptcy prediction model, Multivariate discriminant analysis, Logit model.*

JEL classification: C38, G33

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1. Introduction

In today's market economy, business failure occurs quite often. Business failure has a negative impact on all entities entering into business relationships with a company. Thus, assessing credit risk and predicting the financial situation of a company is useful not only for creditors, but also for investors and business owners, business management or employees. On the basis of the credit risk assessment and the forecast of company's financial health, the company may in case of financial difficulties treatment indication take the necessary measures in time. Bankruptcy models can predict the probable bankruptcy in advance. As this prediction is needed for every company, economists around the world are creating predictive models that can indicate the company's financial problems. Over the last few years, a large number of bankruptcy models have been created in conditions of the country or the sector of the economy for which they were created. Most bankruptcy models

originated in the US and were therefore developed for US companies. (Kollar et al., 2015). But bankruptcy models were created in other countries around the world. (Kliestik et al., 2017) In the Slovak Republic, Chrastinová in 1998, Binkert in 2000, Gurcik in 2002, Hurtošová in 2009 and Gulka in 2016 designed bankruptcy models. Various bankruptcy models have been proposed in other V4 countries, such as Virág and Hajdu in Hungary (1996), Poznański in Poland (2004), Neumaierová and Neumaier in the Czech Republic in 1995, 1999, 2001 and 2005 as well as Jakubík and Teplý in 2006. (Kral & Janoskova, 2016)

Prediction models are created using various multidimensional statistical methods. One of the most commonly used methods of predicting bankruptcy is the Multidimensional Discrimination Analysis (MDA) method. Its objective is to include the analyzed enterprise in a group of prosperous or non-prosperous ones based on the values of financial ratios of the company. The prediction ability of the model is evaluated as the ratio of well-identified companies. Using the MDA method, a discriminatory function is created as a linear combination of values of financial ratios, setting limit values for this function, for which we consider the company to be a non-prosperous one. However, it is possible that the model include the company only into the so-called gray zone, where it is not decided whether an enterprise belongs to a prosperous or non-prosperous group. Another often used method for creating prediction models is the logistic regression method (LOGIT models). The purpose of the LOGIT model is to determine the probability that a company belongs to a group of companies threatened by bankruptcy. Recently, other methods, such as neural networks, decision trees, or genetic algorithms, or combinations of these, are often used in predictive models.

An important question in the application of bankruptcy models is the choice of models that would best predict the possible failure of the analyzed company. In this article, we focus on several selected models developed in the V4 countries over the last decades and analyze their prediction ability for a sample of Slovak companies.

2. Methodology and data

In Slovakia, as well as in other countries, prediction models created in other economic conditions are commonly used. It is used, for example, the Altman or Ohlson model, which was created in US conditions several decades ago. But much more effective is the use of local models reflecting local economic conditions. We have focused on the analysis of the prediction ability of some commonly used bankruptcy models from the V4 countries for Slovak companies. We chose these nine models: Poznański, Virág-Hajda MDA, Virág-Hajdu LOGIT, Jakubík-Teplý, Chrastinová, Binkert, Gurčík, Hurtošová and Gulka model. These models were created using MDA or logistic regression. Even though these approaches have certain limitations, they are still widely used to predict bankruptcy.

The Poznański model was published in 2004. It has been created using 100 Polish companies in the years 1999-2002. It is based on 4 financial ratios using MDA method and the predictive accuracy of this model is 92.98%. (Spuchlakova, 2016)

The Hungarian bankruptcy model was developed by Virág and Hajdu in 1996, based on a database of 154 enterprises (77 bankrupt and 77 non-bankrupt ones) from 1990 to 1991 using MDA method, as well as logistic regression, examining the original 17 indicators. (Virág & Kristóf, 2005)

In 2004 Jakubík and Teplý analyzed a sample of 757 Czech companies (606 prosperous and 151 non-prosperous). They created a bankruptcy model, JT index, using logistic regression. The model uses 7 ratios. The authors report the prediction accuracy of the JT index of 80.41%. In 2006, the Czech National Bank included the model in its quantitative apparatus for evaluating the financial stability of non-financial companies. (Jakubík & Teplý, 2011)

The model referred as CH-index is the first Slovak model published in 1998 by Zuzana Chrastinová. The author used MDA to design and tested 1 123 enterprises. The CH-index took into account the specifics of the agriculture companies. (Chrastinová, 1998)

Christian Binkert used data of Slovak (80 prosperous and 80 non-prosperous) joint-stock companies from different sectors. He drew data from the financial statements for three consecutive accounting periods. With MDA, he developed models with 8 indicators of the original 72. (Vlkolinský, 2013)

Gurčík built his G-index with MDA to distinguish agriculture companies on prosperous and non-prosperous. Based on the random selection of 60 Slovak companies, the model was designed with 5 indicators, from the original 35. (Gurčík, 2002)

In 2016, Martin Gulka was awarded the prize of the Governor of the National Bank of Slovakia for developing a bankruptcy model using logistic regression. He analyzed a sample of 120,854 business companies operating in the SR (120,252 healthy companies and 602 bankrupt companies). The model contains 7 indicators, from original 25, and is able to predict the default one year ahead. (Gulka, 2016)

In our research, the prediction ability in SR conditions was verified on a sample of carefully selected 5 pairs of companies. Each pair consists of non-prosperous and prosperous company with the same SK NACE, the same legal form and the same size category. We have identified the company as non-prosperous on the basis of currently valid legislation.

We analyzed real data from the financial statements of selected companies, balance sheets and profit and loss accounts for 2013, 2014 and 2015 obtained from the Register of Financial Statements of the Ministry of Finance of the Slovak Republic.

We have calculated the values of all financial ratios for each company that is required for analyzed models. For each company and each model, these values were put into the appropriate discriminatory or logit functions. Then the results are compared with the boundary values and then the decision is made whether the given model considers the company to be prosperous or not. The quality of the models is judged by the number of well-identified enterprises.

3. Results

Five non-prosperous and five prosperous companies were included in the analysis. Ex-post analysis of non-prosperous companies confirmed that enterprises were in a state of financial distress as the value of the liabilities exceeded the value of the assets in the review years, the financial independence factor assumed negative values in all cases, and companies have negative liquidity. To these 5 non-prosperous companies, 5 prosperous companies were included in the analysis. These

companies have positive liquidity and are not in risk of bankruptcy. The value of their assets exceeded the value of the liabilities. So they were financially independent.

The financial ratios of all enterprises were assigned to the selected models. Complete results of bankruptcy prediction through selected models are summarized in the following table. Companies that have been identified by the model as non-prosperous are signed N. Prosperous companies are marked by P. The models have some companies rated as average, located in the gray zone (GZ). Sometimes the result could not be calculated (NaN) due to zero division.

TAB. 1: Selected models bankruptcy prediction

Model	Non-prosperous companies					Prosperous companies				
	1	2	3	4	5	1	2	3	4	5
Poznański	N	N	N	N	N	P	P	P	P	P
Virág-Hajdu MDA	N	P	N	N	P	P	P	P	P	P
Virág-Hajdu LOGIT	N	N	N	N	N	P	N	P	P	P
Jakubík-Teplý	N	NaN	N	N	N	NaN	NaN	P	NaN	P
Chrastinová	N	N	N	N	N	GZ	GZ	N	N	N
Binkert	GZ	NaN	P	P	GZ	GZ	P	P	NaN	GZ
Gurčík	N	GZ	N	N	GZ	GZ	P	P	GZ	GZ
Hurtošová	P	P	P	P	P	P	P	P	P	P
Gulka	N	N	N	N	N	P	P	P	P	P

The Polish Poznański model and the Slovak Gulka model have been able to correctly differentiate all companies. Both the Virág-Hajdu models (including MDA and LOGIT) have also been well ranked. If the result could be calculated, the Jakubík-Teplý model has ranked businesses flawlessly. The Gurcik model has ranked half of the businesses correctly, and half placed in the gray zone. The worst results were Chrastin model, Binkert model and Hurtoš model. The Chrastine model has ranked nearly all businesses into a non-prosperous group (two in the gray zone). The Binkert model has mistakenly placed two non-prosperous businesses in a prosperous group. In only six cases this model gave the indeterminate result or the result could not be calculated. The Hortus model was not able to predict the company's lack of prosperity. All non-prosperous businesses were marked as prosperous.

TAB. 2: Correct and incorrect classification and Type I and Type II error of applied models

Model	Correct classification (% of all companies)	Incorrect classification (% of all companies)	Type I Error (% of non-prosperous companies)	Type II Error (% of prosperous companies)
Poznański	100	0	0	0
Gulka	100	0	0	0
Virág-Hajdu LOGIT	90	10	0	20
Virág-Hajdu MDA	80	20	40	0
Jakubík-Teplý	60	40	0	0
Gurčík	50	50	0	0
Chrastinová	50	50	0	60
Hurtošová	50	50	100	0
Binkert	20	80	40	0

The Table 2 lists the percentages of the correctly and incorrectly classified companies, as well as Type I and Type II error (as a percentage of non-prosperous or prosperous companies). As a correct result we consider such a model that the non-prosperous company rightly identified as non-prosperous and prosperous rightly as prosperous. Incorrect classification was such a result where model sing a non-prosperous company as being prosperous or prosperous as being non-prosperous. Moreover, results that included a company into a gray zone, or the result could not be calculated, were included in this group, too. The Type I error is the case where the bankruptcy model incorrectly described the non-prosperous enterprise as prosperous. Similarly, Type II error occurs when a prosperous company has been by a model identified as non-prosperous. Thus, these mistakes mean an incorrect business classification, therefore, the "irrelevant" model results are not considered (inclusion into the gray zone and the case when model result cannot be calculated).

As we analyze the financial health of companies under the conditions of the Slovak economy, it is interesting to see if the health of these companies better identifies Slovak bankruptcy models. The following table compares models created in Slovakia with models created in other V4 countries. As we can see, there is one Slovak and one foreign model that discriminates the enterprises completely accurately. Other Slovak models have a prediction accuracy of only 50% or 20%. By contrast, foreign models have more than 50% prediction power.

TAB. 3: Comparison of Slovak and foreign bankruptcy models

Model	Correct classification (%) of all companies)	Incorrect classification (%) of all companies)	Type I Error (% of non-prosperous companies)	Type II Error (% of prosperous companies)
Foreign bankruptcy models				
Poznański	100	0	0	0
Virág-Hajdu LOGIT	90	10	0	20
Virág-Hajdu MDA	80	20	40	0
Jakubík-Teplý	60	40	0	0
Slovak bankruptcy models				
Gulka	100	0	0	0
Gurčík	50	50	0	0
Chrastinová	50	50	0	60
Hurtošová	50	50	100	0
Binkert	20	80	40	0

4. Conclusion

Early anticipation and possible avert of bankruptcy is one of the main tasks of the management of every company. For this purpose, bankruptcy models have been designed all over the world. We have focused on the analysis of the prediction ability of the models used in the V4 countries under the conditions of the current post-crisis economic situation in Slovakia. We analyzed the financial situation of 5 selected prosperous and 5 non-prosperous companies. For the analysis we used 5 Slovak models and 4 models from other V4 countries.

Based on the results of the comparative analysis, we can conclude that the most suitable model for predicting the financial difficulties of Slovak companies is the Gulka model from 2016 and the

Poznański model from 2004. Both models correctly identified all non-prosperous and all prosperous companies. The Virág-Hajdu models created in Hungary and the Czech Jakubík-Teplý model have achieved a higher prediction accuracy than the Slovak models that correctly identified at most 50% of the companies. Gurčík model, Chrastinová model, Hurtošová model and especially Binkert model do are thus not recommended for the financial health forecasting of Slovak companies. Therefore, for ex-ante analysis of bankruptcy threat for Slovak companies, we recommend using Gulka or Poznański bankruptcy prediction models.

Literature:

Chrastinova, Z. (1998). *Metódy hodnotenia ekonomickej bonity a predikcie finančnej situácie poľnohospodárskych podnikov*. Bratislava : VÚEPP. ISBN 80-8058-022-7.

Gulka, M. (2016). Predictive Model of Corporate Failure in the Slovak Business Environment. *Forum statisticum Slovacum*, 12(1), 16-22.

Gurčík, Ľ. (2002). G-index – the financial situation prognosis method of agricultural enterprises. *Agricultural Economics*, 48, 373-378.

Jakubík, P., & Teplý, P. (2011). The JT Index as an Indicator of Financial Stability of Corporate Sector. *Prague Economic Papers*, 20(2), 157-176. doi:10.18267/j.pep.394.

Kliestik, T., Siekelova, A., & Misankova, M. (2017). Financial Health Prediction of Company's Business Partners Based on Selected Quantitative and Qualitative Indicators. *Journal of Economics, Business and Management*, 5(3), 143-147.

Kollar, B., Kramarova, K., & Valaskova, K. (2015). The financial distress analysis of the stated-own company by applying chosen default prediction models in condition of Slovakia. In *3rd international conference on economics and social science (ICESS 2015)* (Vol. 86-87, Advances in education research, pp. 160-167). Paris, France: Information Engineering Research Institute.

Kral, P., & Janoskova, K. (2016). Comparison of the selected bankruptcy models. In H. Zhang (Ed.), *ISSGBM international conference on information, communication and social sciences (ISSGBM-ICS 2016)* (Vol. 66, Lecture notes in management science, pp. 15-20). Singapore: Singapore Management and Sports Science Institute.

Spuchlakova, E. (2016). Comparison of the selected bankruptcy models. In H. Zhang (Ed.), *2016 ISSGBM International Conference on Information and Business Management (ISSGBM-IB 2016)* (Vol. 61, Lecture notes in management science, pp. 15-20). Singapore: Singapore Management and Sports Science Institute.

Virág, M., & Kristóf, T. (2005). Neural Networks in Bankruptcy Prediction - A Comparative Study on the Basis of the First Hungarian Bankruptcy Model. *Acta Oeconomica*, 55(4), 403-426. doi:10.1556/aoecon.55.2005.4.2.

Vlkolinský, P. (2013). Prehľad vývoja ratingových modelov vo vybraných krajinách (5th part). *Finančný manažér*, 13(3), 26-35.

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QUALITY LABELS OF NATURAL AND ORGANIC COSMETICS

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Abstract: *The paper focuses on the certification of quality of natural and organic cosmetics. The interest of customers in those products came hand in hand with the demand for organic food. To assure the customers of the quality of the ingredients, manufacturing processes and the final products, certifications of quality were established. This paper aims to analyse the existing Czech quality labels and to compare them with selected international ones.*

Keywords: *Certification, Quality, Cosmetics.*

JEL classification: *D18, L66*

Grant affiliation: *IGA_FF_2017_011 Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

As the interest of customers in organic food grew over the years, so did the demand for more environmentally friendly cosmetic products. Consumers started preferring brands which use more sustainable approach to their products, less chemical ingredients and do not harm animals in the manufacturing process (Závodný Pospíšil, J, 2015). Natural and organic cosmetics is, therefore the right choice for them, nevertheless, there still is a lack of clarity in interpretation of what those terms actually mean.

2. Natural and organic cosmetics

The differences between natural and organic cosmetics are not officially defined, but certain distinctions between those two terms exist. Natural cosmetics should use the majority of ingredients from natural sources, however, the percentage is not precisely stated - according to different standards, the synthetic materials could make up to 30% of the constituents. There is also unclarity when it comes to the use of preservatives, animal substances or ecological packaging. By contrast,

the term “organic cosmetics” should be more strict - the origin of the ingredients should be from organic agriculture or harvest, it is forbidden to use synthetic or genetically modified ingredients as well as preservatives. The use of ecological packaging is encouraged. (Netíková, 2012)

Unfortunately, as those terms are not legally binding, many companies use them only as a marketing tool and consumers, who are not familiar with the requirements, may be easily confused. That is the reason why different quality labels were established. They attract specific groups of customers, also called “green consumers”. The labels help them to navigate the market and they connect them with quality and beneficial effect (Závodná, 2015). The companies apply for the certification to assure the consumers of the origin and quality of the ingredients, manufacturing processes and the overall quality of their products.

3. Research methodology

The paper focuses on Czech and international quality labels for natural cosmetics. The first step was to select those quality labels, which were then subjected to the analysis. Three quality labels were selected - one Czech and two international. CNC and CNC Organic represent the Czech quality labels. Label Cosmos was selected, because since January 1st, 2017, it has become the unified standard for five major European certification organizations. Label Natrue was selected, because it is an international association which approaches its certification process very precisely. Those three labels were compared based on their demand on the percentage of natural and organic ingredients in the certified products.

4. Czech and international quality labels

4.1. CNC and CNC Organic

CNC and CNC Organic (CPK and CPK Bio in Czech) are currently the only Czech quality labels available. They are issued by a non-profit organization KEZ (Kontrola ekologického zemědělství - Organic Farming Inspection) since 2007.

The CNC Certified Natural Cosmetics standards guarantee that the cosmetic preparation contains at least 85 % of components of natural origin, contains ingredients listed in the organization’s Standards and does not contain ingredients such as synthetic colorants and preservatives, silicones, petroleum derivatives or genetically modified materials. Testing on animals is forbidden in any part of the production process as well as the use of products extracted from dead animals. They also specify the requirements for extraction methods or packaging. As for the CNC Organic label, in addition to the CNC Standards the cosmetic preparation must contain at least 90 % of components of natural origin while at least 20% of the weight percentage must come from organic production, and it cannot contain chemically refined oils (KEZ, 2015).

4.2. Natrue

Natrue is an international non-profit organization based in Brussels, Belgium. Founded in 2007, the association started tackling one of the bigger problems in the industry - unfair marketing practices, also called “greenwashing”, and lack of transparency between companies and customers. To obtain

their quality label, at least 75 % of the certified product line has to fulfill the requirements. This prevents cosmetic companies from certifying only one or two products but marketing the entire line as natural or organic (Natrue, 2017b). The license has to be renewed every two years.

The organisation also has very precisely defined product categories and requirements for each one of them. This is mainly because each type of product contains ingredients in various ratios and two different products cannot have the same level of guaranteed natural ingredients (Natrue, 2017b). There are thirteen product categories in total and a minimum content of natural substances and a maximum content of derived natural substances are set for each one. Furthermore, Natrue has established three levels of certification. Firstly, it is Natural cosmetics, which has to fulfill the rules, as previously stated. Secondly, for Natural cosmetics with organic portion, at least 70 % of the natural ingredients have to come from controlled organic production or collection. Lastly, it is the category of Organic cosmetics, where at least 95 % of the ingredients must come from organic sources (Natrue, 2017a).

4.3. Cosmos

The quality label Cosmos - Cosmetic Organic Standard - was established by the five major European organic and natural cosmetics standard-setting organisations - BDIH (Germany), Cosmebio (France), Ecocert (France), ICEA (Italy) and Soil Association (United Kingdom). Since 2002 they debated over the fact that the cosmetics industry and market become more and more internationalized and that one single harmonized standard would benefit both the industry and the customers. The unified standard was introduced in 2010 and is available internationally (COSMOS-standard AISBL, 2017). As of January 1st, 2017, all newly certified products by each of the partners have to meet the COSMOS standards, which will eventually become the mainstream global standards for organic health and beauty (Soil Association, 2017). The companies have to renew their certification every year.

The Cosmos standard covers two levels of products - natural and organic. As for the natural products, there is no specific number for natural origin percentage, however, it is calculated by a specific formula. The organic products require to have at least 95% of ingredients of organic origin and at least 20 % of the total product weight to be organic. Cosmos also encourages minimizing the environmental impacts of packaging and using reusable and recyclable materials (COSMOS-standard AISBL, 2013).

The following table offers an overview of the quality labels and their comparison. The three labels were compared on availability, year of establishment, validity of the certificate, number of certified brands, cost of certification, available types of certification and minimum required percentage of natural and organic ingredients.

TAB. 1: Czech and international quality labels

	CNC	Natrue	Cosmos
Availability	Czech Republic	Europe, Turkey, USA	International
Established	2007	2007	2010

Validity	1 year 3 months		2 years			1 year	
Certified brands	14 (all Czech)		230 (1 Czech)			over 1500 brands across 5 founding members	
Cost	Basic annual fee 5000 CZK (approx. €190)		Label fee per product €200 or €160, based on number of certified products			Minimum fee €250	
Type of certification	CNC	CNC Organic	Natural cosmetics	Natural cosmetics with organic portion	Organic cosmetics	Natural	Organic
Minimum % of natural ingredients	85 %	90 %	Percentage established for different product categories, varying from 1% to 90%			established by formula based on ratio of natural ingredients to weight	
Minimum % of organic ingredients	-	20 % of total weight	-	70 % of ingredients	95 % of ingredients	-	95 % of ingredients or 20 % of total weight

5. Conclusion

When compared to the two big international quality labels, the small Czech CNC labels do not fall behind. The requirements for the minimal percentage of organic ingredients are almost identical for all three labels, especially when it comes to organic certification. A bigger difference is visible in the requirements for the minimal percentage of natural ingredients - CNC has unified percentage for all types of products, while Natrue distinguishes between thirteen categories of them and Cosmos does not precisely state the minimal natural origin percentage - but they quantify it by a formula.

For Czech cosmetic brands, the choice seems to be obvious - the certification on national level is far more attractive than the international labelling. It is also the least costly one in terms of expenses

and since the main market for the brands is in the Czech Republic and in Slovakia, it is the one that is most comprehensible to the customers.

Literature:

COSMOS-standard AISBL. (2013). *COSMOS-standard*. Cosmetics organic and natural standard. Retrieved July 20, 2017, from <https://cosmosstandard.files.wordpress.com/2014/08/cosmos-standard-v2-21102013.pdf>.

COSMOS-standard AISBL. (2017). *About us*. Retrieved July 20, 2017, from <https://cosmos-standard.org/about/>.

KEZ, o.p.s. (2015). *CNC Standards*. Retrieved July 18, 2017, from http://www.kez.cz/sites/default/files/dokumenty/CNC%20Standards_ver.%203.pdf.

Natrue. (2017a). *NATRUE Label: requirements to be met by natural and organic cosmetics*. Retrieved July 19, 2017, from http://www.natrue.org/fileadmin/natrue/downloads/Criteria_3.6/EN-NATRUE-Label_Requirements_V3_6.pdf.

Natrue. (2017b). *What makes the Natrue label special?* Retrieved July 19, 2017, from <http://www.natrue.org/information-for/consumers/what-makes-the-natrue-label-special/>.

Netíková, J. (2012). *Přírodní kosmetika - současný trend?* (Bachelor theses). Tomas Bata University in Zlin. Retrieved July 21, 2017, from http://digilib.k.utb.cz/bitstream/handle/10563/21783/net%C3%ADkov%C3%A1_2012_bp.pdf.

Soil Association. (2017). *Types of certification*. Retrieved July 19, 2017, from <https://www.soilassociation.org/certification/beauty-wellbeing/types-of-certification/>.

Závodná, L. S. (2015). Certifikační programy pro udržitelná ubytovací zařízení. In *Sborník recenzovaných příspěvků III. díl*. Hradecké ekonomické dny 2015, Hradec Králové: Gaudeamus, Ed. Pavel Jedlička, s. 358-364. ISBN 978-80-7435-548-6.

Závodný Pospíšil, J. (2015). Vstupní informace jako faktor vnímání hodnoty produktu. In *Znalosti pro tržní praxi 2015: Ženy - podnikatelky v minulosti a současnosti*. Olomouc: Societas Scientiarum Olomucensis II, s. 1126-1131. ISBN 978-80-87533-12-3.

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EXPECTATION OF GENERATION Z STUDENTS ABOUT THEIR FUTURE CARRIER

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Abstract: *The paper discusses the survey on expectations of generation Z students on their future carrier. Older representatives of generation Z start to move from universities to their first jobs now. As employers indicate, some of these young self-confident people have unrealistic expectations about their role in organisation and have problem to adjust to adult life reality. We decided to ask our students in master programme Management (FBA, University of Economics in Prague) to state how they see their carrier and the role of manager in organisation. The paper sums up this survey.*

Keywords: *Generation Z, carrier, style of management.*

JEL classification: *M10*

Grant affiliation:

1. Introduction

Generation Z is a first generation that grew up influenced by new technologies that move part of their everyday activities to virtual world. They are people who start to represent important workforce, now. As we know from discussions with generation Z students and as employers indicate, some of these young self-confident people have unrealistic expectations about their role in organisation and have problem to adjust to adult life reality.

Generation seems to be different than previous generations. There are many articles on generation Z in literature but only few discuss empiric research. That is why we decided to research this group of people.

The paper sums up the survey on expectations of generation Z students on their future carrier and the role of manager in organisation.

2. Theoretical Background

Beginning of generation Z is not strictly dated. Some authors date it after 1990 (Geck, 2007; Posnick-Goodwin, 2010), some few years later (Schroer, 2015; Bencsik & Machova, 2016; Rolands, 2008), some even from year 2000 (Bennett, Pitt & Price, 2012; Hernaus, 2014).

Characteristics of generation Z relevant to the topic of our article can be found in works of Adecco (2015) who writes that generation Z people are extremely self-confident, have an optimistic view on their future professional life. Generation Z tends not to resist authority relationships, as the representatives of this cohort report a strong need for human connection (Tulgan, 2013). Igel and Urquhart (2012) see generation Z as “smarter, more self-directed, and more able to quickly process information than previous generations; but there is one thing they may not be team players”. Generation Z tends to value more the importance of “soft skills”, in the detriment of “hard skills” (Adecco, 2015). Pew Research Center (2014) mentions that generation Z is uniquely diverse than any previous group of college students. Tulgan (2013) and Iorgulescu (2016) highlight generation Z need for security.

Summing it all together, “unlike other generation ever seen before, it is the first truly global generation” (Bolser & Gosciej, 2015). Arising from their habit, they have different expectations in their workplaces. We can speak about a careerist, professionally ambitious generation, but their technical- and language knowledge are on a high level (Dill, 2015; Bencsik et al., 2016).

3. Objectives and Methodology

The objective of our research is to identify the specifics of generation Z students of the University of Economics Prague and their influence on pedagogical processes and management. Our research on generation Z covers two basic research questions – “What are the specifics of students of generation Z studying at our University?” and “How these specifics influence pedagogical and managerial aspects of work with them?”. This article covers the results of the research focused on the sub question “What are expectations of generation Z concerning their future carrier?” This part of the research is a descriptive phase focused on “what” not on “why”. The question “why” will be asked later in follow-up research.

Our research on students of generation Z consists of theoretical part and empirical part. The theoretical part of the research is based on the review of the literature. Methods used include typical methods of theoretical work like analysis and synthesis, comparison, induction, deduction, abstraction, generalisation and critical thinking. The most important references relevant to the topic of this paper are in the Theoretical Background of this paper.

The empirical part of the research was qualitative, based on a questionnaire with open questions. Respondents were not directed by any categories; questions were broad to allow respondents to articulate their preferences. The questionnaire was answered by 40 respondents, students of master programme Management at FBA, UEP in Prague. Results of answers were analysed by Grounded Theory (Glaser & Strauss, 1967).

4. Results

Table 1 identifies respondents of the survey. The survey was answered by 40 students, 55% of them were women, 45% men. 73% of students were in age group 23-24 years. 15% of students belonged to age group 25 or older but all met definition of generation Z by Geck (2006). One student did not fill his age. All percentages are rounded up.

TAB. 1: Respondent

Gender/Age	Male		Female		20		21		22		23		24		25 and more	
Nb./%	18	45	22	55	1	3	0	0	3	8	17	43	12	30	6	15

Table 2 discusses results of answers to question on future carrier of students. The question was: "How do you imagine your future carrier? What type of work you want to do? What is your dream carrier?" Answers to this question produced 57 categories after open coding. Selective coding brought 18 categories. Categories turned out to be of two types – concretisation of the carrier (in which field or type of organisation student wants to work) and what the carrier gives to student or society. The survey showed that 33% of students want to work as managers, 20% of them want to work in PR and marketing field, 18% of students want to have their own business. 13% of students want to work for big international company, 10% in consultancy company and project organisation. As for the character of work, 18% of students wrote that work must be creative, 13% that work must enable them to develop their skills, must be entertaining (13%), must be fulfilling and beneficial for society (10%). 13% of students do not know what they will do in future.

TAB. 2: How do you imagine your future carrier?

Category	Nb.	% (from number of students - 40)	% (from number of answers in individual categories - 84)
I want to be in managerial position	13	33	15
I want to work in PR and marketing	8	20	10
I want to have own business	7	18	8
My work must be creative	7	18	8
I want to work in big international company	5	13	6
I do not know	5	13	6

I want to develop in my profession	5	13	6
Work must be entertaining	5	13	6
Work must be fulfilling	4	10	5
I want to work in consultancy company	4	10	5
Work must be beneficial for society	4	10	5
I want to work in project organisation	4	10	5
I want free working hours	3	8	4
I want nice environment and colleagues	3	8	4
Work must be challenging	2	5	2
I want to work with people	2	5	2
Work must be well structured	2	5	2
Salary	1	3	1
Σ	84		

Table 3 shows distribution of answers concerning concrete sector in which students want to work. Sectors are classified by NACE. Students could mention more sectors. The most popular sector turned out to be sector M - Professional, scientific and technical activities (93% of students).

TAB. 3: Sectors where students want to work

NACE Code	Name	Nb. of students	% (from number of students - 40)
E	Water supply; sewerage; waste management and remediation activities	1	3
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	3	8
H	Transporting and storage	4	10

I	Accommodation and food service activities	1	3
J	Information and communication	3	8
K	Financial and insurance activities	7	18
M	Professional, scientific and technical activities	37	93
N	Administrative and support service activities	1	3
P	Education	1	3
R	Arts, entertainment and recreation	7	18
S	Other services activities	1	3

Table 4 discusses results of answers to question on how students see ideal manager. The question was: “How do you imagine your ideal manager?” Answers to this question produced 44 categories after open coding. Selective coding brought 4 categories. Good managerial skills turned out to be the strongest category – 63% of all categories after open coding. This category covers skills like develops subordinates, is experienced, motivates, can be directive, provides feedback, communicates well). Good personality achieved 25% of all categories. Good personality covers personal traits like keep promises, reliable, trustworthy, moral, open, honest, friendly, sense of humour).

TAB. 4: How do you imagine ideal manager?

Category	Nb.	% (from number of answers in individual categories - 130)
Good managerial skills	82	63
Good personality	32	25
Good leader	11	8
I do not want boss	4	3
I am a boss	1	1
Σ	130	

Table 5 discusses results of answers to question on how students see ideal managerial style. The question was: “Which style of management manager should use?” The most desired turned out to

be combination of different styles in relation to the situation – 36% out of all categories, then consultative style – 20%, participative and democratic styles – 16%.

TAB. 5: Which style of management should your manager use?

Category	Nb.	% (from number of answers in individual categories - 25)
Combines different styles	9	36
Consultative style	5	20
Participative style	4	16
Democratic style	4	16
Transformational style	2	8
Bureaucratic style	1	4
Σ	25	

5. Conclusion

The survey shows great diversity of responses. Our respondents want to be managers (13%), want to have their own businesses (7%). 93% of respondents want to work in creative jobs (NACE M category) which is compatible with Adecco (2015) findings about self-confidence and optimism of generation Z. Respondents stressed need of good managerial skills and good personality of managers which indicates their strong need for human connection as Tulgan (2013) writes. As for managerial style, they prefer manager who uses combination of styles depending on situation.

Results of this introductory survey provide information that will be used to specify research questions for future surveys.

Literature:

Adecco (2015). *Generation Z vs. Millennials*. Retrieved from <http://pages.adeccousa.com/rs/107-IXF-539/images/generation-z-vs-millennials.pdf>.

Bencsik, A. et al. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness*, 8(3). Retrieved from <http://dx.doi.org/10.7441/joc.2016.03.06>.

Bencsik, A., & Machova, R. (2016, April). Knowledge Sharing Problems from the Viewpoint of Intergeneration Management. In *ICMLG2016-4th International Conference on Management, Leadership and Governance: ICMLG2016* (p. 42). Academic Conferences and publishing limited.

Bennett, J., Pitt, M., & Price, S. (2012). *Understanding the impact of generational issues in the workplace*. Facilities, 30(7/8), p. 278-288.

Bolser, K., & Gosciej, R. (2015). Millennials: Multi-generational Leaders Staying Connected. *Journal of Practical Consulting*, 5(2), p. 1-9.

Dill, K. (2015) 7 Things Employers Should Know About The Gen Z Workforce. *Forbes Magazin*, 11.6.

Geck, C. (2007). *The generation Z connection: Teaching information literacy to the newest net generation*. Toward a 21st-Century School Library Media Program, 235, 2007.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory Chicago*. Adeline, USA.

Hernaus, T., & Pološki Vokic, N. (2014). Work design for different generational cohorts: Determining common and idiosyncratic job characteristics. *Journal of Organizational Change Management*, 27(4), p. 615-641.

Iorgulescu, M. C. (2016). Generation Z and its perception of work. *Cross-Cultural Management Journal*, 18(1), 9.

Pew Research Center. (2014). *Millennials in adulthood: Detached from institutions, networked with friends*. Pew Research Center.

Posnick-Goodwin, S. (2010). *Meet generation Z*. California Educator, 14(5), pp.8-18.

Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B. & Tenopir, C. (2008, July). *The Google generation: the information behaviour of the researcher of the future*. In Aslib proceedings(Vol. 60, No. 4, pp. 290-310). Emerald Group Publishing Limited.

Schroer, W. J. (2008). Generations X, Y, Z and the others. *The Journal of the Household Goods Forwarders Association of America, Inc*, 40, p. 9-11.

Tulgan, B. (2013). *Meet Generation Z: The second generation within the giant" Millennial" cohort*. Rainmaker Thinking Inc.

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REAL PEOPLE IN ECONOMICS AND THE CHALLENGE OF NEUROSCIENCE

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Abstract: *Although economics provides wide range of mathematical models its status as a science is disputable. Economics is often devoted to studying of surrogate systems instead of reality. Biology, especially neuroscience, offers a completely new attitude to decision-making, which is based on empirical research and inductive modelling. This article argues that an interdisciplinary approach to decision-making, which crystallizes in the discipline called neuroeconomics, has a potential to enrich economics, especially by description of neural correlates connected with decisions of real people. The article briefly summarizes the basic problems which this innovative research program has to overcome to be considered as an acceptable alternative within economics and its applied disciplines.*

Keywords: *Decision-making, neuroeconomics, neuroscience, philosophy of economics, scientific realism.*

JEL classification: A120, D870

Grant affiliation: IGA_FF_2017_006.

1. Introduction

Economics and its applied disciplines deal with several problems which are based on unclear status of economics, lack of interest in epistemological problems or misleading use of rationality assumption (Müller, 2016). We can see tendencies to overcome these problems in efforts of experimental and behavioral economists, cognitive psychologists, philosophers of economics, and natural scientists who are proponents of empirical research which leads to naturalisation of economics. But idea that economics is part of biology is nothing new (Vercoe, & Zak, 2012, p. 34; Marshall [1890] 2013, p. 637). Recently this approach to economics crystallizes in research program called neuroeconomics.

This article briefly summarizes problematical aspects of these neuroscientific tendencies and divides them into three categories – interdisciplinary problems, theoretical and methodological problems, and practical problems. The paper concludes that neuroeconomics has potential to change attitude to people and their decision-making within economic disciplines, but only if these problems are solved.

2. Surrogate Systems and Unrealistic Assumptions vs. Decision-making of Real People

As Uskali Mäki (2009a, p. 76) points out, economics "appears to be preoccupied with a study of imaginary model worlds only, detached from the real world". Economists do not hesitate to build models based on "perfectly rational agents, games with two players, trade with two countries and two goods, perfectly competitive firms, representative agents, closed economies, zero-transaction-cost situations" (Mäki, 2009a, p. 76) and many other unrealistic assumptions. These models, or better say surrogate systems, how Mäki (2009a, p. 77) describes that, try to get information about characteristics of real world and real systems. Commonly this unrealisticness is not wrong, for example in natural science, but these "unrealistic assumptions must be assessed in relation to their functions in modelling" (Mäki, 2009a, p. 79).

The famous essay of Milton Friedman (1953) tries to defend instrumentalist view on economics and shows that predictive power is sufficient condition to adopt unrealistic assumptions. Nevertheless, in deep analysis of Friedman's text, as Mäki (2009b) do that, it is possible to identify wrong analogy between unrealisticness in economics and physics. Therefore, unrealistic assumptions in economics have often no effect.

Scientific realism about economics is not easy position. But if our aspiration is to get access to real world and get knowledge about its processes, I am convinced that we have to accept this challenge. I agree with Mäki (2009a, p. 89) that economic is able to do progress "by moving from certainty to uncertainty in decision making, from unbounded to bounded rationality, from maximization to satisficing, from symmetric to asymmetric information, from fixed learning rules to evolving learning rules, from emotionally cold to emotionally ordinary agents, from asocial and amoral agents to ones with social and moral awareness". Concepts like neuroeconomics may represent hope in this exacting task.

3. Problematical Aspects of Neuroeconomics

It seems that neuroeconomics has potential to reveal real characteristics of decision-making processes. There is of course question, if these findings will be useful for economics. As Uskali Mäki (2012, p. 7) shows, although neuroeconomics is connected with extravagant publicity and promotion, this fact doesn't exclude hope in its potential. Despite all positives which neuroeconomics may provide to economics, it is possible to define several problems it has to overcome.

3.1. Interdisciplinary Problems

Rhetoric of Neuroeconomics. Researchers who are interested in neuroeconomics communicate with heterogeneous audience. Their rhetoric is analysed by Mäki (2012). It is evident that this rhetoric can be seen on two views: as irritating and manipulative marketing; and as adequate and legitimate scientific communication. Demarcation of excessive and justifiable rhetoric is one of the challenges of neuroeconomics.

Relation of Neuroeconomics to Other Disciplines. Although "neuroeconomics" includes in its name word "economics", relation between these disciplines is not easy to define. As Mäki (2012, p. 14) points out, on the one hand there is opinion that neuroeconomics is irrelevant to economics (Gul, &

Pesendorfer, 2008), on the other hand we can find claims that neuroeconomics may improve economics.

Arbiter of Research Accuracy. Neuroeconomics is very complicated discipline which requires interdisciplinary knowledge of researches. As Savoy (2005, pp. 361-367) points out, it is very difficult to find competent experts who would be able to assess the accuracy of research. Therefore it is possible that there are studies which are not based on correctly conducted research.

Willingness to Cooperate. Economists, like researchers of many other disciplines, live often in their own theoretical framework, without willingness to be influenced by academics out of their discipline. Rosenberg (2009, p. 59) considers this to be the reason why he moved away from the philosophy of economics to philosophy of biology. It will be difficult to define relevance of neuroeconomics to economic without engaged economists.

3.2. Theoretical and Methodological Problems

Realism vs. Nonrealism. Nonrealism in economics is common position, popularized by Friedman's famous essay *The Methodology of Positive Economics*. On the other hand, supporters of naturalism are often scientific realists. As Mäki (2002, p. 90) points out, "the issue of realism in economics" is about "realisticness as a property of theories", while in philosophy it is about "realism as a theory of theories". He claims that it is necessary to look for versions of realism which will be suitable for economics (Mäki, 2002, p. 91). The task of economists is to seek solutions and try to gain access to the real world.

Descriptive vs. Prescriptive Attitude. Economics is often connected with prescriptive attitude because of its direct practical application. Natural science, neuroeconomics, and behavioral economics make an appeal to descriptive attitude. Importance of it in economics and management is described for example by Bazerman and Moore (2009, p. 5).

Inductive vs. Deductive Modelling. Inductive modelling represents new approach to analysis in economics. According to Vercoe and Zak (2012, p. 37) "inductive modelling in neuroeconomics allows the identification of the physiologic mechanisms that produce behavior". It is task of neuroscientists to defend this approach in discussion with supporters of deductive modelling.

Disunity of Methodologies. Methodology of neuroeconomics is not unified. Harrison and Ross (2012, p. 85) try to distinguish between two main types of methodologies: "neurocellular economics" (NE) and "behavioral economics in the scanner" (BIS). These authors "reject the view that neural data are irrelevant to economics" (Harrison, & Ross, 2012, p. 94) but it necessary to be aware of the fact that not all data are useful. According to them, NE has potential, but BES is connected with serious problems.

Explanatory Relevance. There are many opinions about explanatory power of neuroeconomics. Critic of neuroeconomics is based on assumption that it asks different questions and uses different abstractions than economics (for this critic see Gul, & Pesendorfer, 2008). On the other hand, authors like Aydinonat (2012), try to show, that despite possible validity of this argument, it does not imply irrelevance of neuroeconomic findings for providing new explanations.

3.3. Practical Problems

Practical Applications. Neuroscientific research produces data of different importance and validity. Description of neural correlates connected with many processes increases our knowledge, but practical applications of these findings is usually matter of the future. Neuroeconomists have to defend the opinion that there is no application without knowledge.

Expensive Research. The above mentioned problem is related to the question of research costs. It is always necessary to decide which research has the greatest potential and which technologies provide adequate data.

4. Discussion

We find ourselves at a time when development of technology and interdisciplinary cooperation lead to the new possibilities of research. There are many disciplines which have a number of inaccuracies in their foundations. We are in a situation which requires answering of following question: Do we need to redefine economics and analyse its theoretical and methodological problems? I am convinced, in view of the fact that our knowledge is in permanent progress, that our answer must be positive.

What is the status of economics? Should it tend to cooperation with natural science, or rather to become a natural science? It seems that the gap between natural and human sciences is less substantial. Recently, research depends on the competencies of individual researchers and on their interdisciplinary approach. I hold the view that economists should not ignore the results of neuroscientific research. They should think about economics in relation to other disciplines.

Neuroscience comes with first results, but also with new problems of interdisciplinary, theoretical, methodological and practical character. It is the role of economists to assess the real potential of this new research program, which may improve our knowledge about decision-making processes. There is a lot at stake – economics has chance to become natural science and leave the position of dismal queen of social sciences.

Literature:

Aydinonat, N. E. (2012). Neuroeconomics: more than inspiration, less than revolution. In Marchionni, C., Vromen, J. (Eds.), *Neuroeconomics: Hype or hope?* (59-69). New York: Routledge.

Bazerman, M. H., & Moore, D. A. (2009). *Judgment in managerial decision making*. Westford: John Wiley & Sons, Inc.

Friedman, M. (1953). The methodology of positive economics. In *Essays in positive economics* (3-43). Chicago, London: The University of Chicago Press.

Gul, F., & Pesendorfer, W. (2008). The case for mindless economics. In Caplin, A., & Schotter, A. (Eds.), *The foundations of positive and normative economics* (3-39). New York: Oxford University Press.

Harrison, G., Ross, D. (2012). The methodologies of neuroeconomics. In Marchionni, C., Vromen, J. (Eds.), *Neuroeconomics: Hype or hope?* (85-96). New York: Routledge.

Marshall, A. ([1890] 2013). *Principles of economics*. New York: Palgrave Macmillan.

Mäki, U. (2002). Some nonreasons for nonrealism about economics. In Mäki, U. (Ed.), *Facts and fiction in economics. Models, realism, and social construction* (90-104). Cambridge: Cambridge University Press.

Mäki, U. (2009a). Realistic realism about unrealistic models. In Kincaid, H., & Ross, D. (Ed.), *The Oxford handbook of philosophy of economics* (68-98). New York: Oxford University Press.

Mäki, U. (2009b). Unrealistic assumptions and unnecessary confusions: Rereading and rewriting F53 as a realist statement. In Mäki, U. (ed.), *The methodology of positive economics: Reflections on the Milton Friedman legacy* (90-116). New York: Cambridge University Press.

Mäki, U. (2012). When economics meets neuroscience: hype and hope. In C. Marchionni, & J. Vromen (Ed.), *Neuroeconomics: hype or hope?* (7-17). London: Routledge.

Müller, M. (2016). Selected problems of economics in risk research and its consequences for management. In P. Slavičková (Ed.), *Knowledge for market use 2016: Our interconnected and divided world* (313-317). Olomouc: Societas Scientarium Olomucensis II.

Rosenberg, A. (2009). If economics is a science, what kind of science is it? In Kincaid H., & Ross, D. (Ed.), *The Oxford handbook of philosophy of economics* (pp. 55-67). New York: Oxford University Press.

Savoy, R. L. (2005). Experimental design in brain activation MRI: Cautionary tales. *Brain Research Bulletin*, 67.

Vercoe, M., & Zak, P. J. (2012) Inductive modeling using causal studies in neuroeconomics: brains on drugs. In C. Marchioni, & J. Vromen (Ed.), *Neuroeconomics: Hype or hope?* (33-46). London: Routledge.

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RELATIONS AMONG SELECTED MACROECONOMIC INDICATORS AND NATALITY

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Abstract: *From the very beginning of the mankind, the population of our planet has been increasing. This phenomenon is caused by the need of every organism to reproduce and expand. Since the WWII, annual growth of the world population has been slowing down. According to most of the prognoses, the present-day youth has a real chance to experience the era during which the size of the population will reach its peak and will begin to decrease. The decreasing natality trend is common for all developed economies in the world. This negative trend brings many changes to national economies. This development will be compared to the development of selected macroeconomic indicators. The article aims to determine whether there are some macroeconomic indicators leading to the fact that the natural reproduction instinct of people is suppressed.*

Keywords: *Correlation analysis, time lines, GDP, fertility, natality*

JEL classification: A130, E710, O110

Grant affiliation:

1. Introduction

One of the well-known examples of scientific knowledge is the law of conservation of energy. Even the development of society needs its energy. In general, it is accepted that society has to develop and expand to generate energy for its prosperity. The community must develop either in quantity or quality. For many centuries, human society has evolved both in terms of its quantity and quality. Quality of life was increased, the area of inhabited and cultivated land expanded, and in particular, the population grew. The great empires and societies that we know from the past disappeared precisely because of the fact that they were no longer developing and expanding.

To ensure preservation of society, the so-called Simple reproduction - Total Fertility Rate is higher than 2.1 children per women is required. In more developed regions, such a fertility rate lasted till 1975. After this year, fertility rate has fallen below 2.1. Worldwide fertility rates are falling dramatically and this development will have negative impact on the global economy. Some effects are already evident today. For example, many countries have a pension system based on Pay-as-you-

go (PAYG) principle in which selected contributions of the currently working population are paid to the currently living pensioners. If the economy has a lower fertility rate than 2.1 it is clear that in the future fewer working people will have to feed more pensioners.

Low fertility rates have a large negative impacts on the economic, social and cultural development of the society. Many of developed countries are aware of this and they are trying to increase their fertility rates with various projects and subsidies. These efforts have not produced the desired results as they are focused on consequences rather than causes of the problem. The author is not aware of any effort to identify the causes or even any attempt to eliminate the causes of the birth rate decline.

The aim of this paper is to realize a comparative analysis of the fertility rate of selected economies with the development of selected macroeconomic variables and to determine whether there are any variables correlating with the development of the fertility rate. By monitoring the factors that correlate with declining fertility rates it might be possible to predict future fertility rates. It would also be possible to influence directly the factors that can cause negative development, which could be more effective than trying to influence the consequences.

2. Methodology

Lanzieri (2013) made a study in which he compared fertility of the EU states with phases of economic cycles, parity, education and migration. Sudová (2017) made a cointegral analysis of fertility and socio-economic conditions in Czech Republic. Nevertheless, the author feels lack of analyses of the development of fertility rate and the macroeconomic variables.

Generally speaking, fertility rates are directly correlated to child mortality and indirectly correlated to economic growth. The first assertion is that due to a higher economic level people can afford to live a more consumer centred life style and children are perceived as a complication for this type of life. The second general statement is based on the thesis that women unconsciously feel that there is less risk that their children will die and therefore, they do not have to give birth to as many children as in the past to ensure the continuation of their family. However, these claims are perceived by the author as insufficiently substantiated.

For the purposes of this article, a correlation analysis will be created by using the Microsoft Excel program. The analysis was carried out on a sample of selected countries from publicly available data in the World Bank database. For selected economies, the fertility rate data and the selected macroeconomic variables must be available in the World Bank database at least from year 1970 to 2015. The selected states must be unchanged throughout the reporting period. The states that underwent either a unification or division during the period cannot be included in the research. Also states where maternity is regulated by the government cannot be included.

The particular countries were selected in order to include all key regions represented in the sample. In the selection, there are states which are economically developed and which are economically developing. Economically developed states are represented by France (Europe), United States of America (North America) and Australia. The economically developing countries are represented by Egypt (Africa and Arabian states, Muslim), Brazil (South America, Christian) and Thailand (Asia, Buddhist).

Birth rate was represented by Fertility rate, total (births per women). The economic strength of households was determined using GDP per capita (current USD). The author originally intended to use the wealth or Gini coefficient but such data are not available in a sufficiently long period for selected countries. GDP per capita is however an indicator that is generally accepted as an indicator of economic strength. The variable Mortality rate, infant (per 1,000 live births) was selected to monitor child mortality.

3. Discussion

The obtained data was entered into the Microsoft Excel program which made a correlation analysis. Testing for the existence of a relationship was made by using the t-test for the correlation coefficient $H_0: \rho = 0$. All calculated data are shown in the following table TAB1. The table also shows the values of all variables at the beginning and at the end of the reference period for comparison with the other countries surveyed.

TAB. 1: Results of correlation analyse

	Australia	France	USA	Brazil	Egypt	Thailand
Correlation coefficient Fertility rate/GDP per capita	-0,53142	-0,57419	-0,4468	-0,77656	-0,76124	-0,74302
Test statistic	-4,60989	-5,15373	-3,67	-9,05735	-8,21739	-8,15833
First and last value (fertility rate)/(GDP per capita)	(3,45-1,83) / (1807-56291)	(2,85-2,01) / (1338-36352)	(3,65-1,84) / (3007-56115)	(6,21-1,78) / (209-8677)	(6,40-3,31) / (165-3614)	(6,15-1,49) / (101-5815)
Correlation coefficient Fertility rate/Mortality rate, infant	0,89678	0,85891	0,75565	0,99370	0,95293	0,98393
Test statistic	14,89326	12,32471	8,47811	65,1756	22,00044	40,49466
First and last value (Mortality rate, infant)	(20,3-3)	(23,7-3,5)	(25,9-5,6)	(129,4-14,6)	(209,6-20,3)	(102,2 - 10,5)

Source: World Bank database 2017

The critical value for selected variables and periods is 2.004879. According to the t-test values in table TAB. 1, it is possible to say that we reject the zero hypothesis H_0 ($H_0: \rho = 0$) in all 12 correlations. So we accept an alternative hypothesis H_1 ($H_1: \rho \neq 0$). From the data above it is evident that in selected countries during selected period there is a correlation relationship between fertility rate and GDP per capita. Similarly, there is a correlation relationship between fertility rate and infant mortality rate.

It is also clear from results that there is a much stronger correlation between fertility rates and infant mortality rates (0.75565 - 0.99370) than in correlation between fertility rates and GDP per capita (0.4468 - 0.77656).

The correlation coefficient for fertility rate and GDP per capita for economically developing countries is approximately 0.75 and for economically developed countries approximately 0.51. The correlation of fertility rates and infant mortality where the correlation coefficient for developing countries is approximately 0.97 and the economically developed countries is approximately 0.83. From these results it is evident that the correlation is significantly stronger for economically developing countries than for economically developed countries.

It is clear from the result that neither the geographical location nor the type of religion affects the development of fertility rate in emerging countries. The selected states differ in climate, region, the structure of the national economy and the main religion yet the values of the correlation coefficients are very similar.

4. Conclusion

This article has shown a correlation between fertility rate and GDP per capita growth. Also the correlation between a decrease fertility rate and decreasing infant mortality has been proven. It has been shown that the strength of correlation is dependent on the degree of economic development of country.

The author is aware that correlation does not automatically mean causality between the variables being observed. Nevertheless, he believes that the results published here provide the valuable statistical support as opposed to the statements which are often questioned as statistically unfounded.

Proven correlation can be considered as one of the many starting ideas for creating models of future economies that will have a longer life expectancy and a less numerous of working-age population.

Other possible research in this area could be carried out on a large sample of monitored countries. No small countries were included in this monitoring. The correlation was performed without time-off variables. It can be assumed that changes in people's decision-making will have a certain time delay with regards to the changes in casual variables.

Literature:

Lanzieri, G. (2013). *Fertility statistics in relation to economy, parity, education and migration*. Statistics in focus 13/2013; ISSN: 2314-9647 Catalogue number: KS-SF-13-013-EN-N.

Sudová, P. (2017). *Změny vývoje plodnosti a porodnosti v závislosti na ekonomických podmínkách v ČR*. VŠE Praha.

World Bank database (2017). *Data sheets for selected variables*. Retrieved from <http://data.worldbank.org/indicator/>.

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MATHEMATICAL METHOD AS A TOOL FOR THE IDENTIFICATION OF ASSETS WITHIN THE ORGANIZATION PROVIDING INSURANCE AGAINST CYBER RISK

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Abstract: *This article is focused on the issue of cyber risk insurance. The author presents the use of the mathematical method for the identification and evaluation of assets of the organization. Utilization of this method is presented on the specific type of organization that is used for modeling the example. The results of the mathematical method is presented through grafical representation and tables. Finally, it is a discussion on the possible use of this issue in cyber security for the nearest future.*

Keywords: *Cyber risk, information system, pareto analysis, asset.*

JEL classification: L 44

Grant affiliation: *The paper is developed as a part of the IGA project called Design methodology for determination of prices also of the information system organization in terms of cyber risks, registred under IGA/FAI/2017/008.*

1. Introduction

The issue of insurance information systems against the effects of cyber risk is currently relatively new trend, especially in the domestic market. When we calculating the price of information system organization, which is important for determining the amount of insurance coverage, it is necessary to analyze, identify and measure selected assets. Assets are now an integral part of the company structure. The simplest definition of the term asset is property that its owner brings revenue, or is expected for corporate, that he will bring in the future (Pal 2013).

Assets may thus have both financial and non-financial character. In the case of information systems can be eg. hardware, software, goodwill etc. But there can be assets that may not be directly related to the organization's information system. These assets are in the final price information system, however, directly involved. It can be eg. a production machine, reputation of company. In the case of the analysis and identification of assets, we can use several analytical tools. If we have a larger amount of assets is required of them to choose only those that have a certain weight and influence

on the price information system. Pareto analysis can help to fast decision making, selection and importance of the assets of the organization (Sadhukhan 2007, Pandey 2014).

This article will introduce the possibility of using Pareto rules and for the selection of the most important assets of the organization in the context of providing insurance against cyber risk. These assets are compared with cyber risk scenarios. The issue will be applied to the generalized type of organization that will be used for process modeling solutions (Leigh 2014, Johnosn 2014).

2. Pareto Analysis

Pareto analysis (or ABC analysis too) is very simple and effective tool that enables organizations to focus precisely using mathematical procedures on what is important to them. This method can be used while e.g. products, customers or services. Under this rule is applied the principle of 80/20. This nonlinear dependence is manifested in almost all areas of human activity, especially in business. To view the Pareto rule is mainly used Lorenz curve inverted (Salter 2013, Lasak 2014).

2.1. Example of Use

Example: SCADA Ltd. company wants to insure keep its data in case of theft, loss or misuse. It is therefore necessary to carry out an overall analysis of the organization to determine what type of cyber risks the organization is most vulnerable and which assetes are the most valuable. Since the company owns a large amount of data and documents, it is necessary for the accurate calculation of the amount of coverage to perform categorization of data and documents that contain sensitive data and their price is therefore for the company in this area it's highest.

2.2. Determination Assets of the Organization

Determination of assets within an organization involves determining the tangible and intangible resources that have significance for the organization in terms of its functioning. These assets may be due to the realization of cyber risks disturbed and thus may be compromised function of the organization as a whole. Among the valuable assets that can be included in this group follows:

- technological procedures, plans and know-how,
- suppliers,
- subscribers,
- information system unit,
- internal documents,
- computer and communications services,
- the organization's reputation, image,
- manufacturing machinery,
- hardware (computers, printers etc.),

- the communication device,
- software development tools,
- data,
- database.

The next step is to determine the significance of assets and assign them specific values, depending on their importance. For this, moreover, it is necessary to choose the appropriate method by which the results will be clear and understandable to interpret. Based on the character of the examined example, Pareto analysis is chosen method (Salter 2013, Lasak 2014).

2.3. Selecting the appropriate methods for the analysis of the importance of assets – applications Pareto analysis

If we are to properly decide which assets are important to the organization and that while the less, it is necessary to compile a table of the assets and their associated values. In the first step, the assets are valued, then determined the frequency and cumulative frequency and eventually the entire sample is expressed as a graph. These values are assigned in the range of 1 to 5 from which the number 1 indicates the highest importance and number 5 the lowest importance (Salter 2013).

Assets are chosen according to their impact on the company's information system in the event of cyber risks. All assets thus directly related to the information system of the organization by ensuring its functions. These assets was determined based on the research company KOVO Ltd.

TAB. 1: Assets organizations and their values

Assets	Value
Technological procedures, plans and know-how	1
Contractors	2
Subscribers	2
Information systems unit	1
Internal documents	3
Computer and communications services	1
The organization's reputation, image	1
Manufacturing machineri	2
Hardware (computers, printers etc.)	1
THE communication device	4
Software development tools	1
Data	1
Database	3

The next step will be based on the assigned values to calculate the cumulative frequency and according to this indicator construct the Lorenz curve.

TAB. 2: Cumulative rate assets

The value of assets	Frequency	Cumulative frequency	Calculation
1	7	7	
2	3	10	= 7 + 3
3	2	12	= 7 + 3 + 2
4	1	13	= 7 + 3 + 2 + 1
5	0	13	= 7 + 3 + 2 + 1 + 0
Total	13		

Another table again reflects the results of the frequency and cumulative frequency percentage. On the basis of this last step can be assembled with the Lorenz curve chart, which is necessary for expression of the final result.

TAB. 3: Absolute and relative frequency assets

	The frequency value according to the assigned values		Cumulative rate of assets according to the assigned values	
The value of assets	Absolute	Relative	Absolute	Relative
1	7	53,85 %	7	53,85 %
2	3	23,08 %	10	76,92 %
3	2	15,38 %	12	92,31 %
4	1	7,69 %	13	100 %
5	0	0 %	13	100 %

The next step is final and has expressed Pareto analysis in the form of a chart. According to this output, we can determine which assets to the organization within the insured of cyber risks are important and which are not.

TAB. 4: Freequency and cumulative frequency assets expression in perecentage

Asset	Frequency	Cummulative frequency
1	54 %	53,9 %
2	23 %	76,2 %
3	15 %	92,3 %
4	8%	100,0%
5	0%	100,0%

FIG. 1: Finally chart of Pareto analysis

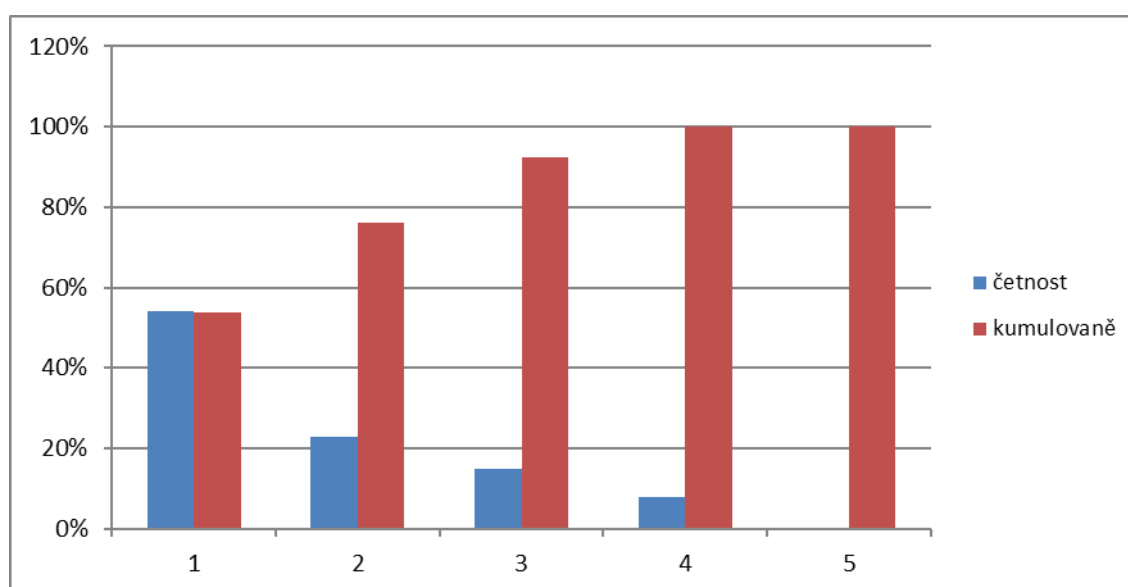
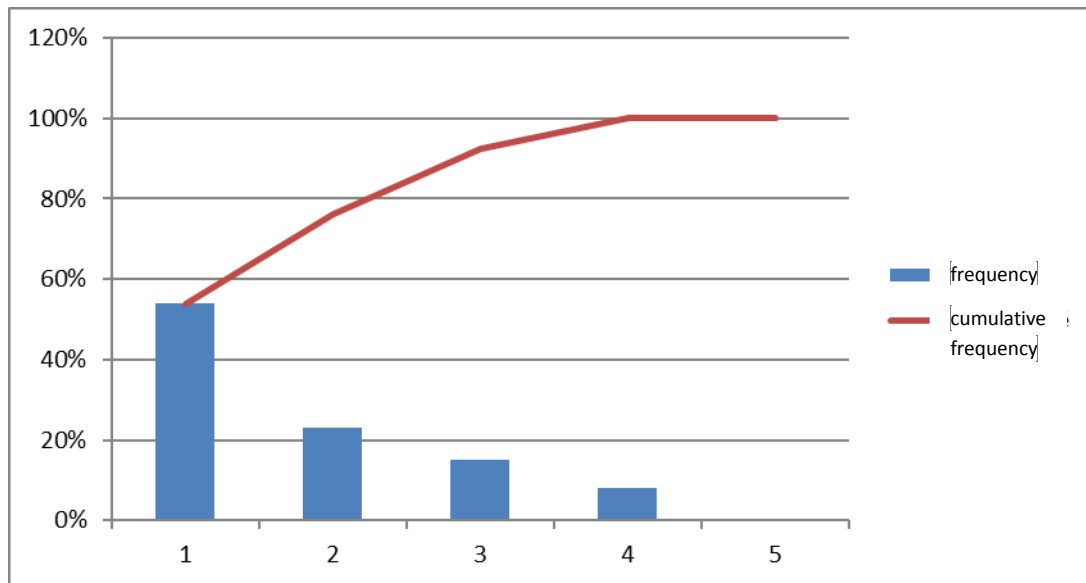


FIG. 2: Lorenz curve of Pareto analysis



2.4. Assessment of the importance of assets by the chosen method

According to Pareto diagram can be concluded that the assets are crucial for the organization. According to the rule that 80% of the studied population is negligible and only 20% is important we conclude that the most important asset, according to the graphic expression, can include those which are rated values 1 and part value of the second (Carly 2014).

These assets include:

- technological procedures, plans and know-how (1),
- information systems unit (1),
- computer and communications services (1),
- the organization's reputation, image (1),
- hardware (computers, printers etc.) (1),
- software development tools (1),
- data (1),
- contractors (2),
- subscribers (2),
- manufacturing machinery (2).

3. Conclusion

In conclusion, the use of Pareto analysis is wide. For the area of information systems and security the usage of this method can be very helpful. If we are forced to make decisions quickly can the application of the Pareto analysis significantly helps. When identifying critical assets of the organization, it is necessary to use an appropriate analytical methods, which can be just Pareto analysis. Within the context of insurance, focusing on the area of cyber risks, it is advisable to use multiple methods and combine them with each other. For example, we can use fuzzy logic for further modelling. Given that this area is not yet designed a uniform methodology for valuing information system is to use pareto analysis, one of the ways to keep their effective decisions backed by scientific method. Identification, analysis and valuation of the assets of the organization is a key activity of the entire methodical process of valuation, since the assets of the organization determine the total cost of the information system. The final amount is then used as a basis for establishing fair amount of coverage in case of realization of cyber risks in the organization (Carly 2014, Satava 2015).

Literature:

Carly, J. (2014). *10 key facts you need to know about cyber insurance*. USA, Insurance cataloge, pp. 72-75.

Salter, J. (2013). *The Risk Management Society*. Retrieved January 4, 2017, from <https://www.rims.org/aboutRIMS/Newsroom/News/Pages/cybersurvey15.aspx>.

Satava, J. (2015) *Implementation of the directive governing the physical security of the computer network in an environment of government*. Tomas Bata University in Zlín.

Johnson, B.; Laszka, A.; Grossklags, J. (2014). The Complexity of Estimating Systematic Risk in Networks. *Computer Security Foundations Symposium (CSF)*, 2014 IEEE 27th, vol., no., pp.325, 336, 19-22 July 2014.

Lasak, P. (2014). *Pareto analysis*. Retrieved February 3, 2017, from <http://office.lasakovi.com/excel/grafy/paretuv-diagram-graf/>.

Pal, R.; Golubchik, L.; Psounis, K.; Pan Hui. (2013). On a way to improve cyber-insurer profits when a security vendor becomes the cyber-insurer. *IFIP Networking Conference*, vol., no., pp.1,9, 22-24 May 2013.

Pandey, P.; Sneekenes, E. A. (2014). *Applicability of Prediction Markets in Information Security Risk Management*". 25th International Workshop on Database and Expert Systems Applications (DEXA), vol., no., pp.296,300, 1-5 Sept. 2014.

Sadhukhan, S. K. (2007). Insuring Big Losses Due to Security Breaches through Insurance: A Business Model. *System Sciences*, 2007, *40th Annual Hawaii International Conference on System Sciences (HICSS'07)*, vol., no., pp.158a,158a, Jan. 2007.

Leigh T., Finkle J. (2014). *Insurers struggle to get grip on burgeoning cyber risk market*. USA, Boston 2014.

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THE ECONOMIC IMPORTANCE OF THE PROTECTION OF THE INTANGIBLE PROPERTY, CONTEXT OF PROTECTION ORIGIN, DEVELOPMENT AND CURRENT STATE

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Abstract: *Based on the historical experience, considering social customs and institutional environment, the necessity to protect the intellectual property has arisen. Its importance stems from the need to create a favourable environment for creativity and introduction of innovations as the condition for improving and growth of the competitiveness. Intellectual property protection concerns in particular inventions, trademarks, industrial design, copyrights and geographical indication of origin. The purpose is to protect intangible assets from copying and falsifying in order to provide of profit from their ownership. The goal of the paper is to bring the context of the protection origin, development and current state of the intangible personal property. Paper also brings examples of underestimation of the economic impact of the improper decision on the protection of intangible assets or do harm of brand. Data and information use in the paper were gained from legal, as well as economic sources. The historic-logical approach and genetic-historical analysis were used to achieve the goal of the paper. The conclusion includes a possibilities of the economics exploitation of creative potential in the Slovak Republic and other economies.*

Keywords: *Legal History, Intellectual Property Rights, Unjust Enrichment.*

JEL classification: *K190, N400, O340*

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1. Introduction

During the development of human society, the different approach to knowledge was applied. In antiquity, the obtain knowledge was consider as the property or asset, in Middle Ages as the unmarketable God's gift. The first tendency to protect intellectual property has arisen at the end of middle ages. According to Burke (2000/2007), the divulgence of secrets has the long history and is associated with the financial, political as well as idealistic incentives/motives. A potential market with information was spread rapidly by the invention of typography.

The private property involves also intangible property and throughout the history, there arose a legal system and many Acts to protect the ownership of this kind of property. Legislation and authorities for protection of intellectual property contributes to support of inventions and innovations what has finally influenced competitiveness and economic growth.

2. Historical development

Intellectual property has intangible character, is the result of human creativity and allow to profit from the new ideas. The protection of intellectual property is part of the legal system, practically it includes all areas of disciplines. The intellectual protection is developing gradually as the development of social, economic, cultural and legal conditions as well as the needs and demands of the society.

The first known patent and first copyright were given in Italy in 15th century. Patent is dated to the year 1421 and is related to the building plan of the ship (Eamon, W., 1994 in Burke 2000/2007, p. 171), the first copyright refers to the work about the history of Venecia Marcantonio Sabellica and origins in 1486 (Gerulaitis, 1976; Landau, D. - Parshall, P. 1994 in Burke 2000/2007, p. 171). The expansion of the use of the typography and also the increase in the quantity of universities has increased the pace of spreading information among people. Since the 16. century, disputes over originality and copyrights started to emerge. One of these contentions is linked to the authorship of telescope between Dutch glass cutter of lenses who has claimed in 1608 for patent for the convenience/apparatus optically approach distant objects, Neapolitan natural scientist Giambattista Della Porta and Galileo Galilei. Galileo has learn about this apparatus, made improvements, construct it (Burke, 2000/2007, pp. 169-170) and successfully use in the cosmos exploration. Talking to legislation of the protection of intellectual property – the Act on Copyrights has existed in the Kingdom of the Great Britain already in 1709 (Burke, 2000/2007, p. 168).

3. Protection of intellectual property at present

The system of legal protection of intellectual property differs among countries. The protection uses to be included in Commerce Code, Civil Code, Criminal Code as well as in labour law. There is an effort to harmonize the protection of the intellectual property by international conventions, e.g. The Paris Convention for the Protection of Industrial Property from 1883, reviewed in Stockholm in 1967 or The Berne Convention for the Protection of Literary and Artistic Works from 1886 that was reviewed several times, for the last time in Paris in 1971.

The protection of the intellectual property is sorted to copyright and industrial property right. In the area of intellectual property, in relation to invoking and enforcement of intellectual rights, acts in different countries various institutions, which functions are regulated by laws. These institutions might be for example ministries, supervisory or conditioning authorities, register of patents, organizations of collective protection and the like.

3.1. Industrial ownership

Production potential of country and thus also economic growth is increased apart from the high-quality labour force mainly new inventions and technologies that raise the labour productivity. Industrial ownership is not only the transformation of inventions and creativity to goods and production possibilities of a country. Patents have also impact on the global economy because of creating the information database that includes the technological possibilities and technical solution in production of capital and consumer goods.

Industrial property office of the Slovak Republic defines patent as “protective document, by which provides the country exclusively right to his/her owner to use invention for the determinate period”. Patent might be provided only for those inventions that are industrial utilizable. Even this, there are some exceptions. Submission of registration by inventor means making the invention to public. Under the contract, owner of patent might provide to other economic subjects the right to use this patent, respectively sell the patent. Patent Cooperation Treaty (PCT) managed by the World Intellectual Property Organization (WIPO) enables to submit the registration of patent and ask for the protection of invention in foreign countries. Protection of patents within the PCT is applied in 152 contractual countries ("States Party," June 9th, 2017).

There exists many offices for the protection of intellectual property. The five biggest cooperates with the aim to improve the efficiency of process of research patents in a global view (five IP offices). The members of IP5 are European Patent Office (EPO), Japan Patent Office (JPO), Korean Intellectual Property Office (KIPO), State Intellectual Property Office of the Public Republic of China (SIPO) and United States Patent and Trademark Office (USPTO).

In the area of industrial ownership has in the Slovak Republic authority the Industrial Property Office of the Slovak Republic. This body decides about the giving the protection and execute the country administration. Period of protection validity of industrial ownership in years according the category is given in Table 1.

TAB. 1: Period of protection validity of industrial ownership from the submission of registration

Category of industrial ownership	Period of validity in years	Possibility to prolong the validity	Maximum period of protection
patent	20 Necessity to pay maintenance fees	-	20
Utility pattern	4	Max. 2 x, always by 3 years	10
Design	5	Max. 4 x, always by 5 years	25
Trademark	10	Repeatedly for next 10 years	-
Topographies of semiconducted products	10	-	10
Trademark of origin and Geographical indication of origin	No time restriction*	-	-

*/ Agricultural products and foodstuff (except for vine, spirit and mineral water) is able to protect only within the European Union.

Source: Author, from the data from the Industrial Office of the Slovak Republic. Retired at July 20, 2017 from: <https://www.indprop.gov.sk/>

However, monitoring of innovative ability of a county by the use of statistical data on the number of patent registrations is very complicated. Firstly: legal protection might have more levels – national, supranational and international. According to the number of countries where is the patent valid, the different basic and maintenance fees are applied for the legal protection. Secondly: EPO registers applications according to the country of submitter. Consider that the applications might be submit not only by individuals but also by legal persons, decisive is the residence of the company.

3.2. Copyrights

Copyright relates to creative expressions of intellectual activity and is linked to the exclusive use of particular work. It is not assignable and the period of validity last 70 year from the death of the author. Author cannot abandon the copyright. These copyrights are significant source of income for the economy and implicate incomes in film and musical industry.

Management of rights related to the objects of protection in the Slovak Republic is operated by organizations of collective right management, which managed the property right of its owner under the signed contracts or under the given legislation. Under conditions of the Slovak Republic, these are the Slovak Performing and Mechanical Rights Society (SOZA) – rights related to musical works; the Civil Association of Authors (LITA) – plead for the literary authors, journalists, directors, stage authors, photographers, graphic artists, translators and scriptwriters; Joint Collecting Society for Performers and Audio & Video Producers (SLOVGRAM); Protective association of Slovak interprets (OZIS) and Slovak Audiovisual Producers Association (SAPA).

4. Importance of patent protection – lessons from history

Authors of bestsellers, world famous musical, artistic or film works and revolutionary inventions might thanks to the protection of intellectual property gain apart from the fame also the economic profit. Together with the inventor (author) will due to the production and export of goods obtain the economic profit also the country of inventor (author). However, this will not happened in all cases. Talking to patents, this might be caused by underestimation of regional validity, on which is the protection applied, respectively by no payment of maintenance fees and thus not prolonging the patent protection. In case of copyrights, by their denial and production of illegal copies or free dissemination of artistic works through the internet.

The evidence that the economic importance of patent protection has been conscious by the US government already during the Second World War is given in the book “Surely You’re Joking, Mr. Feynman!” (1985/1989) written by the Nobel prize winner for physics in year 1965 Phillips Feynman (1918 – 1988). On the page 152, he casts mind back as in Los Alamos (while working on the development of atomic bomb) during the Second World War has obtained government clerk for the

US ideas about the nuclear energy and its use that would be able to protect by patent. The assumption was that not all ideas that people think are known, really known are. Feynman has gained and subsequently for one dollar sell to US patents for the aircraft on nuclear drive, rocket on nuclear drive and nuclear power plant. Then, benefits of these patents had the US government.

One of the investors that has lost his invention by own mistake was the head of the car manufacturer Tatra in Kopřivnica Hans Ledwinka. During the war, after the Berlin motoring show has Hitler invited for visit the constructor Hans Ledwinka. He has praised him with the detailed drawing of his new car V750 with the air-cooled engine located at the rear part of the car. With the regard to then war event, Hans Ledwinka was not able to protect his technical design and solution of a new car. Further on, Hitler has passed this drawing of construction to Ferdinand Porsche who has constructed by the use of the given technical design the best-selling car in the history, legendary Volkswagen (Type one, later colloquially referred to as "Beetle"). As written by Jonathan Mantle: "Hans Ledwinka died in 1967 without being compensated for stealing his idea. Porsche and Volkswagen arranged a secret out of court agreement with the Ringhoffer family that has owned Tatra for breaking and using the patent related to the popular car." (2008/2011, p. 124)

Another example is the Czechoslovakia that has by bad decision in 70's years of 20th century suffered a huge economic loss by giving up of patent rights on the production of soft contact lenses from hydrogel. The inventor – Otto Wichterle has produced first soft lenses in 1961. In 1963 was the licence for their production sold to US company and inventor as well as the Czechoslovakia would receive the shares on the earnings. Due to the great popularity of soft lenses, another companies started to produce them even by violation of patent rights. However, Czechoslovakia would not to take violation of patent to the court because Wichterle would travel to capitalistic country to the court in such case. Country did not want Wichterle to obtain with the invention the money and the worldwide success. For that reason, communistic clerks/officials just gave up the licencing rights in 1977. By this decision, country had lost millions of US dollars.

5. Conclusion

Economy gains a profit from the protection of intellectual property – in short-term by the sale of new products, licences or incomes form copyrights; in long-term due to the motivation and creative activity of people positively influencing the potential product of a country. Each nation has certain creative potential, which economic fulfilment relates to the education and motivation of people. A low knowledge about the present possibilities of the protection of intellectual property in former Eastern bloc countries, and also about profit from it does not allow the fully use of the creative abilities of people. With the regard to lower incomes of Slovak households (comparing to most developed EU countries) and high financial aspect of legal protection of inventions, country should take some activities to seek for ideas and inventions as the US did during the Second World War. Country would offer the payment for fees and administratively deals with the patent protection. For the price of co-partnership, the society/country would gains share on possible profits. Thus, the society would use the maximum from the creativity of people and use the inner sources of economic growth.

Literature:

Burke, P. (2007). *Společnost a vědění : Od Gutenberga k Diderotovi*. (M. Pokorný, Trans.). Praha: Nakladatelství Karolinum. (Original work published 2000).

Feynman, R. P. (1989). *To snad nemyslíte vážně!* (J. Klíma, Trans.). Praha: Mladá fronta. (Original work published 1985).

Mantle, J. (2011). *Firmy, které změnily svět*. (P. Dundek, Trans.). Líbeznice: Vydavatelství VÍKEND. (Original work published 2008).

Autorský zákon : Úplné znenie zákona : Právny stav k 15. septembru 2016. (2016). Šamorín: Heuréka vydavateľstvo.

Úrad priemyselného vlastníctva Slovenskej republiky (n.d) <https://www.indprop.gov.sk/>.

Five IP offices (n.d.) <http://www.fiveipoffices.org/index.html>.

States Party to the PCT and the Paris Convention and Members of the World Trade Organization (9.6.2017) http://www.wipo.int/export/sites/www/pct/en/texts/pdf/pct_paris_wto.pdf.

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EU BLUE CARD – A TOOL TO LEGALIZE LABOR-RELATED MIGRATION FROM THIRD COUNTRIES

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Abstract: *Blue Card is a type of temporary residence, which is issued to third country nationals to enter, reside and work in the territory of the Slovak Republic for the time they were issued. Blue card is used to fill highly qualified positions by third country nationals in the Slovak Republic. The authors analyse the requirements that applicants have to satisfy in order to obtain an EU Blue Card.*

Keywords: *Migration, Blue Card, highly qualified employment, third country national.*

JEL classification: *K31, J6, K33*

Grant affiliation: *The paper will be published under VEGA project No. 1/0679/17 titled Balance of economic gains and losses from workforce migration.*

1. Introduction

The performance of dependent work in the Slovak Republic is regulated by the Labour Code. The Labour Code of the Slovak Republic does not stipulate the employment conditions of aliens or stateless persons. The Labour Code refers to the specific legal regulations, in particular the Act on Employment Services and the Act on Residence of Aliens in the Slovak Republic.

Performance of economic activities by aliens is considered to be one of the key conditions for their successful integration into society. Income means for aliens economic self-sufficiency, possibility to build social relations, professional growth, acquisition and maintenance of work experience, improvement of language skills (Masárová, 2015).

Ivanova (2009, p. 298) maintains that human work is a goal-oriented activity, through which new products are created or services are provided. It is a productive activity that results in new and useful values. According to Habánik (2014), employment refers to the integration of the population in the

work process and is therefore one of the most important factors in GDP creation. That is why, the key goal of any country is to achieve full employment by minimizing unemployment.

The conditions of entry and residence of third-country nationals in the EU for the purposes of highly qualified employment are governed by the Directive 2009/50/EC. Highly qualified employment means the employment of a person who is in the Member State concerned protected as an employee under national employment law and/or in accordance with national practice, irrespective of the legal relationship, for the purpose of exercising genuine and effective work for, or under the direction of, someone else. Highly qualified employment is paid and the person concerned has the required adequate and specific competence, as proven by higher professional qualifications (Barancová, 2012).

2. EU Blue Card

An EU Blue Card gives highly-qualified workers from outside the EU the right to live and work in an EU country. The blue EU card is issued by the competent authorities of the Member States in accordance with the Regulation 1030/2002 laying down a uniform format for residence permits for third-country nationals. Member States may set a standard period of validity of the EU Blue Card, which shall be comprised between one and four years. The Blue Card period of validity depends on the validity of the contract, which the employer concluded. If the contract is concluded for shorter time, the EU Blue Card shall be issued or renewed for three months after the employment contract expires.

In the Slovak Republic, issuance of the EU Blue Card is regulated by Act No. 404/2011 Coll. on the residence of aliens as amended.

The Blue Card entitles a third-country national to enter, reside, and work in the Slovak Republic, exit and re-enter the Slovak Republic territory during the time period as specified in the Blue Card issued by a police department.

A third-country national is anyone who is neither a citizen of the Slovak Republic nor a citizen of the European Union. A third-country national is also a stateless person.

A highly-qualified employment is an employment requiring higher professional qualifications. A higher professional qualification means a qualification proven by evidence of higher education. Higher professional qualification shall be understood as the qualification proved by the document of university education. Previously, a document about the performance of more than five years of professional experience in the respective area which is of comparable level with the university education was acceptable.

The application for the Blue Card by a third-country national must be submitted at the diplomatic mission of the Slovak Republic accredited to the country of his/her citizenship. If a third-country national resides in the Slovak Republic legally, he/she may submit the application at the competent Foreign Police Department according to the place of his/her residence.

A third-country national filing for a Blue Card at the Foreign Police Department shall, within 30 days from the application submission, submit a medical report confirming he/she does not suffer from a disease endangering public health (not older than 30 days).

The Police Department shall request the Labour Office to confirm in writing the possibility of filling a vacancy that corresponds to a highly qualified job.

The Police Department will issue a written decision on the Blue Card application within 30 days of request receipt.

At the request of a third country national, the police department shall renew the blue card for the purpose of a highly qualified employment for four years, or if the period of employment is shorter than four years, the police department shall renew the blue card for the duration of the employment extended by 90 days.

3. Rights of an EU Blue Card holder

The most privileged right of the Blue Card holder is the free access to the labour market. For the first two years of legal employment in the Member State concerned as an EU Blue Card holder, access to the labour market for the person in question shall be limited to the exercise of paid employment activities. For the first two years of legal employment in the Member State concerned, changes in employer shall be subject to the prior authorisation in writing of the competent bodies of the Member State of residence. After these two years, Member States may/may not grant the persons concerned equal treatment with their own nationals regarding the access to highly qualified employment. On the other hand, Member States may retain restrictions regarding the access to employment activities, when such employment activities include involvement in the exercise of public authority and the responsibility for safeguarding the general interest of the state and where, in accordance with existing national and Community law, these activities are reserved to nationals.

Another entitlement granted to Blue Card holders is temporary unemployment. Unemployment in itself shall not be a reason for withdrawing an EU Blue Card. In the course of unemployment, the EU Blue Card holder shall be allowed to seek employment in the respective Member State. This applies only under the condition when the unemployment period does not exceed three consecutive months, or it does not occur more than once during the period of validity of an EU Blue Card. If so, the Blue Card can be rejected or rejected to be renewed.

Blue Card holders are also entitled to equal treatment with nationals of the Member State issuing the Blue Card. EU Blue Card holders shall enjoy equal treatment with nationals of the respective Member State.

Equal treatment covers the following:

- working conditions, including pay and dismissal, including health and safety requirements at the workplace,
- freedom of association and affiliation and membership of trade unions, including the benefits conferred by such organisations,

- education and vocational training,
- recognition of diplomas, certificates and other professional qualifications,
- provisions in national law regarding social security,
- access to publicly available goods and services, including information and counselling services afforded by employment offices,
- free access to the entire territory of the Member State concerned.

Access to education, professional training and publicly available goods and services may be subject to specific limitations. They are mainly concerned with the restriction of equal treatment as regards study and maintenance grants and loans or other loans and grants regarding secondary and higher education and vocational training (Barancová, 2012).

The EU Blue Card holder is entitled to move for the purpose of taking on a highly qualified job to another Member State only after 18 months of legal residence in the country where the Blue Card was issued.

Before taking a third-country national into the employment, an employer is obliged to request his/her valid residence permit. The employer is obliged to keep the copy of the residence permit at least for the duration of employment. The employer is also obliged to inform in writing the Office of Labour, Social Affairs and Family about the commencement and termination of the employment of the EU national and his/her family member as well as the third-country national within 7 working days from the commencement/termination of the employment.

The validity of the EU Blue Card expires when:

- a third-country national notifies a police department in writing about the end of his/her residence,
- a third-country national was imposed the sentence of expulsion,
- a third-country national was administratively expelled,
- a third-country national acquired citizenship of the Slovak Republic,
- a third-country national acquired the EU Blue Card in a member country,
- a third-country national was revoked his/her Blue Card by the Police Department,
- a third-country national has died or was declared dead,
- the validity of the Blue Card of a third-country national has expired.

Administrative fee to obtain an EU Blue Card is EUR 165.50 when the application was submitted to the Foreign Police Department or EUR 170 when the application was submitted to a diplomatic mission of the Slovak Republic abroad.

The Directive 2009/50/ES on the conditions of entry and residence of third-country nationals for the purposes of highly qualified employment does not apply to third-country nationals who are

beneficiaries of temporary international protection (e.g. refugees, stateless persons), third-country nationals who apply to reside in a Member State as researchers, and/or third-country nationals who have been admitted to the territory of a Member State as seasonal workers.

4. Sanctions and measures against employers of illegally staying third-country nationals

The purpose of the Directive 2009/52/EC of the European Parliament and of the Council of 18 June 2009 providing for minimum standards on sanctions and measures against employers of illegally staying third-country nationals is to prohibit the employment of third-country nationals who do not have the right to be resident in the EU and to set sanctions against employers who infringe that prohibition.

In line with the Directive, Member States are obliged to adopt effective, appropriate and dissuasive sanctions against employers of illegally staying third-country nationals. These should include financial sanctions whose amount shall depend on the number of illegally employed third-country nationals as well as payments of the costs of return of illegally employed third-country nationals in those cases where return procedures were carried out.

Member States should ensure that third-country nationals have judicial protection, and that claims are or may be lodged (e.g. through Ombudsman or Trade Unions).

5. Conclusion

Current trends in international migration relate to globalization processes, and the reasons for migration since the beginning of humanity up to now stem from the desire of people to improve their quality of life (Tupá, 2013). The EU Blue Card is a mechanism to legalize highly qualified employment of third-country nationals in the EU. Blue Card is issued by the competent authorities of the Member States using the uniform format. The EU Blue Card entitles third-country nationals access to the labour market, temporary unemployment, equal treatment regarding remuneration, health and safety at workplace, termination of employment, education and professional training and freedom of association in trade unions. If employers infringe conditions regarding employing third-country nationals as stipulated in special legal regulations, they violate the prohibition of illegal employment and shall be sanctioned.

Literature:

Barancová, H. (2012). *Zákonník práce - komentár*. Praha: C-H-BECK. pp. 1072.

Habánik, J. a kol. (2014). *Príklady a úlohy z makroekonómie*. Trenčín: TnUAD. pp. 170.

Ivanová, E. a kol. (2009). *Ekonomická teória, základy ekonómie*. Trenčín: TnUAD. pp. 364.

Masárová, T. (2015). *Integrácia migrantov na trhu práce v Slovenskej republike*. Sociálno – ekonomická revue č. 2. Trenčín: TnUAD. pp. 100-106.

Tupá, M. (2013). Faktory migrácie pracovnej sily do zahraničia. *Sociálno – ekonomická revue* č. 11(1). Trenčín: TnUAD. pp. 108-121.

zákon č. zákon č.404/2011 Z.z. o pobyte cudzincov a o zmene a doplnení niektorých zákonov, retriever December 7, 2017 from http://jaspi.justice.gov.sk/jaspiw1/htm_zak/jaspiw_mini_zak_vyber_hl1.asp?clear=N.

For more see: www.appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do [cit.:2017-14-06].

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THE IMPACT OF THE HUMAN AND SOCIAL CAPITAL ON THE CIRCULAR ECONOMY DEVELOPMENT IN EUROPEAN UNION

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Abstract: *The circular economy, based on the 3R rules (Reuse, Reduce, Recycle) is a relatively new concept in the business world. It has been developing on a large scale especially in European Union, with a huge financial and institutional support of European Commission. However, my attention is drawn to the noticeable disproportion in the implementation of this idea among the EU member states. This raises the question of determinants which motivate business entities towards the transformation of business approach from linear to circular.*

The main goal of this article is to examine the impact of human and social capital on the circular economy development in European Union, which was proven by Spearman's rank correlation coefficient between these values.

Keywords: *Circular economy, social capital, human capital, European Union*

JEL classification:

Grant affiliation: Q5, O3.

1. Intruduction

The rapid economic growth triggered by the industrial revolution has become a driving force for the development of industry, agriculture, transport, commerce and urban planning, but at the same time it has contributed to the overburdening of natural ecosystems. This is manifested primarily by high environmental pollution, excessive consumption and waste of natural resources.

The solution to this problem is to create such a business model, which minimizes the use of natural resources, beginning with appropriate designing of a product that would extend its life cycle and would use waste as raw material, which would lead to the production costs reduction. Such a model is characteristic for the circular economy, based on the 3R rules (Reuse, Reduce, Recycle) which is already implemented in many countries in the world.

The main goal of this article is to examine the impact of human and social capital on the circular economy development in European Union, which was proven by Spearman's rank correlation coefficient between these values. Research was based on the critical analysis of literature and statistics.

2. The concept of the circular economy

The concept of circular economy was mentioned in the literature in 1990 (Pearse, Turner, p. 40), however, it was not until the beginning of the 21st century that this idea found international recognition in the world of theory and practice. The most popular definition of the circular economy developed by the Agency for Environmental Protection and Energy Management (ADEME) describes it as a "system of exchange and production that aims at increasing the efficiency of resource use and reducing the impact of production and consumption on the environment in every life cycle of goods and services. The circular economy must globally seek for the solution to drastically reduce the resource mismanagement to separate their consumption from GDP growth, while at the same time to reduce the environmental impact and increase social well-being; the slogan: do more for less." In practice, this generally means replacing the linear action: "take - use – throw out" with the closed-loop.

In 2015, the European Commission adopted the ambitious package on the circular economy aimed at boosting competitiveness, creating jobs and fostering sustainable economic growth, guaranteeing for this purpose a budget of 5,5 billion of euro from the European Structural and Investment Funds, 650 million of euro from the EU Framework Programme for Research and Innovation Horizon 2020 as well as over 100 million euro from new LIFE programme 2014-2020 invested into over 80 circular economy projects during its first two years.

Key elements of this plan include:

- by 2030 - a common EU target for recycling 65% of municipal waste;
- by 2030 - a common EU target for recycling 75% of packaging waste;

economic incentives for producers to put greener products on the market and support recovery and recycling schemes (European Commission, 2017).

However, it can be observed the noticeable disproportion in the implementation of this idea among the EU member states. For instance, in Poland - the Ministry of Development has started working on the polish road map to a circular economy only in 2017. This raises the question of determinants which motivate business and political entities towards the transformation from linear to circular. In my analyze I focus on two factors: human and social capital which can play a crucial role in circular economy development.

3. The circular economy and the human and social capital

For the first time, in 2015 "The Economist" elaborated the ranking of implementation the 3R principles among 13 countries, classified Denmark as the leader and then: Netherlands, Norway, Germany, Spain, Canada Japan, USA, Great Britain, France, Australia, Italy and Greece. In each of them, the circular economy concept is treated differently, depending on the institutional, economic and cultural character of the country, its capabilities, needs and expectations. However, if we compare this ranking with the index of social capital (based on the Legatum Prosperity Index), we can realise that there is a strong correlation between these two values as illustrated in Table 1.

TAB. 1: Spearman's rank correlation between 3R indicator and social capital 20015

	Country	3R indicator	Social capital ranking	New social capital rangs	D	D2
1	Denmark	1	3	2	-1	1
2	Netherlands	2	7	5	-3	9
3	Norway	3	2	1	2	4
4	Germany	4	16	8	-4	16
5	Spain	5	23	9	-4	16
6	Canada	6	6	4	2	4
7	Japan	7	29	10	-3	9
8	USA	8	11	6	2	4
9	GB	9	12	7	2	4
10	France	10	53	12	2	4
11	Australia	11	4	3	8	64
12	Italy	12	42	11	1	1
13	Greece	13	100	13	0	0

Source: own elaboration based on: 3R indicator according to The Economist and THE LEGATUM PROSPERITY INDEX™ RANKINGS 2015, subranking social capital
http://www.prosperity.com/download_file/view_inline/2833

$$SRC=1-\frac{6\sum D^2}{N(N^2-1)}=0,62$$

The research result indicates that building social capital has a positive influence in the process of implementation 3R rules in business. This correlation is convergent to the conclusion of EIP-AGRI workshop (2015): "cooperation and partnership is the key to success in the circular economy

implementation". Development and diffusion of new ideas, good communication and trust, cooperation with scientific centers, initiation of initiatives by local entrepreneurs are also very important components in the transformation from linear to circular way of thinking. Only later did the issue of financing or legal support appear.

However, if the same calculation we apply to examine the correlation between 3R index and the index of human capital (defined like i. a. an accumulated by a person stock of employee's skills, knowledge, attributes, abilities to perform labour), based on the World Economic Forum (WEF), surprisingly the Spearman's rank correlation coefficient is weaker ($SRC=0,47$), but still moderate, as presented in Table 2.

TAB. 2: Spearman's rank correlation between 3R indicator and human capital 20015

	Country	3R indicator	Human capital ranking	New human capital rangs	D	D2
1	Denmark	1	7	4	-3	9
2	Netherlands	2	8	5	-3	9
3	Norway	3	2	1	2	4
4	Germany	4	22	10	-6	36
5	Spain	5	41	13	-8	64
6	Canada	6	4	2	4	16
7	Japan	7	5	3	4	16
8	USA	8	17	8	0	0
9	GB	9	19	9	0	0
10	France	10	14	7	3	9
11	Australia	11	13	6	5	25
12	Italy	12	35	11	1	1
13	Greece	13	40	12	1	1

Source: own elaboration based on: 3R indicator according to The Economist and Human capital index by WEF. (2015) <http://reports.weforum.org/human-capital-report-2015/rankings/>

4. Conclusion

Summarizing these ponderings, we might arrive at the conclusion that the idea of the circular economy, even if it is relatively new concept in the theory and practice of economics in European Union, however it dynamically develops and gains new followers.

The test results showed that the human capital is important to develop the idea of the circular economy, but insufficient. To achieve success in the process of implementation the circular economy way of thinking for daily activities, we should focus on the building the social capital, expressed as an ability to build the social networks, trust and cooperation. That is why the circular economy is already well known and successfully implemented in the Northern Europe, where the level of social capital is higher than in Central and Eastern Europe. A typical example could be the Danish city: Kalunburg - which illustrates the existence of industrial symbiosis.

This conclusion should be a guide for countries looking for ways to optimize the necessary transition from linear to circular economy.

Literature:

ADEME. <http://www.ademe.fr/>.

EIP-AGRI Workshop. (2015). *Opportunities for agriculture and forestry in the circular economy': Final report*. Retrieved from https://ec.europa.eu/eip/agriculture/sites/agri-eip/files/eip-agri_ws_circular_economy_final_report_2015_en.pdf.

European Commission. (2017). http://ec.europa.eu/environment/circular-economy/index_en.htm.

Pearce, D. W., Turner, R.K. (1990). *Economics of natural resources and the environment*. The Johns Hopkins University Press, Baltimore.

The Economist. (2015). <http://www.economist.com/news/finance-and-economics/21637411-environmental-regulations-may-not-cost-much-governments-and-businesses>.

THE LEGATUM PROSPERITY INDEX™ RANKINGS 2015, http://www.prosperity.com/download_file/view_inline/2833.

World Economic Forum. (2015). <http://reports.weforum.org/human-capital-report-2015/rankings/>.

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PROBLEMS IN MEASURING ECONOMIC EFFICIENCY IN LOCAL GOVERNMENT UNITS IN POLAND

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Abstract: *Economic efficiency is one of the most important aspects of functioning in every organization. The measurement of economic efficiency in local government units, as they are financed through public funding, is gaining special significance and is also extremely difficult. The main aim of this paper is to analyze the essence of economic efficiency in local government units, present the basic elements of the efficiency evaluation system, as well as the measures chosen and their informational capacity.*

Keywords: *Economic efficiency, economic efficiency measures, local government units.*

JEL classification: H83

Grant affiliation:

1. Introduction

Any entity, in pursuing its goals has limited resources, which is why it is extremely important to use them properly. One of the ways frequently used in practice to evaluate the proper use of resources is economic efficiency. Economic efficiency can be understood in different ways. According to M. Szudy, economic efficiency is expressed by the ability to achieve the determined aim through the most effective and least wasteful use of resources (Szudy, 2013, p. 23).

The main aim of this paper is to analyze the essence of economic efficiency in local government units (LGUs), present the basic elements of the efficiency evaluation system, as well as the measures chosen and their informational capacity.

2. The essence of economic efficiency in local government units

Since 1999, local government in Poland have had a three-tier composition which includes: gminas, powiats and voivodeships. The detailed scope of the public tasks of LGUs are governed by the relevant laws, but among the most important may be mentioned: education, social welfare, health, defence, and public security. The LGUs are part of the public finance sector, therefore their activities are financed through public funding. In connection with ever-growing social needs, public expenditures also increase, and it is becoming increasingly difficult to defray them through public funding, which inevitably results in the formation of a budget deficit. Due to this fact that public funding cannot be arbitrarily formed and increased according to needs (i.a. for the reason that their largest part is comprised of taxes), ultimately the way of expenditure management affects the degree of satisfaction of social needs and the size of the budget deficit. Therefore, public expenditures will play a key role in the effectiveness of the activities of the LGUs, and thanks to this, achieving the greatest social usefulness of publicly allocated funds will be possible (Filipiak, 2011, p. 226). This is reflected in the regulations of the Public Finance Act, where it indicates, i.a. that the LGUs are obliged to carry out expenditures within the limits laid down in the financial plan (budget), in accordance with the intended purpose and in a cost-effective way, retaining the principle of obtaining the best results from the given expenditures (Public Finance Act, 2009, art. 254, par. 3).

However, the problem is that although statutory provisions should ensure the efficient disposal of public funding, in practice they do not. Among the most important reasons for this situation are the ambiguity of the indicated provisions and the associated problem of their enforcement. It should be noted, that in order to assess resource efficiency, and the consequences of incurring expenses, it is necessary to link the specific activities and tasks and the effects achieved thanks to them. It is also necessary to designate a specific indicator of the effects and specify their desirable and exemplary size, which is undoubtedly favourable when drawing up a performance budget. However LGUs are not obliged to draw up a performance budget, where it would be necessary to define its specific elements (i.a. tasks, aims, effects, their indicators, and values). In accordance with the law, a budget is prepared only in a layout of sections, chapters and paragraphs, and as a result only the maximum spending limits which may be incurred in the implementation of specific public functions are known. Consequently, the LGUs settle their accounts concerning the public expenditures in accordance with the limits set out in the budget, and not from the efficiency of resource utilization in relation to the accuracy, degree or validity of the tasks. The problem, is that the nature of efficiency in the area of public finance does not come down to the amount of the expenses incurred and their compliance with the financial plan, but should be viewed through a prism of the usefulness of public expenditures and, thanks to this, the resulting effects in the form of supplied goods and services as the answer to societal needs. For this reason, measuring the efficiency of public expenditures should strive to reflect the relationship between the level and structure of the expenditure and the benefits obtained by society and the economy thanks to it (Jastrzębska, 2016, p. 45).

In summation, LGUs should pay more attention to the efficiency of resource utilization since it is strictly related to public expenditures and the level of satisfying the needs of society. For this to be achieved it is necessary, i.a. to develop and consistently apply an objective system of efficiency evaluation, in which measurement plays a key role. As it turns out, the creation of such a system and the selection of measures, on the basis of which would be an evaluation of the efficiency of resource utilization is also not so simple. The significance of the activity of LGUs is to satisfy the needs of the

public, which doesn't easily subject itself to quantification, so issues with clearly identifying both effects and expenditures can also appear. The objectives of the public tasks may be of a qualitative nature, and the effects of specific actions can appear after a lengthy delay and reveal themselves even after years, which makes it more difficult to unequivocally associate the effects of the expenditures within a specified amount of time (Filipiak, 2011, p. 226). However, problems in this area do not exempt LGUs from seeking ways of increasing the efficiency of their activities, which also enforces the conditions of their functioning, i.a. growing public pressure or new trends in public management.

3. The basic elements of the efficiency evaluation system in local government units and the characteristics of the measures chosen

To fulfill its role, the efficiency evaluation system in LGUs must be well thought out, tailored to the specifics of the organization, and consistently applied. Regardless of the individuality of the solution, the efficiency evaluation system should include the following elements:

- developing a set of indicators that will help measure the effectiveness of the activity;
- determining the planned values of the indicators;
- assigning responsibility for achieving efficiency in an activity to a specific person or organizational cells;
- efficiency review, i.a. measuring the efficiency and reporting, periodical comparison of actual values of efficiency indicators with planned values, and determining the size of deviations and the reasons for their occurrence;
- linking the results of the efficiency review with a motivational system;
- benchmarking;
- drawing conclusions for the future, meaning, improving the efficiency of the activities.

In the efficiency evaluation system the choice of evaluation methods and efficiency indicators is of great importance. In practice, indicator methods are most often used in this area. Their nature relies on creating a relationship between the effects (results) and the expenditures (Ziębicki, 2014, p. 84). Each organization should carefully select a set of indicators for assessing the efficiency that suit their needs. Among the most important principles worth noting, and that should be taken into account when developing indicators, are (Ziębicki, 2014, p.84, Nieplowicz, 2012, p.168, Skoczylas, 2011. pp. 177-178):

- appropriateness - indicators should be adapted to the purposes of the assessment;
- measurability - data adopted for indicators should be able to determine and show the relationship between expenditure and effect;
- consistency – the ability to integrate with other indicators;

- simplicity, clarity, ease of interpretation;
- sustainability – indicators should be, as far as possible, invariant to support their comparability over time;
- current – indicators should reflect the processes taking place in the organization;
- availability of data - the data used for the calculation of the indicators should be reliable and readily available.

Examples of efficiency indicators that can be used in LGUs are presented in TAB. 1. The higher the value of the indicators (TAB. 1), the better efficiency of the resources used.

TAB. 1: Examples of efficiency indicators that can be used in LGUs.

Position	Efficiency indicator	Informational capacity
Administrative services for communication and transport - vehicle registration	The number of registered (deregistered) vehicles per year divided by average number of employees engaged in the registration of vehicles in terms of FTE	The indicator notes the number of vehicles registered/deregistered annually by one full-time employee
	The number of vehicles registered (deregistered) annually divided by annual vehicle registration costs (in PLN)	The indicator notes the number of vehicles registered/deregistered annually for every 1 PLN in department costs (resources used)
Department of Communication and Transport	The total number of services performed by the department annually divided by average annual number of department employees	The indicator notes the number of services performed annually by one full-time employee of the department
	The number of all services performed by the department annually divided by annual operating costs of the department (in PLN)	The indicator notes the number of services performed by the department annually for every 1 PLN in department costs (resources used)

Source: own study based on (Kuchniarz, 2013, pp. 43-44)

The implementation of a comprehensive evaluation system of efficiency in LGUs often entails the need for changes in work organization or in the accounting system in the areas of book-keeping, grouping, and cost calculation.

Consistent and comprehensive assessment of the activities' effectiveness and using the conclusions coming from self-improvement by LGUs will undoubtedly bring positive results in the better utilization of public funds.

4. Conclusion

At the moment, the experience of Polish LGUs in the implementation of modern concepts and management tools, such as performance budgeting and efficiency evaluation is modest at best and done on their own initiative and not legal regulations. Despite the many problems and challenges relating to the evaluation of the effectiveness of the activities of local government units, it seems that more and more difficult conditions of their functioning appear, i.a. the increasing number of tasks to be performed are disproportionate to public funding, and force a search for, and implementation of modern management tools in this field. This should contribute to a better allocation of resources and meeting the needs of society, and thus a more efficient use of public funds.

Literature:

Filipiak, B. (2011). *Efektywność w zarządzaniu finansami samorządowymi*. Skutek kryzysu czy obiektywna konieczność? (pp. 223-236). Zeszyty Naukowe no 10. Kraków, Polskie Towarzystwo Ekonomiczne.

Jastrzębska, M. (2016). *Uwarunkowania pomiaru efektywności wydatków jednostek samorządu terytorialnego* (pp. 43-53). *Finanse, Rynki Finansowe, Ubezpieczenia*, 6/2016 (84), cz.1. Szczecin, Uniwersytet Szczeciński.

Kuchniarz, M., (2013). *Pomiar efektywności usług publicznych – zarys koncepcji i spodziewanych rezultatów* (pp. 41-49). *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* no 284. Wrocław, UE we Wrocławiu.

Nieplowicz, M. (2012). *Mierniki pomiaru realizacji celów jednostek sektora finansów publicznych* (pp. 165-174). *Finanse. Rynki Finansowe. Ubezpieczenia* no 53. Szczecin, Uniwersytet Szczeciński.

Skoczylas, W. (2011). *Mierniki monitorowania celów i zadań jednostki samorządu terytorialnego* (pp. 173-184). *Finanse, Rynki Finansowe, Ubezpieczenia* no 42. Szczecin, Uniwersytet Szczeciński.

Szudy, M. (2013). *Efektywność ekonomiczna w ujęciu dynamicznym a sprawność systemu gospodarczego* (pp. 22-29). *Studia Ekonomiczne* no 176. Katowice, UE w Katowicach.

Ustawa z dnia 27.08.2009 r. o finansach publicznych, Dz. U. z 2016 r. poz. 1870 z późniejszymi zmianami.

Ziębicki, B. (2014). *Efektywność organizacyjna podmiotów sektora publicznego*. Kraków, UE w Krakowie.

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COMPARISON OF STOCKS USING A FUZZY DECISION MATRIX

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Abstract: Fuzzy decision matrices, recently interpreted as a fuzzy rule-based system, represent a tool for solving decision-making problems under risk where the information about the states of the world and/or about the future outcomes of alternatives is vague. In the paper, we apply a fuzzy decision matrix to the following problem: Two stocks are to be compared based on the expected values and variances of their yields. The future yields of the stocks depend on the fact which of the possible states of the economy will occur. The states of the economy are described only vaguely; they are modelled by fuzzy sets on the universal set on which the probability distribution is given. The yields of the two stocks under the states of the economy are set expertly by fuzzy numbers.

Keywords: Decision matrices, decision-making under risk, fuzzy states of the world, fuzzy rule-based system, stock evaluation.

JEL classification: C44, G11

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1. Introduction

A decision matrix represents a tool of risk analysis (see e.g. Huynh et. al. (2007)). It generally describes how outputs of alternatives depend on the fact which of possible and mutually disjoint states of the world will occur. The alternatives are usually compared based on the expected values and variances of their outputs.

In practical applications, the states of the world are often described only vaguely, like e.g. "grow rate of gross domestic product is moderate", etc. Pavlačka and Rotterová (2016) showed that in such a case it is more appropriate to model the states of the world by fuzzy sets. They proposed to describe dependencies of the alternative on the fuzzy states of the world as a fuzzy rule base. The fuzzy rule base was firstly introduced by Zadeh (1979).

Moreover, in practical applications outputs of the alternatives could be known also only vaguely, like e.g. "approximately 5 % yield". Rotterová and Pavlačka (2017) proposed to model such complex decision-making problem by a decision matrix with fuzzy states of the world and fuzzy outputs of alternatives under the particular fuzzy states of the world, i.e. by a so-called fuzzy decision matrix.

In this paper, the fuzzy decision matrix is used to compare two stocks. Paper is organized as follows. Chapter 2 is devoted to fuzzy sets theory. Then, in Chapter 3 the fuzzy decision matrix is described. Stocks are compared in Chapter 4. The paper is finished by Conclusion.

2. Preliminaries

This chapter is devoted to basic notions from fuzzy sets theory and measure theory.

A fuzzy set A on a non-empty set Ω is determined by its membership function $\mu_A : \Omega \rightarrow [0,1]$. $Supp A := \{\omega \in \Omega / \mu_A(\omega) > 0\}$ and $Core A := \{\omega \in \Omega / \mu_A(\omega) = 1\}$ represent a support of A and a core of A , respectively. A_α means an α -cut of A , i.e. $A_\alpha := \{\omega \in \Omega / \mu_A(\omega) \geq \alpha\}$ for any $\alpha \in (0,1]$.

A fuzzy number A is a fuzzy set on the set of all real numbers \mathbb{R} such that its $Core A$ is non-empty, its α -cuts A_α are closed intervals for any $\alpha \in (0, 1]$, and its support $Supp A$ is bounded. Let us denote the family of all fuzzy numbers on the set of all real numbers \mathbb{R} by $\mathcal{F}(\mathbb{R})$.

Special case of a fuzzy number is a trapezoidal fuzzy number. The trapezoidal fuzzy number is determined by its significant values a_1, a_2, a_3 , and a_4 such that $a_1 \leq a_2 \leq a_3 \leq a_4$. The membership function of any trapezoidal fuzzy number $A \in \mathcal{F}(\mathbb{R})$ is for any $\omega \in \mathbb{R}$ in the form as follows:

$$\mu_A(\omega) = \begin{cases} \frac{\omega - a_1}{a_2 - a_1} & \text{if } \omega \in [a_1, a_2), \\ 1 & \text{if } \omega \in [a_2, a_3], \\ \frac{a_4 - \omega}{a_4 - a_3} & \text{if } \omega \in (a_3, a_4], \\ 0 & \text{otherwise.} \end{cases}$$

The trapezoidal fuzzy number A determined by its significant values is denoted further by (a_1, a_2, a_3, a_4) .

The resultant fuzzy numbers are compared according to their centres of gravity. The centre of gravity of a fuzzy number $A \in \mathcal{F}(\mathbb{R})$ is a real number cog_A given as follows:

$$cog_A = \frac{\int_{-\infty}^{\infty} \omega \cdot \mu_A(\omega) d\omega}{\int_{-\infty}^{\infty} \mu_A(\omega) d\omega}.$$

In the paper, let us consider a given probability space (Ω, \mathcal{A}, P) where Ω denotes a non-empty universal set of all elementary events, \mathcal{A} is a σ -algebra of subsets of Ω , i.e. \mathcal{A} represents the set of all considered random events, and $P: \mathcal{A} \rightarrow [0,1]$ denotes a probability measure.

3. Fuzzy decision matrix

In this chapter, let us introduce a decision matrix with fuzzy states of the world and fuzzy evaluations of the alternatives under the fuzzy states of the world called a fuzzy decision matrix.

In the fuzzy decision matrix given in TAB. 1, x_1, \dots, x_n denote the alternatives of the decision-maker and S_1, \dots, S_m stand for the fuzzy states of the world. The fuzzy states of the world are described by so-called fuzzy events. According to Zadeh (1968), a fuzzy event $A \in \mathcal{F}(\Omega)$ is a fuzzy set whose α -cuts are random events, i.e. $A_\alpha \in \mathcal{A}$ for all $\alpha \in (0,1]$. The fuzzy states of the world have to form a fuzzy partition of the universal set Ω , i.e. for any $\omega \in \Omega$, it has to hold that $\sum_{j=1}^m \mu_{S_j}(\omega) = 1$. For any $i \in \{1, 2, \dots, n\}$ and $j \in \{1, 2, \dots, m\}$, $H_{i,j}$ expresses the fuzzy output of the alternative x_i under the fuzzy state of the world S_j .

TAB. 1: Fuzzy decision matrix

	S_1	S_2	...	S_m		
x_1	$H_{1,1}$	$H_{1,2}$	....	$H_{1,m}$	EH_1	$\text{var } H_1$
x_2	$H_{2,1}$	$H_{2,2}$	...	$H_{2,m}$	EH_2	$\text{var } H_2$
...
x_n	$H_{n,1}$	$H_{n,2}$	...	$H_{n,m}$	EH_n	$\text{var } H_n$

In the paper, the information about the output of the alternative x_i is understood as the following fuzzy rule base:

If the state of the world is S_1 , then the evaluation of x_i is $H_{i,1}$.

⋮

If the state of the world is S_m , then the evaluation of x_i is $H_{i,m}$.

Since we deal with the fuzzy outputs of the alternatives under the fuzzy states of the world, the so-called generalised Sugeno's method of fuzzy inference, introduced in Talašová (2003), should be applied for obtaining an output from the fuzzy rule base. According to this method, the evaluation of the alternative x_i , for a given $\omega \in \Omega$, is computed in the following way:

$$H_i(\omega) = \frac{\sum_{j=1}^m \mu_{S_j}(\omega) \cdot H_{i,j}}{\sum_{j=1}^m \mu_{S_j}(\omega)} = \sum_{j=1}^m \mu_{S_j}(\omega) \cdot H_{i,j}.$$

For any $\alpha \in (0,1]$, let us denote $H_{i,j,\alpha} = [h_{i,j,\alpha}^L, h_{i,j,\alpha}^U]$, $j = 1, 2, \dots, m$, and $H_{i,\alpha}(\omega) = [h_{i,\alpha}^L(\omega), h_{i,\alpha}^U(\omega)]$.

Then, the boundary values of $H_{i,\alpha}(\omega)$ are computed as follows:

$$h_{i,\alpha}^L(\omega) = \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j,\alpha}^L \quad \text{and} \quad h_{i,\alpha}^U(\omega) = \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j,\alpha}^U.$$

Since we operate within the given probability space (Ω, \mathcal{A}, P) , H_i is a fuzzy random variable such that $H_i: \Omega \rightarrow \mathcal{F}(\mathbb{R})$.

The alternatives x_1, \dots, x_n are ordered based on the fuzzy expected values and the fuzzy variances of the random variables H_i , $i = 1, 2, \dots, n$. Let us describe the formulas for computations of the α -cuts of EH_i and $\text{var } H_i$.

For any $\alpha \in (0,1]$, the α -cut of the fuzzy expected output from the fuzzy rule base, denoted by $EH_{i,\alpha} = [Eh_{i,\alpha}^L, Eh_{i,\alpha}^U]$ is obtained as follows:

$$Eh_{i,\alpha}^L = \min \left\{ \int_{\omega \in \Omega} \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j} dP \mid h_{i,j} \in H_{i,j,\alpha}, j = 1, 2, \dots, m \right\} = \int_{\omega \in \Omega} \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j,\alpha}^L dP$$

and

$$Eh_{i,\alpha}^U = \max \left\{ \int_{\omega \in \Omega} \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j} dP \mid h_{i,j} \in H_{i,j,\alpha}, j = 1, 2, \dots, m \right\} = \int_{\omega \in \Omega} \sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j,\alpha}^U dP.$$

The α -cut $\text{var } H_{i,\alpha} = [\text{var } h_{i,\alpha}^L, \text{var } h_{i,\alpha}^U]$ of the fuzzy variance of the output from the fuzzy rule base is obtained as follows: Let us denote

$$\begin{aligned} & s_i(h_{i,1}, h_{i,2}, \dots, h_{i,m}) \\ &= \int_{\omega \in \Omega} \left(\sum_{j=1}^m \mu_{S_j}(\omega) \cdot h_{i,j} - \int_{t \in \Omega} \sum_{k=1}^m \mu_{S_k}(t) \cdot h_{i,k} dP \right)^2 dP. \end{aligned}$$

Then,

$$\text{var } h_{i,\alpha}^L = \min \{ s_i(h_{i,1}, h_{i,2}, \dots, h_{i,m}) \mid h_{i,j} \in H_{i,j,\alpha}, j = 1, 2, \dots, m \}$$

and

$$\text{var } h_{i,\alpha}^U = \max \{ s_i(h_{i,1}, h_{i,2}, \dots, h_{i,m}) \mid h_{i,j} \in H_{i,j,\alpha}, j = 1, 2, \dots, m \}.$$

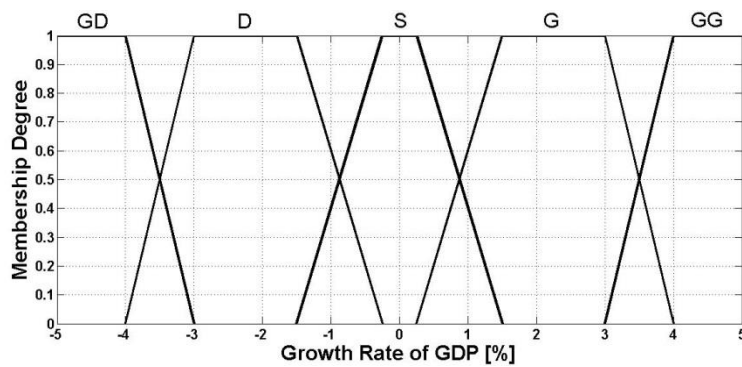
The comparison of alternatives is based on some decision-making rule (see e.g. Matos (2007)). In the paper, we consider a rule of the expected value and a rule of the expected value and the variance. According to the first rule, the better alternative is the one with the higher expected value. Based on

the second rule, one alternative is better than other if the alternative has the higher expected value and not higher variance, or not less the expected value and the less variance.

4. Stocks comparison

Let us compare two stocks, A and B , with respect to their future yields. We consider the following states of the economy: "great economic drop" (GD), "economic drop" (D), "economic stagnation" (S), "economic growth" (G), and "great economic growth" (GG). Let us assume that the considered states of the economy are given only by the development of the gross domestic product, abbreviated as GDP. Further, we assume that the next year prediction of GDP development [%] shows a normally distributed growth of GDP with the expected value $\mu = 1.5$ and the variance $\sigma = 2$.

FIG. 1: Fuzzy partition of the growth rate of GDP



Let us assume that the states of the economy are mathematically expressed by trapezoidal fuzzy numbers that form the partition of the real line shown in FIG. 1. Moreover, let us consider that the predictions of future stock yields (in %) are set expertly. Their significant values as well as significant values of the fuzzy states of the economy are shown in TAB. 2.

TAB. 2: Considered fuzzy decision matrix

Economy states	GD = $(-\infty, -\infty, -4, -3)$				D = $(-4, -3, -1.5, -0.25)$			
A yield (%)	-36	-34	-31	-16	-20	-17	-10	0
B yield (%)	-45	-40	-32	-25	-22	-17	-11	0
Economy states	S = $(-1.5, -0.25, 0.25, 1.5)$				G = $(0.25, 1.5, 3, 4)$			
A yield (%)	-5	-3	3	10	6	12	17	24
B yield (%)	-5	-3	3	5	8	12	16	18
Economy states	GG = $(3, 4, \infty, \infty)$							
A yield (%)	22	27	34	36				

<i>B</i> yield (%)	20	26	33	40
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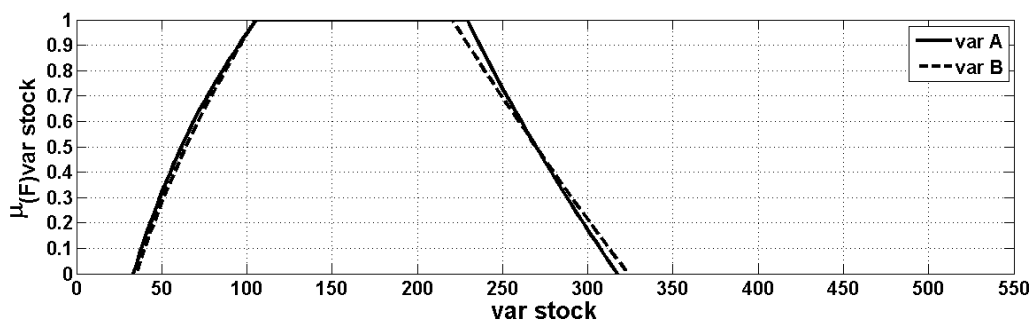
The fuzzy expected value EA and EB are trapezoidal fuzzy numbers. Their significant values are given in TAB. 3. The fuzzy variances $\text{var } A$ and $\text{var } B$ are not trapezoidal fuzzy numbers. Their membership functions are shown in FIG. 2. The significant values of the fuzzy variances are also given in TAB. 3 (by these significant values we understand end points of the core and of the closure of the support).

TAB. 3: Resultant stocks characteristics

Stock Characteristic	Significant Values (%)				Centre of Gravity
EA	2.48	6.92	12.71	19.30	10.44
EB	2.79	6.72	11.97	15.84	9.33
$\text{var } A$	33.44	105.75	229.30	324.36	168.04
$\text{var } B$	35.41	105.23	220.70	332.41	169.47

From the results given in TAB. 3, it is obvious that the centre of gravity of the fuzzy expected value EA is greater than the centre of gravity of the fuzzy expected value EB . Therefore, without considering the variances the decision-maker should prefer the stock A . Based on the rule of the expected value and the variance, the decision-maker should prefer also the stock A due to the higher expected value and the lower variance than the stock B .

FIG. 2: Membership functions of fuzzy variances



5. Conclusion

We have described how to deal with a decision matrix where states of the world as well as evaluations of the alternatives are set vaguely. We have modelled them by fuzzy sets and have

derived the fuzzy rule-based system. We have illustrated the problem by an example of the comparison of two stocks.

Literature:

Huynh, V. et. al. (2007). *A Fuzzy Target Based Model for Decision Making Under Uncertainty*. Fuzzy Optimization and Decision Making 6(3), 255-278.

Matos, M.A. (2007). Decision under risk as a multicriteria problem. *European Journal of Operational Research* 181(3), 1516-1529.

Pavlačka, O., Rotterová, P. (2016). Fuzzy Decision Matrices Viewed as Fuzzy Rule-Based Systems. In: A. Kocourek, M. Vavroušek (Ed.), *MME2016: Conference Proceedings* (pp. 641-644). Liberec: Technical University of Liberec.

Rotterová, P., Pavlačka, O. (2017). *New Approach to Fuzzy Decision Matrices*. Submitted to Acta Polytechnica Hungarica.

Talašová, J. (2003). *Fuzzy methods of multiple criteria evaluation and decision making* (in Czech). Olomouc : Publishing House of Palacký University.

Zadeh, L.A. (1975). *The Concept of a Linguistic Variable and its Application to Approximate Reasoning* - I. Information Sciences 8(3), 199 - 245.

Zadeh, L.A. (1968). Probability Measures of Fuzzy Events. *Journal of Mathematical Analysis and Applications* 23(2), 421-427.

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IT SYSTEMS IN SUPPLY CHAIN MANAGEMENT

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Abstract: *The use of modern IT systems has become a necessity for all business entities wishing to function effectively in the global market. Today's market determines the need to integrate management systems into a single integrated system in an enterprise that will improve the way companies achieve business processes and products excellence. The SCM system, or supply chain management system, is an application that aims to establish close co-operation between business entities involved in the manufacturing and sales process and eliminate unnecessary losses and disruptions. The company is no longer seen as a stand-alone entity but becomes part of a larger supply chain. The main premise of the SCM concept is the integration of individual IT systems that ensures the free flow of information in both directions. Currently, the costs associated with downtime and delays in deliveries can be very high.*

Keywords: *Information Systems, IT Systems, Supply Chain Management, Logistics.*

JEL classification: *M10, M11, M15*

Grant affiliation:

1. The idea of information and IT systems in management

Running business in the global marketplace in the era of dynamic changes inside and outside an organization requires from modern companies to have access to fast and accurate information. It is important to create such an information system that will meet the requirements set by the managers. The supply chain controlling forces the possession of an adequate information system, filling the functions and tasks of logistic controlling.

The information system is a necessary part of enterprise management. In order to meet the required objectives, an enterprise must have such information system that can provide the right information in the right time to decision makers (Nowicki, 2000, p. 47).

The information system must be organised to provide internal users, both managers and employees, with insight into the individual data and information about the situation inside the business unit, as

well as changes in the business environment. Data flow in the information system does not occur only within the unit but also covers its surroundings, including suppliers, buyers and agents (Jelonek, 2011, p. 13).

2. IT systems in supply chain management

It is necessary to pre-determine the information providers, their recipients and the frequency of deliveries during determining the information flows in supply chain management. Only on that basis you can design a diagram of data flow for supply chain management. The information flow should be as short as possible and coherent with the structure of the enterprise, and the costs of collecting and transferring information should be no greater than the benefits of using it. It is necessary to meet the relevant information that must reach the decision makers in time, in a form that is understandable to them, and will be reliable, objective and complete.

There are following features of information system in supply chain: (Gołemska, 2001, pp. 182–183):

- reliability, defined as the possibility of meeting requirements,
- performance, as the relationship between the value spent on the system and resulting from the system,
- flexibility, which provides the two above features in business environment, and which means the ability to adapt to changing environment and development opportunities,
- openness, enabling interconnection of enterprises' information systems, which ensures the exchange of data between them, and allows for interrelation in the decision-making process - this is essential for supply chain,
- economic efficiency, which takes into account the cost aspect in relation to the fulfilment by the system of the above conditions.

Such features can be only provided by IT systems. Therefore, only such systems are used in the supply chain. Their extension of decision support systems enhances the integration of many decision areas, resulting in synergies of logistic activities.

IT system in management is a part of an information system implemented by information technology, which aims is to support management processes. For big companies, additional factors influencing the widespread use of IT are: increase of company size, growing organisational structure, globalization of business activity and uncertainty of the surrounding. The use of different IT systems in supply chain management in large companies in most cases contributed to increase the efficiency of enterprise management (Nowicki, 2002, p. 66; Reichmann, 1997, p.47).

IT systems, especially those supporting management processes in large organisations, are difficult to classify into a single generation. They combine different types of IT systems, i.e. transaction systems, data seeking systems, management information systems, and advisory systems. They are often called *complex systems*. These types of systems include MRP / ERP systems, with the most developed of which is the ERP system. The name *ERP class systems* comes from the first letters of the Enterprise

Resource Planning, which means systems to support enterprise resource planning. Systems of this class are the most developed management support systems that combine the features of transactional systems, management information systems and advisory systems (Kisielnicki, 2000, p. 18; Drury, 2012, p.12).

The current standard for integrated management information system is the ERP class, which is the unit's resource planning. Systems of this class are a complex integrated IT system that supports the management of an organisational unit. Such systems improve the optimisation of enterprise resource usage and processes occurring inside the business unit. They improve the information flows and the ability to evaluate the collected system data in terms of quality (Kiełtyka, 2010, p. 30).

The most advanced are the ERP II systems, that are, the development of ERP systems with value-added applications for customers and stakeholders through the optimisation and sharing of financial and operational processes.

Developing ERP II systems is a natural response to dynamically changing market needs and rapid technological progress. The ERP II system is characterised by enhanced functionality in core domain areas, providing enterprise employees with access to the system base via the Internet, and integrating ERP systems with market partners, both suppliers and recipients.

The development of integrated IT systems is inevitable and necessary, in particular due to the dynamic development of market needs. Numerous development concepts for ERP systems can be found in the literature (Hadaś, Cyplik, 2012, p. 17).

The process of material and material-financial planning supported by the IT system is the basis of activity of management personnel. The planning process is carried out in functional areas, logistic processes, logistic projects and logistic investment processes. Monitoring the real data in an enterprise logistic system and comparing plans with their performance allows to control planned activities and to identify aberrations from plans. The reporting system supported by IT systems becomes an effective management tool in the supply chain.

Using the IT system in the supply chain results in many benefits. Managers have continuously access to management data, allowing them to analyse properly and predict the logistic system of company.

3. IT systems in company X

The enterprise is joint-stock company functioning in Silesian voivodeship in automotive industry.

The logistic system of enterprise includes customers, suppliers, production processes, materials procurement and finished products distribution. Logistic system of this automotive company includes the whole activity of the enterprise:

- material flow (from raw materials possessing to end users),
- information flow (from end users to procurement).

The goals of logistic system of the company are as follows: manufacturing and transferring finished goods right on cue, proper working conditions, well-predicted price and, naturally, optimal costs of production.

The company has implemented an integrated management system. The main idea of this system is the lack of losses, failures, defects and accidents. It assumes the improvement of the activities of the company's organisational system to achieve a global level of competitiveness. The main objectives are: to maximise the output of the production system with obeying to logistical programs and quality objectives, to ensure the evolution of the production system, focused on improving competitiveness.

The IT system used in the company is the result of a long-term development process since the beginning of the company. The basis of the concept of this system is to assume maximum use of the company's resources. This minimises costs and shortens implementation processes.

Today IT systems of the enterprise include all areas of management. The information system controls the flow of materials and production lines, supports administrative work and engineering activities within CAD / CAM systems. This system cooperates with headquarter, vendors, suppliers, customers and is used in the company's wide-ranging internal communications.

Another type of computer network in examined enterprise is the so-called *Electronic Data Interchange* (EDI). Its aim is an automatic exchange - between IT systems of supply chain users - of standard electronic messages that control cooperation. Now the IT system of company operates together with all foreign and domestic suppliers and customers.

4. Conclusion

The use of IT systems in logistic management enables rapid exchange of information between the various elements of the supply chain. However, it should be noted that the use of an ERP class IT system as the only IT tool monitoring all the processes taking place in the enterprise, is often insufficient. The reason for this is the complexity of the management processes and the specificity of the enterprise, which forces managers to implement systems with more detailed functionality in a specific area. Increasing knowledge of management personnel about the need to support enterprise processes with additional IT tools and increased specialisation of processes increases the need for dedicated systems supporting ERP systems.

Often, there is also the problem of integrating IT systems in an enterprise or supply chain. This may result from to the use of different types of information formats, different storage media, and the use of different information systems by the supply chain users. When all participants in the supply chain are aware of the benefits they can possess the supply chain can be fully integrated. This is not an easy process because such an integration forces a number of organisational, structural, information flow and documentation changes as well as changes in the functioning of the IT system used by individual logistic supply chain participants.

Literature:

Drury, C. (2012). *Management and Cost Accounting*, Andover, Cengage Learning EMEA.

Gołomska, E. (ed.) (2001). *Kompedium wiedzy o logistyce*, Warszawa, PWN.

Hadaś, Ł., Cyplik, P. (2012). *Praktyczne aspekty wykorzystania systemów ERP w wybranych przedsiębiorstwach Wielkopolski*, Poznań, Wyższa Szkoła Logistyki.

Jelonek, D. (2011). *Analiza i modelowanie systemów informacyjnych*, [in:] *Charakterystyka systemów informacyjnych*, ed. Nowicki, A., Chomiak-Orsy, I., Wrocław, Wydawnictwo UE we Wrocławiu.

Kiełtyka, L., Kucęba, R., Jędrzejczyk, W. (ed.) (2010). *IT w organizacjach gospodarczych. Wybrane zagadnienia*, Toruń, TNOiK Dom Organizatora.

Kisielnicki, J. (2000). *Systemy informatyczne w zarządzaniu*, Poradnik Gazety Prawnej, nr 29.

Nowicki, A. (2000). *Teoretyczne aspekty doskonalenia systemów informacyjnych w zarządzaniu przedsiębiorstwem*, Częstochowa, Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej.

Nowicki, A. (ed.) (2002). *Wstęp do systemów informacyjnych zarządzania w przedsiębiorstwie*, Częstochowa, Wydawnictwo Politechniki Częstochowskiej.

Reichmann, T. (1997). *Controlling. Concepts of Management Control, Controllershship, and Ratios*, Berlin-Heidelberg, Springer-Verlag.

Weber, J. (2010). *Logistik- und Supply Chain Controlling*, Stuttgart, Schäffer-Poeschel Verlag.

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STUDENTS KNOWLEDGE OF HUMAN RESOURCES MANAGEMENT FOR MANAGEMENT IN PUBLIC SECTOR

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Abstract: *This article focuses on the use of knowledge and competencies in practice human resources management in public sector organisations. The paper provides authors results of repeated surveys on the level of use of explicit and partially tacit knowledge and competencies of students and graduates from managerial fields of study concentrated to regional development and public sector. The paper aims to answer the following questions: What skills are the most used in practice by students and graduates managerial-economic fields of study? What skills are most needed in the public sector? What skills of graduates are underestimated from the point of view of both themselves and of the educational system? The students and graduates are valued for their knowledge of regional development; however, their competitive advantage lies in their soft skills and competencies.*

Keywords: *Human Resources Management, knowledge, competencies, skills, students.*

JEL classification: *M500, M540*

Grant affiliation: *IGA_Z9_02_2015 "Opinions of graduates and students to apply acquired knowledge to practice" and IGA_Z8_02_2015 "Job opportunities in regions."*

1. Introduction

The aim of paper is concentrated to the use of knowledge and competencies in practice human resources management in public sector organisations. The paper provides authors results of repeated surveys on the level of use of knowledge and competencies of students and graduates from managerial fields of study concentrated to regional development and public sector. The goal of paper is analysed the most used skills in practice by students and graduates managerial-economic fields of study and specify needed skills in the public sector. The students and graduates are valued for their knowledge of regional development; however, their competitive advantage lies in their soft skills and competencies.

The employee own specific knowledge that helps the organization to achieve expected objectives (Mládková, 2014). To gain access to the knowledge, the organization must find out an efficient and effective way to find, employ and keep qualified workers that will be competent and willing to create, share and use their knowledge to perform successfully in their jobs (roles) in the organization. In this case, the organization needs efficient and effective Human Resource Management (HRM) and proven HRM practices especially in: job design, recruitment, selection and orientation, performance management, compensation, training and development. These HRM practices help the organization to create conditions for efficient and effective management of workers and their knowledge.

In public administration (Act 312/2002) knowledge of employees is based on of the fundamentals of public administration, particularly the general principles of organization and functioning of public administration, of public law, public finance, European administrative law, rights and responsibilities and the rules of ethics official. Skills and habits are necessary for the performance of administrative activities, communication, organizational and other skills related to their job function. General section includes basic knowledge of public administration and special section covers the knowledge necessary to perform administrative activities of the implementing legislation, especially knowledge of the scope of local government bodies and local administrative authorities relating to these activities, and the ability of their applications (Act 312/2002. Special professional competence shall be verified by testing and demonstrating the certificate.

2. Results and discussion

The paper provides authors results of repeated surveys on the level of use of competencies of students and graduates from managerial fields of study concentrated mainly to regional development and public sector. Paper finds answers to three research questions: What skills are the most used in practice by students and graduates managerial-economic fields of study? What skills are most needed in the public sector? What skills of graduates are underestimated from the point of view of both themselves and of the educational system?

There is a question of the connection of knowledge and competencies. Competency is commonly understood as a set of knowledge, skills and attitudes that are required at a given position in a company, while it is also a person's set of knowledge, skills and attitudes. Competencies can generally be divided to behavioural competencies and technical competencies (Armstrong, 2015, p.120). Technical competence and professional skills are often based on formal education of a worker, usually translated as "hard skills" The behavioural competencies can be further divided as required, e.g. to intrapersonal skills where we could include e.g. the ability to respond appropriately to the situation, the ability to take responsibility, willingness to resolve problem situations, etc.; interpersonal skills, i.e. to work effectively, the ability to establish and develop relationships with the company etc.; managerial competency, i.e. the ability to lead people, the ability to lead teams etc.(Doležal, Máchal, Lacko, 2012). Several recent research studies (e.g. Rao, 2010, Kolláriková, Pongrácz, 2014) suggest that "soft-skills" are more important for graduates' future career, but are underestimated during university studies that focus primarily on hard-skills.

The records used as examples are data selected from sociological researches conducted in the time period from 2015 to 2017 (Šafránková, Šikýř, 2017) "Opinions of graduates and students to apply acquired knowledge to practice" and "Job opportunities in regions" The respondents are graduates of the College of regional development (CRD) (116 respondents after graduation, realised in 2017) and students of management of municipalities and regions (315 respondents, realised 2017). For comparison, Table 1 shows also opinions of managerial students of CTU and College of Regional Development; this survey was conducted in 2016. The representative sample was chosen randomly by study programme, year of study or graduation and sex (994 respondents, sex -27 % men, 73 % women; age - 74 % less 29 years, 26 % 30 years and more; full time 64 %, part time 36 %). This paper uses only data selected with respect to reflect the knowledge needed for good job prospects, at the labour market, respectively; the knowledge was assessed by the graduates from the viewpoint of their own experience; and for comparison, the viewpoint of students of these fields of study.

The results clearly show stable opinion on the need of particular competencies needed for good job prospects. The graduates highly appreciate the ability to communicate with people, solve problems and ability to work with information, which were highlighted by four fifths of graduates, and also current students perceive these abilities as important. The following abilities are the ability to communicate with people, ability to acquire new knowledge and ability to apply their knowledge. These two last abilities connected to knowledge reflect not yet fully understood importance of appropriate work with knowledge. Both the graduates and current students appreciate teamwork ability and the ability to work with information.

TAB. 1: Knowledge and competencies needed for labour market from the view of university students and graduates

Year of survey/ Ability of students or graduates in %	2016 Managerial students	2017 Students CRD	2017 Graduates CRD
Ability to acquire new knowledge	59	53	66
Ability to apply the knowledge	56	63	37
Ability to communicate with people	77	67	82
Ability to adapt to business requirements	39	37	49
Teamwork ability	58	51	66
Risk capacity	37	37	47
Ability to solve problems	74	71	76
Legal eligibility	44	59	69
Ability to work with information	61	57	71

Source: Šafránková, Šikýř 2016, 2017; own calculation *The respondents assessed the particular knowledge on Likert scale 1 to 5 (1 as completely prepared for job and 5 as no knowledge at all)

The second part of our research provides results of pilot survey on the level of use of human resource management activities in public administration (Šafránková, Šikýř, 2016). The survey was realised in year 2016 with 120 part time students as respondents from public administration, 97 was in position of public servants, 23 in position of administrative employees, age 25 to 60. They are employees from public administration in villages, small and middle size town in Czech Republic. The

results of pilot survey in Human Resources activities in public administration is done by Act no. 312/2002 Coll., on Officials of municipalities and amending certain laws, as amended.

All respondent on the position of "Officials" are coming through the selection process under the law (100 %, it is done by legislative). Others administrative staff of public administration had an interview with a personnel manager. In training process all our respondents in positions official ad same type of training (100 %). Non -administrative employees have only a small number of trainings. The respondents was agree, that the most important abilities in the public sector are ability to communicate with people, knowledge of all laws and legal procedures and ability to work with many information, i.e. ability to acquire new knowledge and apply in daily work.

3. Conclusion

The paper aims to answer the following questions: What skills are the most used in practice by students and graduates managerial-economic fields of study? The results confirm that in the opinion of managerial students and graduates are very close -the most important abilities are: the ability to solve problems, to work with information, to communicate with people, to acquire new knowledge, and to apply their knowledge. For students of regional development, the most important is the ability to communicate with people, legal eligibility and work with acquired information. The knowledge and skills concerning teamwork is without difference in all three groups of respondents. What skills are most needed in the public sector? For the respondents from public sector the most important abilities in the public sector are ability to communicate with people, knowledge of all laws and legal procedures and ability to work with information, i.e. ability to acquire new knowledge and apply in daily work.

Literature:

Act no. 312/2002 Coll., on Officials of municipalities and amending certain laws, as amended.

Armstrong, M. & Taylor,S. (2015). *Řízení lidských zdrojů – Moderní pojetí a postupy*. 13. vyd., Praha: Grada publishing. ISBN 978-80-247-5258-7.

Doležal, J., Máchal, P. & Lacko, B., a kol. (2012). *Projektový management podle IPMA*. Praha: Grada Publishing, 2012 ISBN 978-80-247-4275-5.

Kolláriková, T. & Pongrácz, E. (2014). *The Employability of Graduates and the Importance of "Soft Skills" in Practice*. In Slavičková, P. (Ed.), *Znalosti pro tržní praxi 2014. Média a komunikace ve 21. století* (pp. 664-673). Olomouc. ISBN 978-80-87533-07-9.

Mládková, L. (2014). *Impact of Gender on Work with Knowledge*. In Slavičková, P. (Ed.), *Znalosti pro tržní praxi 2014. Média a komunikace ve 21. století* (pp. 239-244). Olomouc. ISBN 978-80-87533-07-9.

Rao, M. S. (2010). *Soft skills*. Enhancing Employability. Connecting Campus with Corporate. New Delhi: I. K. International Publishing House Pvt. Ltd.

Šafránková, J. & Šikýř, M. (2017). *Opinions of graduates and students to apply acquired knowledge to practice*. Sociological survey, internal material, Praha: VŠRR.

Šafránková, J. & Šikýř, M. (2017). *Job opportunities in regions Sociological survey, internal material*. Praha: VŠRR.

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FOREIGN DIRECT INVESTMENT AND THEIR IMPACT ON THE DEVELOPMENT OF REGIONS IN SLOVAKIA

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Abstract: *Regional development can be perceived as a process implemented to improve the quality of life in the region. The objective of regional development is to ensure a more balanced development of individual regions and to eliminate or mitigate the differences between their levels of development. Foreign direct investment represents a powerful factor in regional development. They bring with them a number of benefits - new markets, modern technologies, new corporate culture and others. FDI is an important accelerator of economic growth and regional development. Many foreign investors are currently members of the cluster. And clustering is one of the preferred options for developing regions and increasing their competitiveness.*

The aim of the paper is to map the membership of foreign investors in clusters in the Slovak regions. We will then assess the impact of foreign direct investment on the development of individual regions.

Keywords: *Foreign direct investment, regional development, cluster, foreign investor.*

JEL classification: *O18, R11*

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1. Introduction

FDI indicators today are among the main economic indicators of national economies. The Government of the Slovak Republic has set out in its National Strategy Development of Competitiveness, among other things, the priority to support the creation of jobs with high added value, and to promote education in the labor market. Regarding foreign direct investment, priority should be given to FDI especially in regions with high levels of unemployment and low economic activity. In the Slovak Republic, we can talk about FDI inflows only after 1989 in connection with the beginning of transformation of the economy from centrally managed to market-oriented.

Foreign direct investment, on the one hand, brings employment and promotes economic growth, but on the other hand, costs for the state are in the form of investment incentives - the most frequent tax concessions. For a small and open economy like Slovakia, foreign direct investment is an important resource for acquiring new technologies and knowledge, creating new jobs, accessing international markets, and improving the economic situation in the country.

FDI is currently one of the most effective forms of increasing the competitiveness of the selected territory, where foreign capital is penetrating the economy of the host country, and by the transfer and introduction of new technologies, the production potential of the region is increasing. The inflow of foreign direct investment is an indicator of the growth of regional competitiveness and living standards in the region.

The aim of the paper is to evaluate the involvement of foreign investors in clusters and consequently the impact of foreign direct investment on regional development in individual regions of the SR. The impact of direct foreign investment on regional development is assessed using a regression and correlation analysis. We will evaluate the relationship between the indicator of foreign direct investment per capita and the regional GDP per capita. We will use the data of the Statistical Office of the Slovak Republic and the National Bank of Slovakia in the analysis.

2. Regional determinants of FDI

Foreign direct investment is one of the forms of international capital movements with significant implications for the national economy. Under the conditions of the Slovak Republic, the NBS definition is used: "Foreign direct investment as a category of international investment which expresses the intention of a resident entity of one economy (direct investor) to acquire a permanent share in an enterprise in another economy)."

The International Monetary Fund (IMF) defines foreign direct investment as follows: "Foreign direct investment reflects the continued interest of a resident entity of one country in a resident of another country (a foreign direct investment enterprise), including all transactions between a direct investor and an enterprise with foreign direct investment. They cover initial transactions as well as any other transactions between them."

The Slovak market is small, but the great advantage of the Slovak Republic is its geographic position, which allows to supply the nearby markets of the European countries. Another significant advantage of Slovakia is a relatively cheap and skilled workforce with high labor productivity, the highest among the CEE countries since 2010. The SARIO agency gives the following reasons why invest in Slovakia:

- A safe investment environment: political and economic stability
- Favorable geographic location at the heart of Europe with great export potential
- The fastest growing member of the euro area over the past 10 years (CAGR)
- 10-year leading position in the Central European region in a favorable business environment 2002-2013

- Leader of the Central European region in the area of property rights protection
- Leader of the Central European Region in Labor Productivity and Placement in the Top 10 Most Powerful Workers OECD Countries
- High adaptability of workers to different business cultures and types of management
- The ninth place in the world in adapting new technologies and high innovation potential
- Official name of the EURO as one of the few Central European countries
- Large offer of industrial premises
- Continuous growth of the infrastructure network
- Attractive investment incentives (SARIO, 2016)

Foreign direct investment is concentrated in the most advanced locations in the country. Based on this fact, we can claim that regional differences are emerging in individual countries. When entering foreign investments, it is necessary to take into account the interests and requirements of each region.

Husár (2006) says: "Regional policy to increase the competitiveness of the regions and to promote the dissemination of innovation should implement measures to support research and development, innovation projects, entrepreneurial counseling, education, technology transfer, development of innovation networks in the region, development of clusters and the like. Problem regions should also be selective support for locating new businesses in order to develop and diversify inter-sectoral links in the region."

From the aspect of the social and economic environment, regional development is conditional on the region's potential for human resources and employment, research and innovation capacities, and business and institutional arrangements, competencies, resource allocation, infrastructure, and so on. This potential affects the economic and social development of the region.

According to Habánik, Koišová (2011), regional development is "a gradual direction towards a higher living standard and the quality of life in a given area. Development is inevitably linked to the implementation of partial (partial) policies that create a coherent framework of economic policy through interaction. Development has its own quantitative and qualitative character and the co-operation of sectoral policies is a key tool for its security."

3. The impact of foreign direct investment on regional development in Slovakia

From the outset, the influx of FDI is characterized by a large regional imbalance. Most of the FDI is directed mainly to the regions of the western part of the SR, while other regions are almost at the expense of the interest of foreign investors. The causes of inequality can be found in:

- Different level of infrastructure in individual regions
- Concentrating investments into larger centers with administrative and administrative facilities

- Different levels of available qualified workforce
- Accessibility and equipment of industrial parks
- Less experience in cooperation with foreign investors

The regional disparities in the FDI distribution have not diminished over recent years, despite efforts to boost investment in backward regions, rather the opposite. The share of Bratislava region has increased to almost 70%. In addition, the share of Žilina region increased significantly, especially in connection with the investment of the South Korean car maker Kia Motors Slovakia. Region of Žilina along with Bratislava (Volkswagen Slovakia) and Trnava (PSA Peugeot Citroën) have the most benefit from the development of the automotive industry in Slovakia. The latest addition is also added to the region of Nitra with the Jaguar Land Rover. The shares of Trenčiansky and Banskobystrický region have stagnated in recent years and the worst position is still the Prešov region.

TAB. 1: Foreign direct investment in % of GDP

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FDI in % of GDP	8,09	5,88	4,64	1,71	2,37	5,54	1,91	1,02	0,08	2,48	1,60

Source: Own processing

In terms of FDI's share of GDP, the highest figures were achieved in 2006, when Italian power plants privatized by the Italian company Enel. Since the outbreak of the 2008 crisis, there has been a fall in FDI inflow and has never reached the pre-crisis level. With the exception of 2011, the share of FDI in GDP was below 2%.

Table 2 shows the different sectors in which foreign investors are the largest in Slovakia. The most represented is the manufacturing sector in which 33.42% of foreign direct investment is invested. Financial and insurance activities follow the manufacturing sphere and account for 24.52% of FDI. The following industries, such as Real estate or wholesale and retail trade accounts for less than 10%. The main source of investment growth has been, and in the years to come, foreign direct investment in the automotive industry. However, it is important to note that the high specialization of the Slovak economy in the automotive industry may be vulnerable to the country due to global economic fluctuations.

TAB. 2: FDI breakdown by economic activity (% share) for 2015

Economic activity	% of total FDI
Manufacturing sphere	33,42 %
Financial and insurance activities	24,52 %
Wholesale and retail	9,07 %
Property	7,78 %
Administrative and support activities	7,53 %
Research and scientific activities	3,97 %
Other	13,71 %

Source: Own processing

When analyzing the individual regions of the Slovak Republic, it is clear that in the field of GDP, employment, average monthly nominal wage or inflow of foreign investments, the Bratislava Region has a clear leadership. This is evidenced by the results of the correlation analysis, which assessed the impact of foreign direct investment on regional development.

The results of linear models show a relatively strong positive dependence between FDI and regional GDP per capita. The inflow of foreign direct investment thus has a positive effect on regional GDP in all regions of the SR. The highest correlation coefficient is reached again by the region of Bratislava, where the FDI impact on regional GDP is the highest. The lowest values are reported by the east of Slovakia and the region of Banská Bystrica.

Again, significant regional differences are confirmed within the regions of Slovakia.

TAB. 3: The impact of foreign direct investment on regional GDP

Region	Linear regression function	Coefficient of correlation
Region of Bratislava (BA)	$y = 21,30 + 1513,22x$	0,9824
Region of Trnava (TT)	$y = 7,52 + 344,34x$	0,8508
Region of Trenčín (TN)	$y = 1,99 + 339,84x$	0,8518
Region of Nitra (NR)	$y = 1,11 + 237,16x$	0,7352
Region of Žilina (ZA)	$y = 1,79 + 381,83x$	0,8497
Region of Banská Bystrica (BB)	$y = 0,43 + 137,44x$	0,6686
Region of Prešov (PO)	$y = 0,53 + 132,40x$	0,5562
Region of Košice (KE)	$y = 0,42 + 208,96x$	0,6671

Source: Own processing

As a suitable tool for to gross the competitiveness of the regions and the reduction of regional disparities, the appear to build clusters appears. The importance of clusters and their impact on regional development are currently addressed by several authors such as Harizal, Bucher, [5], Strunz, Vojtovič, [12], Krajňáková, Krajčo, [7], Havierníková, Strunz, [3], Pavelková, [10]. Clusters can now be attributed to significant microeconomic factors increasing regional prosperity as well as increasing inflows of foreign direct investment. Clusters in EU countries also help to create a high number of jobs. The EU recognizes the significant potential of clusters for economic development. Clusters consist of dense networks of interrelated firms that arise in a region because of powerful externalities and spill overs across firms (and various types of institutions) within a cluster. (Kordoš, Vojtovič, 2016) Cluster allows for improvement in the following areas: science and research, business opportunities, education and training, innovation and technology. (Krajňáková, Krajčo, 2016)

TAB. 4: The current status of clusters in the regions of the Slovak Republic

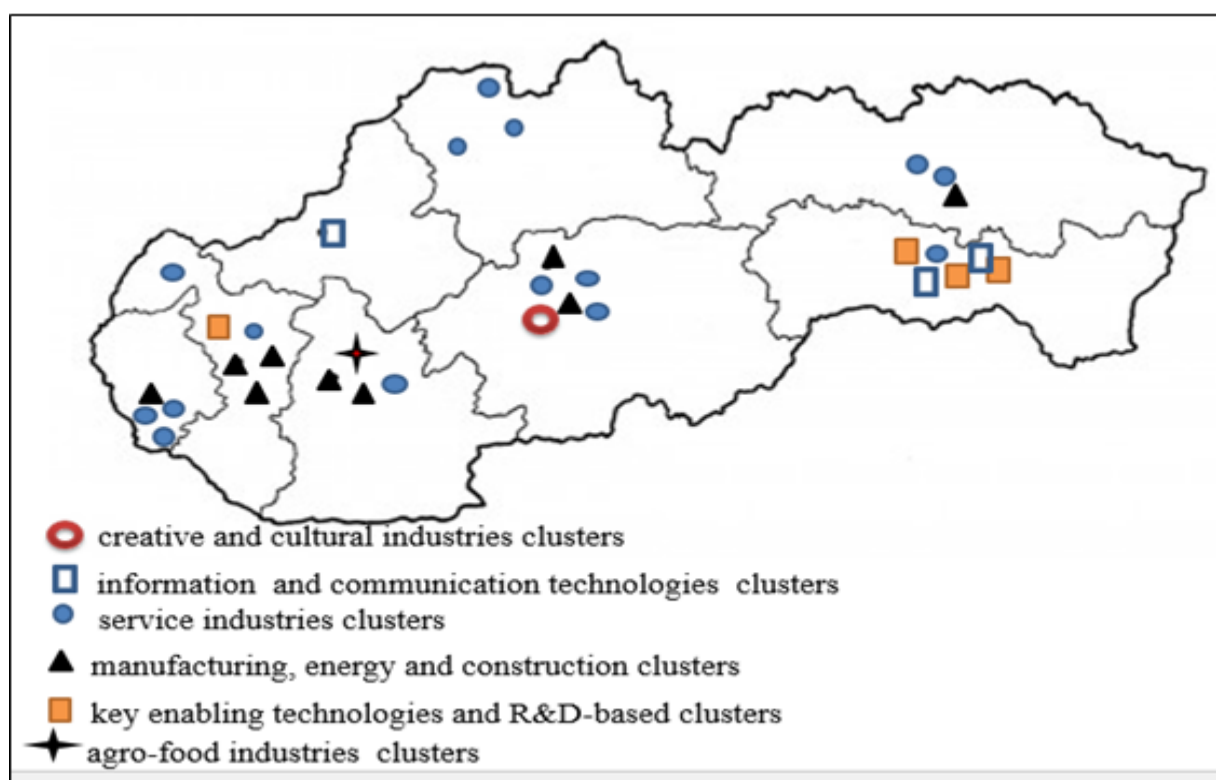
		Service industries clusters	Manufactur. energy and construction clusters	Creative and cultural industries clusters	Key enabling technol. and R&D clusters	Information and communication technologies clusters	Agro-food industries clusters
BA	active	3	1				

	inactive						
TT	active	2	3		1		
	inactive	1	1				1
NR	active	1	2				1
	inactive						2
TN	active					1	
	inactive					1	
BB	active	3	2	1			
	inactive	1					
PO	active	2	1				
	inactive						
KE	active	1			3	1	
	inactive	3					
ZA	active	3				1	
	inactive	1			1		

Source: Own processing

In the Slovak Republic we have a total of 47 clusters registered, of which only 33 clusters are active, 12 clusters are inactive, and two clusters are just beginning to work. Based on the analysis of the individual regions of the Slovak Republic, the most prosperous in terms of the founding and existence of clusters are the regions of Western Slovakia, which, however, do not require such an initiative in view of their level of development. At present, 15 active clusters are located in this part, which is 45% of the total number of active clusters operating in the Slovak Republic. These regions are characterized by a high level of labor productivity, high average wages and per capita GDP. Regional cluster layout can be seen in Table 5 and Figure 1. When looking at the link between foreign investors and clusters, most foreign investors involved in the cluster are investors coming to Slovakia in connection with the growing automotive industry. Cluster encourages increasing the competitiveness of small and medium-sized enterprises (subcontractors of the automotive industry) through their contact with R & D institutions in the framework of innovative activities. Cluster is the driving force of the entire region and is characterized by intensive cooperation with domestic and foreign automotive companies. Automobile cluster - Western Slovakia is also the cluster with the highest number of members, it is 49. With it more than 26 members have exactly 5 clusters. Other clusters have a maximum of 25 members. There is no cluster in Slovakia with more than 50 members.

FIG. 1: The current status of active clusters in the regions of the Slovak Republic



Source: Own processing

4. Conclusion

Despite the efforts of the regional policy of the Slovak Republic, regional disparities in productions, productivity or employment in the regions are increasing. However, the real convergence of regions is to be achieved, and consequently to the overall economic growth, it is necessary to remove the development barriers. Disparities significantly affect regional development and require the application of effective tools and policies to regulate interregional disparities and the application of new strategies for effective regional development where there is substantial room for local authorities to build a friendly business environment and encourage the emergence of new business entities as the main bearers of regional development. As a suitable tool for to gross the competitiveness of the regions and the reduction of regional disparities, the appearance to build clusters appears. Engaging businesses into clusters is a way of creating competitive advantage and boosting competitiveness, which is one of the top priorities of businesses today. Building clusters currently involves enormous potential to increase the performance not only of the regions but also of the whole countries. The regions of Slovakia are increasingly turning to the use of this concept. In the last 5 years, almost 30 clusters have been established in Slovakia, with their number growing every year. Within clusters operating successfully and more foreign investors, especially in terms of foreign direct investment in the automotive industry and sub-components for the automotive industry. The results of correlation analysis demonstrated the positive impact of foreign direct investment on regional development in all regions of Slovakia. Foreign direct investment is an important accelerator of regional development, contributing to the growth of regional GDP and thus to economic growth,

and contribute to a decline in unemployment. The trend of building clusters in Slovakia is due to the many benefits this concept brings with it. One of them is its positive impact on the development of the regions. Implementation and co-ordination of cluster initiatives have become an important tool in the hands of regional governments to support and support the development of economic growth, both in technologically advanced and in the traditional sectors of the economy.

Literature:

Habánik, J., Koišová, E. (2011). *Regionálna ekonómia a politika*. Bratislava: Sprint dva. 175 s. ISBN 978-80-89393-55-8.

Habánik, J., Hošták, P., Kordoš, M. (2016) Competitiveness of Slovak economy and regional development policies. Retrieved from http://www.jois.eu/files/JIS_Vol9_No1_Habanik_Kordos_Hostak.pdf. In: *Journal of International Studies*. - ISSN 2071-8330. - Vol.9, No.1, p.144-155.

Havierníková, K., Strunz, H. (2014) The comparison of selected methods used for identification of cluster potential in the regions of the Slovak Republic In: *SGEM conference on political sciences law, finance economics & tourism : Conference proceedings volume IV. Economic & tourism*. - Sofia : STEF92 Technology, 2014. - ISBN 978-619-7105-28-5., p. 693-699.

Husár, J. (2006). *Strategické plánovanie*. Bratislava. ISBN 80-969536-9-9

Kordoš, M., Vojtovič, S. (2016) EU regional and cluster policies within their synergic effects In: *Proceedings of the 5th economic & finance conference*. - Praha: International Institute of Social and Economic Science. ISBN 978-80-87927-20-5. p. 166-174.

Krajňáková, E., Krajčo, K. (2016) The risk and clusters in the V4 countries and in the EU 27. In: *3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016 : Political sciences, law, finance, economics and tourism*. Book 2, Volume III. - Sofia: STEP92 Technology Ltd. ISBN 978-619-7105-74-2. p. 1135-1142.

Kráľová, K., Sochuľáková, J. (2016). Regional disparities and competitiveness of Slovak regions. In: *3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016 : Political sciences, law, finance, economics and tourism*. Book 2, Volume V. - Sofia : STEP92 Technology Ltd., 2016. - ISBN 978-619-7105-76-6. - s. 523-530.

Pavelková, D. (2013). *Klastrové politiky a jejich vliv na rozvoj klastru a klastrových organizací*. Vyd. 1. Praha. Linde. 231 s.

Porter, M. E. (2000). *Location, Competition, and Economic Development: Local Clusters in a Global Economy*, p. 15-34.

Strunz, H., Vojtovič, S. (2014) Vocational training and employment in the creative industry. In: *SGEM conference on political sciences law, finance economics & tourism : Conference proceedings volume III Economics & Tourism*. Sofia : STEF92 Technology, 2014. - ISBN 978-619-7105-27-8. p. 787-794.

Vojtovič, S., Kordoš, M. (2016). *Transnational corporations in the global world economic environment*. In: *Procedia - Social and Behavioral Sciences*. - ISSN 1877-0428. - Vol.230(2016), p.150-158.

SARIO (2017). Retrieved from <http://www.sario.sk/sk/investujte-na-slovensku/preco-investovat-na-slovensku>.

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GAME AS A TOOL FOR DEVELOPING THE COMPETENCE OF PROJECT MANAGERS IN THE IT BRANCH

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Abstract: *The aim of the article is to identify the attitudes of project team managers toward gamification as a tool of competence development. Games are more and more often put into practice in areas such as education and management. However, the number of empirical studies which verify real benefits of using gamification in different processes within an organization is not sufficient. The following paper presents implementing a case study as a research method. The study consisted in 23 individual in-depth interviews in a group of IT managers participating in an experimental program. The results indicate that, games could be a good way to develop competences, especially in the area of communication, coping with stress, and decision making.*

Keywords: *Competences, development, project management, gamification.*

JEL classification: *M 12*

Grant affiliation:

1. Introduction

The use of projects in the realization of the organization tasks increases its adability and, which is why the swifter reaction to change is possible, which, in turn, leads to meeting the market requirements. The success of a new project is to a large extent dependent upon the competences of the project manager, including not only his or her proffesional and methodological competences but also social competences such as team communication. The purpose of the following article is to assess to what extent game can be perceived as a successful tool in the development of project managers' competences. Presented research results are based on the case study analysis. The case study in question was the implementation of the experimental program of developing managerial skills by means of a card game. 23 project managers actively took part in the program in the period between June 2016 and December 2016. Each of the subjects played the game "Go for IT" at least 3 times a month.

2. Project manager's competences

Project management process consists of five stages: project initiating, planning, executing, monitoring and controlling and closing, each of which requires full engagement on the part of the project manager (Pawlak, 2010, p 204). Due to the fact that the basis for a successful project realization is team work, the key element of which is cooperation of the team members, the project manager apart from his or her subject knowledge is expected to exhibit social competences (Pawlak, 2010, p. 205). Because of the specificity of project activities including attaining the goal within the fixed time and fixed budget with the use of the potential of various team members, project managers need to focus on both: tasks and people (Jacques, Garger, & Thomas, 2008).

The project efficiency depends to a large extent on the skills of its manager whose major task is supporting and promoting group work. Over two thirds of the examined team members of the engineering and construction industry indicated the leading role of the project manager. They emphasize that the efficiency of their work is mainly due to the manager's skills in terms of communicating goals and values and supporting comradeship and communication within the team (Ammeter & Dukerich, 2002). In the quoted above study a significant relation between the leader's behavior and the efficiency of the project was demonstrated by means of both subjective assessment of the workers and objectively, by means of the project realization cost. Another study on the basis of the managers' life history proved that highly efficient project managers exhibited typical leadership features, that is confidence and delegating tasks, while on the other hand, they had highly developed social skills, including interpersonal sensitivity. (Dreyfus, 2008). It was proved that for the IT projects, the leader's activities in terms of goal management and supporting team work influence both the efficiency and job satisfaction of the workers engaged in the given project (Braun, Avital, & Martz, 2012). The presented above overview of studies confirms that it is not only the specific subject and methodological knowledge but, above all, social skills of the project manager that are crucial for the success of the realized venture.

3. Game as a tool for competence development

The notion of gamification, presently very popular in the subject literature, is defined as the use of the game mechanisms in order to enhance internal motivation and can be implemented as a tool for behavior change in the non-game contexts (Jankowski, 2013; Seaborn & Fels, 2015). Due to their structure which includes attractive story, award system, moving on to higher levels, competition, swift information exchange or elements of uncertainty, games can become an interesting alternative for acquiring knowledge and developing skills. Numerous examples of game applications can be found in the subject literature - they can be used in pre-school education (Kingsley & Grabner-Hagen, 2015), in higher education institutions (Sobociński, 2013), in numerous social (Hamari & Koivisto, 2013) and organizational processes (Wawer, 2015; Wrona, 2013).

The growing interest in game applications in human resources management has been observed in the past ten years. The areas of game applications include recruitment (Narayanan, Polli, Gertner-Samet, & Cohen, 2016; Wawer, 2015), attracting talent (Zielinski, 2015), shaping employer's image, or, last but not least, acquiring new competences (Breu, Guggenbichler, & Wollmann, 2014).

Although gamification is perceived as one of the leading HR trends (DuVernet & Popp, 2014), publications concerning the subject are mainly of practical nature. Very few of them are of theoretical nature and the presented study results are based on small samples. Despite the fact that most papers present positive results connected with mental conditions of the participants and the changes in their behavior, the efficiency of games is highly dependent upon their context and the specific characteristic features of the participants. People with positive attitudes towards games and those who like this type of activity are more likely to benefit from games. (Koivisto & Hamari, 2014).

4. Research methodology

A case study which is classified as monographic qualitative method making it possible to analyse a given phenomenon more thoroughly (Matejun, 2011), was used in the presented study. A description of the application of "Go for IT" game in the development of the competences of the project managers employed in the IT company specializing in the implementation of IT solutions designed to support management and streamline business processes was prepared. The company under study has over two hundred repeat clients and over 180 employees. The game "Go for IT" was created by two IT specialists employed by the organization.

Within the framework of a case study diverse research methods were used at different stages of the study. The first stage regarded the factual assessment of the situation before the game was commenced and consisted mainly in documentation analysis, observation and in-depth interviews conducted by the HR worker. Partially structured in-depth interviews were conducted during the second stage of the study in order to diagnose the participants' feelings and attitudes towards the game.

5. Study results

The first stage of the conducted study consisted in gathering the data before the actual participation in the game. The participants had diverse professional experience regarding project management. Their job seniority varied from 2 to 17 years of service, three managers graduated from higher education institution and during the course of their studies they had participated in project management courses, 15 participants had taken part either in training courses or postgraduate studies on project management.

Most of the managers stated that implementing projects is connected with a lot of stress resulting mainly from: time pressure, misunderstandings or poor cost estimates. Project management is the process regarding frequent changes to the project content or the implementation team which is why work under time pressure turned out to be the greatest challenge for the managers. Although the time pressure is the factor that the managers cannot really control, they can take control of the conflicts and misunderstandings resulting from poor communication within the team or problems with motivating the team.

Most of the examined managers declared that one can learn how to manage projects successfully by gaining more experience and the diversity of tasks and challenges makes it possible to attain the necessary competences.

The second stage of the study was commenced after the six-month participation in the project "Go for IT". The project managers took part in the game at least three times a month. 16 out of 23 players stated that their work efficiency had improved due to the participation in the game. According to the participants card game created situations similar to the reality and made it possible to gain experience. Moreover, 17 players claimed that this six-month experiment resulted in their better coping with stress during the realization of real projects.

On the basis the managers' statements numerous benefits resulting from gamification used to enhance competences can be observed (compare table 1).

TAB. 1: Observed by the managers benefits stemming from the participation in the game

benefits	number of statements	participants' sample statements
better communication	10	"I find it easier to communicate with the team members", "We can understand each other without words", "There are fewer misunderstandings"
better coping with stress	15	"I know what to expect and I'm ready for it", "I can cope with stress now", "I know how to prevent stress", "I avoid creating stressful situations"
swifter decisions	13	"I make swifter project decisions", "I manage time and organize work in a better way", "I assign and delegate tasks in a better way"
team integration	6	"we cooperate better", "the atmosphere is better", "we know our assets and thus we know who to turn to for help", "we know who we can rely on",
more ideas	8	"I'm more creative", "I come up with better ideas", "I have more ideas that I can implement"

Source: own study

6. Conclusion

The conducted study confirmed that game can be an efficient tool in the development of project managers' competences. Coping with stress, swifter decision making and better communication were indicated as the major areas of competence development of project managers due to their participation in the project "Go for IT". It needs to be stressed that the mentioned above competences are the ones that tell more efficient managers from those less efficient (Ammeter & Dukerich, 2002; Dreyfus, 2008).

On the basis of the obtained results one can also assume that the game "Go for IT" can be used as the developmental tool, which results from the fact that the participants regarded the presented in the game solutions as similar to those in real situations. The game structure reflected real problems connected with project realization. This conclusion is in line with the researchers' opinion that its efficiency is dependent upon the context in which the game is used.

However, it needs to be stressed that despite positive opinions and attitudes towards the game project managers suggest implementing certain modifications in the way in which the game is conducted. According to them, designing the online version would have a favourable effect on the efficiency and frequency of the meetings and giving feedback after the successive game cycles would result in the better development of the participants' competences.

Literature:

Ammeter, A. P., & Dukerich, J. M. (2002). Leadership, team building, and team member characteristics in high performance project teams. *Engineering Management Journal*, 14(4), 3–10.

Braun, F. C., Avital, M., & Martz, B. (2012). *Action-centered team leadership influences more than performance*. *Team Performance Management*, 18(3/4), 176–195.

Dreyfus, C. R. (2008). Identifying competencies that predict effectiveness of R&D managers. *Journal of Management Development*, 27(1), 76–91.

DuVernet, A. M., & Popp, E. (2014). *Gamification of Workplace Practices. TIP: The Industrial-Organizational Psychologist*, 52(1), 39–44.

Hamari, J., & Koivisto, J. (2013). Social motivations to use gamification: an empirical study of gamifying exercise. *Proceedings of the 21st European Conference on Information Systems SOCIAL*, (JUNE), 1–12.

Jacques, P. H., Garger, J., & Thomas, M. (2008). Assessing leader behaviors in project managers. *Management Research News*, 31(1), 4–11.

Jankowski, M. (2013). *Grywalizacja – wykorzystanie elementów gier do modyfikowania zachowań ludzi*. *Nauki społeczne*, 2(8), 139–155.

Kingsley, T. L., & Grabner-Hagen, M. M. (2015). Gamification. *Journal of Adolescent & Adult Literacy*, 59(1), 51–61.

Koivisto, J., & Hamari, J. (2014). *Demographic differences in perceived benefits from gamification*. *Computers in Human Behavior*, 35, 179–188.

Matejun, M. (2011). *Metoda studium przypadku w pracach badawczych młodych naukowców z zakresu nauk o zarządzaniu*. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Problemy Zarządzania, Finansów i Marketingu*, 666(19), 203–213.

Pawlak, M. (2010). *Zarządzanie projektami*. Warszawa: PWN.

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human Computer Studies*, 74, 14–31.

Sobociński, M. (2013). *Grywalizacja w praktyce: reguły, problemy, zalety i technologia*. Wstępna analiza rocznych kursów przeprowadzonych na UKW. *Informatyka w Edukacji*, 1–24.

Wawer, M. (2015). *Grywalizacja - nowy trend w rekrutacji kandydatów*. Studia i prace Wydziału Nauk Ekonomicznych i Zarządzania, 39(3), 219–230.

Wrona, K. (2013). *Grywalizacja i gry oraz ich potencjał do wykorzystania w strategiach marketingowych*. Marketing i rynek, 10, 25–31.

Zielinski, D. (2015). *The Gamification of Recruitment: Virtual games are scoring points for companies' talent acquisition strategies*. HR Magazine, (November), 59–61.

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PARTICIPATORY BUDGETING IN LOCAL GOVERNMENT

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Abstract: *Local self-government has autonomy in financing the needs of its community. At present, the impact of individual interest communities on the financing of regional development projects from general budgets (the so-called participatory budget) resonates. The intent of a participatory budget should be a permanent dialogue on the structural form of the Basic Economic Act of Self-Government between the active population and its elected representatives. It is therefore a process of democratic decision-making of citizens who decide on Allocation of part of the public budget through personal meetings or other forms of consensus. In other words, a participatory budget should be seen as a way of educating the public to actively decision-making on local issues. Perhaps this knowledge will make it easier to understand the economic choices of self-government that have their borders at least on the basis of real income and useful expenses. So, in an area where it is not easy to find measurement between real possibilities and expectations.*

Keywords: *Participatory democracy, local government, participatory budgeting.*

JEL classification:

Grant affiliation: 031TUKE-4/2016.

1. Participatory Budgeting as a Component of Participatory Democracy

Čunderlík explains that "the participation by citizens of the local government unit in the decision-making process with regard to the public finance is not direct, but undertaken by way of municipal representation, or merely with the opportunity to exert influence through work in a financial committee of the local government or in a citizens' assembly. Therefore, despite the existence and indisputability of the rightful existence of representative democracy, it is important to continue in the search for other forms of citizens' participation in the decision-making process when it comes to the use of public finance from the local government's budget" (Čunderlík 2015, p. 1030). The process described is connected with the public interest in monitoring the economic results of municipalities and their financial soundness. In recent years, innovative forms of engaging the public in financial processes on an optional basis have come to the fore. Participatory budget (participatory budgeting) which is considered to be both an economically and legally simple scheme of activation of affected

stakeholders is one of the options employed to get involved in the decision-making process concerning the use of funds (at the level of the local government).

At present, there is no such thing as a generally accepted template or model of participatory budgeting, since individual programmes share common features, but also differ by other, specific, ones. Each programme (related to the participatory budgeting) is specific not only from the perspective of its focus, but also from the perspective of the level of application and the extent of participation (involvement) of citizens. This dynamics and openness as to its definition are the presumptions which allow this mechanism to be further developed.

A Portuguese theoretician Giovanni Allegretti defines participatory budgeting as a form or concept of "shifting accountability for the decision-making process concerning the budget to the citizens affected by such budget" adding that "new "arenas" emerge under the influence of participatory budget which allow citizens to discuss, define spending priorities of the municipality and decide new investments which are to be funded from the allocated portion of the municipal budget" (Daubner 2011, p. 36). In other words, it is a democratic decision-making process undertaken by citizens who decide the allocation of a portion of the public budget by way of personal meetings (or other form allowing them to reach consensus, such as voting via the Internet, etc.). This means that participatory budgeting does not replace the actually valid representative (indirect) democracy; rather, it complements it with an instrument of participatory democracy, transforming the current rigid system to a modern democratic and de-centralized local government.

Employing participatory approaches, the local government may then better represent the interests of the citizens, provide them with improved services, building public trust in, and transparency of, the decision-making process. "Efficient citizen participation has also become a precious source of innovative ideas for local governments, means to strengthen the solidarity in the community and, last but not least, a space to obtain the so much important feedback from citizens. It is a source of activation, gradual reduction of information asymmetry, which contributes to the elimination of potential conflicts" (Székely 2014, p. 68).

Daubner speaks of 4 basic phases within the participatory budgeting process (Daubner 2011, p. 47-48):

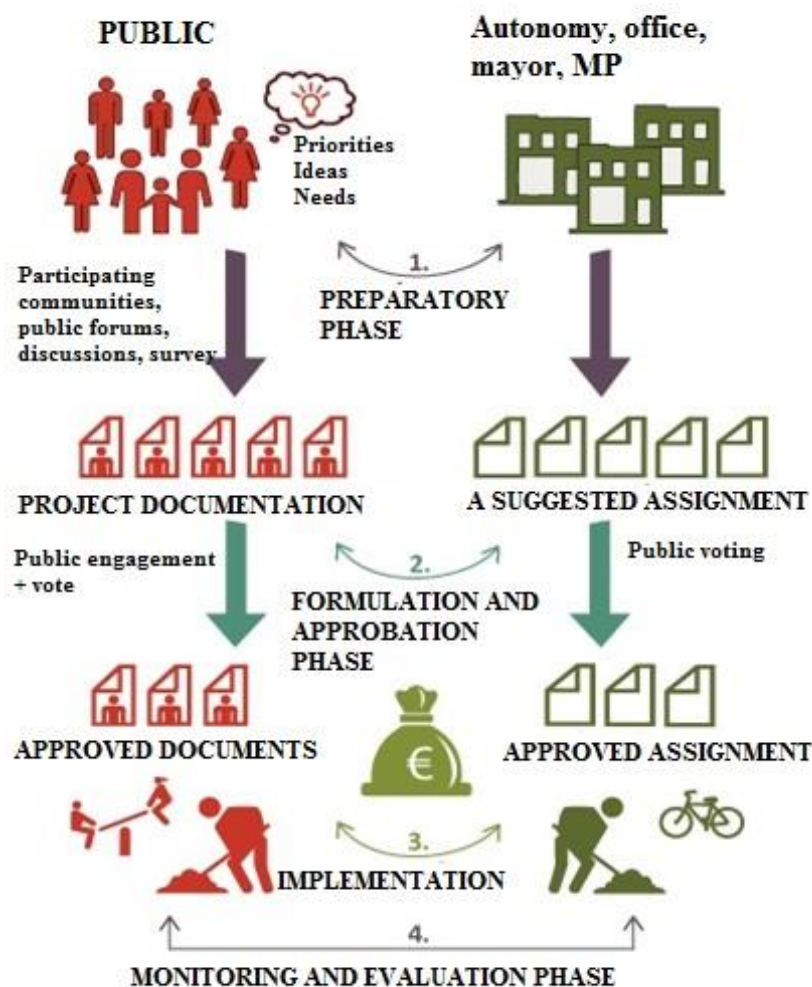
- preparatory phase:

This phase consists of two important stages following one after the other: provision of information and discussion. In the provision of information stage, all budgeting stakeholders need to be informed in detail of the concept, principles, benefits, and goals of the participatory budget. All kinds of information instruments of the local government's media policy may be used to attain this objective, e.g. web site, leaflets, local news, circulars, community radio, etc. The decisions made within this stage include the scope of participation by individual stakeholders; these need to be engaged in the process as much as possible, attaining their active participation in order to reach the goals set. Discussion stage is undertaken in order to lay down the budgeting rules - they may vary on a case by case basis, but they should be set so as to fit the local characteristics. Meetings are held at the lowest level of budgeting to discuss and vote about the priority projects of regional development. The preparatory phase may take couple of months, but the "effect of lessons learned" is expected to work towards gradual reduction of this phase in the long-term horizon.

- formulation and approbation phase:

This phase consists of two stages, particularly the negotiation and consensus stages. This phase aims at defining the priority projects and their evaluation directly by the citizens of local government or by way of their elected representatives in the participatory budgeting authorities. The significance of this phase lies in the successful and consensual agreement between all stakeholders on the implementation of projects and determination of their priorities, significance, relevance, and technical and financial feasibility. If agreement is not reached based on consensual principle for any reason, the majority principle is used.

PICT. 1: Participatory budget scheme



Source: utopia.sk

- implementation phase:

This phase generally consists of one stage only and this phase is called a decision-making stage. In this phase, the participatory budget needs to be incorporated in the overall budget of the municipality. Once the budget has been discussed, it needs to be approved by the municipal council as well. This process is carried out under the lead of the mayor. Voting procedure may also be attended (actively or passively) by all members of the participatory budgeting authorities. In this stage, the final version of the local government budget for the fiscal year is being decided. Once the budget has been approved, the public authorities are obligated to create conditions for efficient implementation of individual projects. This includes the preparation of investment plans, preparation of transparent public procurement, etc. Individual projects are brought to life as well. The implementation process should be subjected to citizen control.

- monitoring and evaluation phase:

The final phase calls for citizen participation in the evaluation of the budget implementation process and implementation of individual projects and focuses on the control over public spending. The aim is to maximise transparency of allocation of sources set aside for the participatory budgeting purposes as well as the budget as such. Any drawbacks need to be resolved and recorded to allow for their analysis. Active participation by citizens and feedback leading to continuous improvement of the process are important factors in the process.

As Székely puts forth, each participatory budget must meet 5 basic criteria (Székely 2014, p. 70):

- "discussion about the financial, budgetary issues including solution of the issue of limited resources;
- process focusing on a municipal level or decentralized area with an elected authority and some specific administrative powers;
- continuity of the process;
- use of a specific form of public debate including specific participatory procedures;
- evaluation of the process and of the outcomes of the process."

However, despite positive outcomes and feedback, some drawbacks of participatory budgets have not been overcome yet. Székely mentions

- difficulties in communication with the municipal authorities in project implementation;
- their partial implementation or failed implementation;
- non-acceptance of the budget by the municipal authorities;
- reduction of the allocation from the municipal budget for the participatory budget;
- absence of a deeper interest of government officials - members of city councils - in the budget (or in meetings of communities);
- insufficient promotion of the project;
- lack of interest from media, etc.

Based on the above it is possible to say that at the local government level "political elites continue to be unwilling to give responsibility for decision-making to the hands of citizens, their understanding of the budget processes is insufficient, they continue to feel suspicion up to distrust in the mechanism, or local politicians and officers feel their standing to be threatened by such participation" (Székely 2014, pp. 74-75).

2. Conclusion

Participatory budget or participatory budgeting should definitely serve as one of the tools leading to responsible co-decision. Its philosophy is not based on fund raising, but on making people more interested in the public spending (and investments), in its control and, last but not least, in its protection. Even citizens should understand the economic limitations of the local government stemming from the real income and expenditures, i.e. in the "arena" where it is not easy to find the boundary between the realistic opportunities and the expectations.

If we want our neighbourhood to be changed, we have to first change our approach, start with ourselves. This requires not only individual accountability, but also mutual respect and searching for those opportunities which have the potential to move us forward both in terms of knowledge and understanding. This is why it is desirable that the citizens become confident about the weight of their vote and power to decide the matters which affect them or have a significant influence on their lives.

In spite of some drawbacks, participatory budget represents a democratic decision-making process which helps improve transparency of the public administration, strengthen citizen control throughout the entire decision-making process, and achieve efficient and rationalized distribution of public goods and services in the society.

Literature:

Čunderlík, Ľ. (2015). Participatívne financovanie na úrovni územnej samosprávy. In D. Čičkanová, I. Hapčová, V. Mičátek (Eds.), *Participatívna demokracia v 21. storočí* (pp. 1029-1036). Bratislava: Univerzita Komenského v Bratislave.

Daubner, P. (2011). *Inovačný projekt zameraný na regionálny rozvoj mesta Zvolen* (implementácia participatívneho rozpočtu). Retrieved from <http://diplomovka.sme.sk/zdroj/3644.pdf>.

Székely, G. (2014). Participatívny rozpočet v podmienkach verejnej správy na Slovensku. In I. Dudinská, M. Cirner, G. Székely (Eds.), *Súčasný reformy verejnej správy na Slovensku a ich politologické aspekty* (pp. 65-82). Prešov: Vydavateľstvo Prešovskej univerzity.

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A CHILD IN THE FAMILY: THE EXPERIENCE OF TODAY'S PARENTS WITH HEALTH CARE FROM PARENTHOOD PLANNING TO THE CHILD'S FIRST YEARS

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Abstract: *As families and a child's position in them develop, it is also necessary to look at family counseling as a constantly evolving field. Research data obtained from a questionnaire survey are analyzed in thematic units through which we infer the peculiarities of the topic of families and children today. This thesis deals with the topic of planned parenthood from the moment the future parents meet to the first years of parenthood, including the new cultural and economic situation of families with children. The research findings, which suggest that families today are a very specific unit that can no longer be easily standardized like in the past, clearly revealed the demandingness of the performance of all professions in family counseling.*

Keywords: *Family, child, economy, 21st century, health care.*

JEL classification: *I12, I19, I20*

Grant affiliation:

1. Introduction

Nature has programmed mankind to not become extinct. We all have a reproductive instinct in our genes. The aim is to observe the current trends in people's approach to children. Over the past 100 years, the Czechoslovak population has experienced several changes in government, borders, political regimes, and considerable development in science, technology and healthcare. 30 years ago, it was common perception that contraception = abortion. Today it is possible to both kill a 12-week-old child, as well as give birth to it and save it. What is the current generation's opinion on children?

The approach to children and the role of mothers and fathers in a family has changed dramatically over the past 100 years. In a classic Jewish-Catholic approach, it is common for the father to provide for the family and the mother to care for the family. The First World War was followed by the break-up of Austria-Hungary, which could be considered a precursor to today's European Union. Several dictatorships (fascism, proletarian government, communism), and mass murder. After the Second World War, there was a complete shortage of labor and a large part of Europe was destroyed. The

Czech population was forcibly deployed during the war. It was mostly the youth whose education and mentality was greatly affected by this. Subsequently, under the influence of the USSR, the role of women and men in a family is greatly changed and the traditional family model is suppressed. The originator of values is primarily the state and its ideology, not families. Manipulating ideology actually guides the way in which the recipient perceives a phenomenon or an event, how he recognizes it, and the feelings and empathy associated with it. „Values“ in this context can most simply be defined as emotionally toned concepts of good and evil (Žantovský, 2015)

The post-war generation (cf. Stražilová, 2013; Strauss, Howe, 1991) that decided to have children no longer dealt with nursemaids and breastfeeding, they dealt with day care and baby formula instead. This was accompanied by big shifts not only throughout Europe, emigration in all directions and a time of political witch hunts, leaving even less time for the upbringing of children. The next generation, i.e. post-war teenagers, went through political liberation, space flights, the Vietnam War, brotherly help and the great emigration wave associated with it. Husák's Children gained a natural interest in having their own children sometime before the regime change, but most of them only after the regime changed in 1989, when the borders opened and unlimited possibilities followed. Family support is first discussed around the year 2000 in democratic politics. From the 180,000 people born in the period of 1971-1975, this number dropped to 120,000 per year, and in the last 25 years there have been a few drops below 90,000 newborn babies per year.

2. Objective and subject of the research

To determine the current trends in the approach to having a child, focusing on social and health issues related to planned parenthood from conception, childbirth and postnatal care.

Positive and negative phenomena include the standard of planned pregnancy, the postponement of parenthood to an older age, the prolongation of life and thus also the continuation of the family after the children leave (cf. Poláčková, Kraus et al., 2001). The fertility of divorced couples is reduced, because when they start to try to have children after years of cohabitation they can no longer have them.

3. Methodology

The aim of this study was to understand the current approach of parents to the matter of having a child in relation to health topics and healthcare, and subsequently its economic consequences.

The pilot electronic questionnaire was completed during the first three months of the pre-research based on data from informal interviews that took place over a period of two years. All the input data were used to perform an analysis of each question and to create a questionnaire for the research itself.

The total number of respondents was 802, and the questionnaire response rate was 61.9 %.

When choosing questions, we focused on the relationship between health care and the new child in the family. Based on the answers to the following questions, we judge the qualities of this relationship:

Did any medical examinations take place before the planned conception?

What form of medical help was performed?

What was the result of the primary professional medical help?

How long did the medical assistance last before pregnancy occurred?

Necessary health measures undertaken by the couple for conception?

Did the medical care lead to pregnancy?

What was the decisive factor in choosing a pediatrician?

Did you find a new pediatrician after certain experiences?

4. Results and discussion

4.1. Pregnancy planning and medical care

In 50% of cases, the monitored parents began planning a pregnancy within 3 years after the wedding, and in 20% of cases the pregnancy was not planned. Half of the respondents consulted the pregnancy with a gynecologist, and one third underwent a comprehensive examination for inherited defects and other symptoms. In 65% of cases, the professional medical care lasted more than a year.

Couples often underwent a dramatic change in their lifestyle and got thoroughly acquainted with their ancestors after an analysis of inherited defects. 57% of couples received a beautiful surprise, when the doctors were planning IVF and they received a gift from heaven, i.e. they conceived naturally. This most likely also relieved them financially, because the health insurance company only covers 3 artificial insemination cycles, and more than a half of couples underwent 4 or more cycles. The respondents in this subgroup are clearly more responsible; 78% of respondents underwent testing for the risk of genetic defects.

4.2. Childbirth and medical care

The obtained data show that 85% of mothers gave birth naturally, and the same percentage started breastfeeding with no problems or with the help of the hospital nurses, but the remaining 14% never managed to breastfeed, not even with the help of a lactation counselor, or due to health reasons. Another finding was that 15% of mothers who gave birth by caesarean section confessed that they had a caesarean out of fear of pain or irreversible damage, and one third of them regretted it later because they did not have contact with their child in the first 48 hours. Approximately 30% of mothers who gave birth this way admitted to lobbying for a caesarean section. The most common reason was partly for health reasons related to complicated pregnancies, but fear of pain and irreversible damage were just as common.

Up to 20% of respondents reported a failure of medical care during pregnancy and childbirth, half of which had serious consequences for the mother and child. This mostly included a poor diagnosis of the cause of problems. The second half only reported forgotten examinations, ultrasounds, unpleasant doctors, unnecessary antibiotics, etc. A positive finding is the fact that 90% of respondents reported a feeling of pride, joy and happiness after delivery. 80% of all respondents reported a maternal bond already during pregnancy.

4.3. Selection of a pediatrician for the newborn child

Based on the experience of the respondents, it is clear that the internet and searching for information also affect the direction of postpartum care and its selection. Only 30% of the respondents chose the pediatrician nearest to them. We will also take into account typical practice in large cities, where several pediatricians can be found in housing developments; they are nearest, but they are in other places. On the other hand, 70% of respondents opted to choose a doctor for their child according to the provided services, websites, discussion boards and social networks, references on the internet, and based on the services provided. They probably made the right choice, because only 15% of them is thinking about (or already has) changing their pediatrician, and the most common reason was only due to moving. 95% of respondents in this subgroup are satisfied with their pediatrician. In any case, 75% of respondents have a secured intake with these pediatricians because they are the closest, and 25% of them are also secured by the fact that the pediatrician is a family friend; 90% of respondents have not changed their pediatrician and are satisfied with him.

5. Conclusion

The psychological consequences of failed health care are reflected in the stability of the family. The failure of or inadequate health, social and counseling care causes a decline in performance and less qualified work or its lesser extent, resulting in a decrease in GDP and other unnecessary costs not only for health expenses (cf. Němec, Bucman, Šikýř, 2014, s. 86-87).

67% of respondents have a responsible social-health approach to parenthood. These are mostly respondents with average and higher income (currently 30,000 - 50,000 CZK per month), living mostly in regional cities, as well as Brno, Prague, Ostrava or satellite villages around them. In 60% of cases they have 1 child, and in 35% they have 2 children and are willing to do everything available to them for the children. They don't hesitate to provide better health or social care and provide a maximum amount of activities for the child.

Another unexpected conclusion from the research is the fact that approximately 30% of respondents who "want to have a child - are trying to get pregnant, are experiencing a pregnancy and preparing for future parenthood - childbirth - pediatrician - or are experiencing it all again with another sibling", experience a medical failure in some form. Half of them do not even notice this medical care failure, but due to the mistake of the doctors, which is often trivial, they experience huge family traumas, such as missed miscarriage.

Medical, family and maternity clinics exhibit some fundamental misconduct in terms of their approach to pregnancy, childbirth and subsequent care. There is an obvious pattern where social

background and physical health are important. Medical science does not expect situations in which it causes long-term traumatic psychological problems. The Czech population does not seek psychological assistance because they are neither prepared for it nor is it offered to them. It is still rooted in our society that only "crazy" people need a psychologist. Just as genetic testing is a standard today during the preparation for parenthood, as well as psychological tests in driving schools, it would also be appropriate to include psychological care during preparation for a family and pregnancy. According to this research, psychological care would help at least 30% of respondents. The Czech population, which is predominantly atheistic, does not even turn to the Church, so couples are left to deal with their traumatic situation on their own.

Literature:

Bartoška, J., Toth, Š., & Jarkovská, M. (2013). Financial literacy in the teaching of CULS students. In *Sborník Efficiency and Responsibility in Education, 10th International Conference*. Praha: ČZU v Praze, PEF, 24 -31.

Janoušek, J. et al. (1988). *Sociální psychologie*. Praha: Státní pedagogické nakladatelství. ISBN 14-683-88.

Krátká, J. (2011). *Aktuální otázky teorie výchovy: Teoretická východiska, výzkumné nálezy a závěry pro praxi*. Brno: Masarykova univerzita.

Kraus, B., & Poláček, V. (2001). *Člověk - prostředí - výchova: k otázkám sociální pedagogiky*. Brno: Paido, 2001.

Matějček, Z. (1992). *Dítě a rodina v psychologickém poradenství*. Praha: SPN, 1992.

Matoušek, O. (2007). *Sociální služby*. Praha: Portál.

Matoušek, O., & Pazlarová, H. (2010). *Hodnocení ohroženého dítěte a rodiny v kontextu plánování péče*. Praha: Portál.

Matoušek, O., & Pazlarová, H. (2014). *Podpora rodiny: manuál pro pomáhající profese*. Praha: Portál.

Němec O. Bucman P., & Šikýř, M. (2014). *Řízení lidských zdrojů*. Praha: VŠFS.

Öllös, L., & Hampl, D. (eds.). (2014). *Deset let v Evropské unii: Stav, zkušenosti, perspektivy*. In *Demokratická podstata a filosoficko-politické základy Evropské unie jako problém*. Kolín.

Sobotková, I. (2001). *Psychologie rodiny*. Praha: Portál.

Stražilová, G. (2013). „Husákovy“ versus „Havlovy“ děti. <https://www.czso.cz/csu/czso/52002e2055>.

Strauss, W., & Howe, N. (1991). *Generations: the history of America's future*. New York: Quill.

Střelec, S. (1998). *Rodina a výchova dětí školního věku*. In Střelec, S. (ed.) *Kapitoly z teorie a metodiky výchovy I*. Brno: Paido.

Střelec, S. (2005). Rodina jako výchovný činitel. In Střelec, S. (ed.) Studie z teorie a metodiky výchovy II. Brno: Masarykova univerzita.

Střelec, S. (1998). Vývoj vztahů mezi rodinou, školou a veřejností. In Střelec, S. (ed.) Kapitoly z teorie a metodiky výchovy I. Brno: Paido.

Toth, D., & Toth, Š. (2013). Socioekonomické a environmentální aspekty udržitelného rozvoje. In VŠERS STUDIA. České Budějovice: VŠERS.

Žantovský, P. (2015). Mediální manipulace a krize v ČT v roce 2000. Praha: IVK.

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DEVELOPMENT OF PROFESSIONAL AND PRESENTATION SKILLS

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Abstract: *The paper points out the growing importance of communication and presentation skills in the field of professional communication within the current reality. Based on an analysis of video recorder student presentations, the authors identify the key competences that are essential for an effective interpersonal communication at the job market.*

The aim of the conducted research was to assess the argumentation and presentation skills of young professionals from the field of IT. The participants of the research were university students in a combined study form who already worked as IT specialists in varied companies or institutions. The assigned task for the presentations was to present and defend a point on an individually chosen topic. The authors focused on analyzing individual communication elements, such as the presentation structure, non-verbal communication, and rhetorical skills.

Keywords: *Argumentation, communications, presentation skills, non-verbal communication, verbal communication.*

JEL classification: A20, A29, I20, I25

Grant affiliation:

1. Introduction

Communication and presenting skills are key competences for practice, as they play an important role in professional development of managers, professionals as well as talents.

Most businesses or companies focus on developing presentation and argumentation skills when preparing their employees for practical tasks.

The aim of enhancing communication skills of their employees usually is the company ability to maintain professional public relations toward potential customers as well as business partners, in order to succeed in gaining new orders and clients.

The authors discuss the current time reality (from the perspective of the general communication process). In the text, they present results of a pilot study focused on communication and presentation skills.

2. Communication skills in existing professional literature

Communication skills are widely discussed both locally and internationally.

Czech resources orient on rather theoretical aspects, while mainly focusing on the formal "power point" outline and the technical preparation of the speaker. The studies accentuate the rhetoric training and voice modulation of speech (Cmíralová, 1992, Maříková, 2003). These publications focus their discussion on structure, as they point out the need to specify the topic, the aim of the presentation, as well as the conclusion summarizing the main points (Špačková, 2003). Most of the resources, however, do not touch upon the need to catch the attention of the listener, as they fail to introduce further presentation strategies such as connecting with the audience through a formal form of address, a "motto", personal story or an anecdote. None of them mention the need to engage the audience through the presenter "competence".

Presentation strategies, on the contrary, are accentuated in international, mainly West-European and American literature. Weissman points out that these strategies have to be adjusted to the situational context and the type of audience (Weissman, 2003). Brian Tracy (Tracy, 2008) adds that the art of speaking well is also beneficial for the lecturer's own personality development.

A quite unique contribution to the art of presentation skills is the publication of C. Gallo, which analyzes the art and secret of Steve Jobs' presentation success. Steve Jobs was a professional who never underestimated the importance of a thorough preparation (Gallo, 2009).

3. Methodology

This paper presents results of a pilot study aiming at assessing communication and presentation skills in a group of young IT specialists. The authors pursued the following research questions: How do people communicate verbally and non-verbally? What type of mistakes do most often occur in their speeches? What is their ability to prepare an effective argumentative presentation and how well can they defend their points?

The research sample consisted of 34 students of a combined form of study at the university level who attended the Communication and Presentation Skills seminars in the academic year 2015/16. These students were employed, that is, they were professionals who commonly applied their general communication skills in their business practice.

The authors adopted observation as a basic method to analyze student course presentations on a selected professional or otherwise interesting topic. Students prepared ten-minute presentations of an argumentative type (with the support of a slide show), they presented their speeches in lessons, and responded to questions and comments from their classmates in related discussions. Each

presentation was video-recorded and subsequently analyzed. The analysis focused on the following aspects: non-verbal communication, verbal communication (rhetoric) and presentation structure.

4. Context and results

a. Non-verbal communication

The term of non-verbal communication refers to communication without words. The analysis below focuses on the speaker non-verbal cues crucial for effective communication in the speaker - audience design:

- eye contact with the audience
- body posture and movements
- gestures

The eye contact with the audience is considered to be one of the main features of a successful presentation. Only one third of students, though, followed the rule of a proper eye contact with the audience in their presentations. Most of them averted their sight from the participants looking down, aside, or into space.

To demonstrate self-confidence, capability, or status, the body posture of the speaker should remain still during presentations. The results of this research reveal some drawbacks in this area, too. More than half of the presenting students did not stand still, while random movements of the whole body, swinging, or walking back and forth was observed.

Gestures observed in the student presentations were mostly purposeful, as they accentuated the content. Most presenters, however, also adopted spontaneous arm and hand movements without an apparent purpose, such as, crossing their arms, or rubbing their palms.

b. Verbal communication

The notion of verbal communication refers to the human ability of articulation. It consists of words, meaning media, and object symbols. Words and sentences, then, are essential for descriptions, questions, answers, explanations, and the like. Verbal communication takes upon varied forms, such as conversation, dialogue, or speech.

The subject of the analysis was:

- speech modulation, i.e., work with pace, dynamics, melody or pauses
- speech diction, i.e., a combination of general speech modulation and clarity in articulation of individual sound combinations
- the use of rhetorical figures, i.e., rhetorical questions, examples, comparison, etc.

The study confirms that the ability to control speech is generally rather weak in our society. The student speeches were mostly conducted at a steady speed and dynamics.

The work with speech melody was also mainly routine. Most of the students were not able to start and finish the sentence with a proper cadence, that is, in accordance to the standard syntax of the sentence: a rising melody in case of a closed question, a sustained melody in places with a punctuation mark (such as comma or a colon), or a falling melody in announcements or open questions (e.g., How did that happen?). In cases of a so-called rhetorical question, the students often completed it with a false rising cadence as in an open question. The analyzed samples show a general inclination to deliver words and sentences in a continually rising, unsettled melody. The listener, then, does not receive information about what is and what is not important, and what is the main message of individual "speech segments". The analyzed samples showed better results in situations when speech melody was used as an indicator of emotions or general attitudes toward the presentation topics. Approximately one third of the speakers used speech melody as an instrument to express emotions or personal attitudes towards the presented content. The speakers were adopting uninteresting word sequences, they did not indicate an interest or knowledge about the subject, nor did they make any personal connection with the audience. Pauses, which are commonly used in speeches as a tool to accentuate a point or to give listeners time to absorb new information, almost did not occur in the analyzed data.

The diction of speech was frequently blurred or unintelligible. This was observed in moments of dull articulation or mumbling of the text (e.g., reducing the word „protože“ into „pže“).

The use of rhetorical figures turned out to be a "great unknown" for most of the speakers. The only cases observed in the data were comparing "something with something". The collected data show that the students were generally not used to provide examples, comparisons, or a story. Only three incidences of rhetorical questions were traced throughout all collected presentations. Most of the participants turned to a dry "mentoring" style using structures such as "here we have", "this means," "here can be seen," and so on.

The following table shows how the speakers worked with selected criteria, assessing their use as proper (+), or rather random to absent (-).

TAB. 1: Assessment of individual verbal communication variables

Total number of speakers: 34	+	-
pace	10	24
dynamics	8	26
melody	3	31
pause	1	33
diction – complete articulation	15	19
rhetorical question	3	31

example/comparison	0	34
story	0	34

To conclude, the above demonstrated data confirmed the hypothesis that conscious management of presentations, as observed in speech modality, diction, and rhetorical figures, is far from obvious. Rhetorical figures and work with voice were almost nonexistent.

c. Presentation and argumentation

Presentation is a specific communication situation. The presenting person must realize that the audience responds not only on basis of individuals, but also as a group (attitude toward the speaker). Speakers should not only aim at conveying the content itself, but also pursue a specific goal (e.g., to motivate for a purchase, to support a project, to change a view, etc.).

This study focused on assessing the students' ability to put together the content of the presentation (using a slide show), present it to an audience, and properly defend their arguments in a follow-up discussion.

Although sophisticated structure of the presentation postulates an important condition for a successful delivery, the data surprisingly revealed a series of elementary drawbacks. For example, almost none of the speakers addressed the audience when opening their presentations (e.g., omitted a salutation - "Dear colleagues").

Instead of introducing the aim, purpose and structure of presentations, the students started directly from their key points.

Presentations were interrupted with spontaneous questions and answers, instigating further discussions and improvisations. This made discussions chaotic, lacking in clear rules. Some arguments were not defended convincingly.

Individual speeches were properly concluded by a thank-you for attention. Yet, a summary of the main points, recapitulation of the aims, and a conclusion drawn from the discussion were all missing.

5. Conclusion

The aim of the presented research was to review the quality of basic communication skills in a selected group of college students with respect to their ability to present information, attract the audience, and formulate ideas in a clear and succinct way. The analyzed data samples revealed that the students' basic soft-skills are not strong.

The study conveys valuable information for tertiary education. Its findings can be used for structuring educational activities aimed at training communication and presentation skills for business practice.

To make objective conclusions, though, more in-depth research is needed. As observed throughout this study, the quality of student communication skills was visibly improving over the course of the four months research. Educational programs, therefore, must build long-term and complex plans.

Literature:

Allhoff, W. (2008). *Rétorika a komunikace*. Praha: Grada Publishing. ISBN 978-80-247-2283-2.

Cmíralová, J. (1992). *Učte se mluvit: o technice mluveného slova*. Brno: Datel.

Gallo, C. (2009). *The Presentation Secrets of Steve Jobs. Mc Graw-Hill Education*. ISBN/EAN 9780071636087 / 9780071636087.

Hierhold, E. (2005). *Rétorika a prezentace*. Praha: Grada Publishing. ISBN 80-247-0782-9.

Maříková, M. (2002). *Rétorika. Manuál komunikačních dovedností*. Praha: Professional Publishing. ISBN 80-86419-31-2.

Špačková, A. (2003). *Moderní rétorika: jak mluvit k druhým lidem, aby nám naslouchali a rozuměli*. Praha: Grada Publishing. ISBN 8024706334.

Tracy, B. (2008). *Speak to Win: How to Present With Power in Any Situation*. AMACON-American Management Association, New York. ISBN-13:978-0-8144-0157-6.

Thomson, P. (2001). *Tajemství komunikace*. 1. vyd. Brno: Alman. ISBN: 80-86135-16-0.

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INCOME LEVEL INEQUALITY AS A MIGRATION FACTOR IN EU COUNTRIES

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Abstract: *Migration - both from outside and within the Member States of the European Union, is currently a very topical issue. The article deals with migration issues of selected member countries. It points to the asymmetry of gross domestic product per capita in relationship to the purchasing power parity and actual state of migration. This leads to explore the issue more closely within the context of income level inequality. Gini's coefficient seems to be an important determinant of the analysis.*

Keywords: *Migration, Determinants, Retirement Inequality, European Union.*

JEL classification: *F22, O15*

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1. Introduction

The migration issue in EU is frequently debated nowadays. It is not only about the migration crisis from third countries, but also about mobility within the Member States. The labor itself is the primary production factor that plays a key role in the integration process. Removing barriers to the labor market is a priority for the functioning of such a community. However, negative reactions to this trend, which see migration as a threat, are also emerging. Empirical research can be utilized to get answers to the question of why people really migrate and, on the other hand, what demotivates them to do so. Our research has focused on the determinants analysis and we were interested in a specific factor of income level inequality.

2. Methodology

The data utilized in the research is cross-sectional bilateral data for 2013. We worked with 22 countries in a complete two-element combination. For the inaccuracy of the linguistic similarity

index, we excluded the following pairs: Lithuania and Greece and Lithuania and Romania, which allowed only 458 observations.

We used the status variable as the interpreted variable - the number of migrants from the sending country to the receiving country in 2013 denoted by the Mig_v_B symbol, or $\ln Mig_v_B$ in the logarithmic transformation. The choice of the status migratory variable is justified.

When selecting explanatory variables, we used the models, which are build on the findings of several migratory theories. It is, for example, migration study (Sprenger, 2013) with an exclusive focus on the determinants of international migration among EU member countries. The results of this study, as well as the results of migratory studies with other geographic observations, such as Pedersen et al. (2008), Vikhrov (2013), Tranos et al. (2012), Crespo et al. (2013), Mayda (2010) and others, point to the asymmetric impact of GDP as a determinant of international migration. In particular, the work of Vikhrova (2013) contains the Gini coefficient determinant as a significant migration factor. Similarly to previous studies, we have encountered the asymmetry of GDP in migration. The inclusion of the Gini coefficient in the models also proved to be significant in our work. We have examined various migration factors. Geographic migration factors have been confirmed in all of the analyzed studies. Therefore, we have used them in all models as variables reflecting geographic migration factors:

- the number of inhabitants in the sending country in 2013,
- the number of inhabitants in the recipient country in 2013,
- distance of countries expressed as the distance of the capital cities.

The common border factor has the value of 0 if the countries do not have a common border and value 1, if there is a common border. The distance of the countries was determined as the distance of the main cities in km, which is the prevailing approach in empirical research of the determinants of international migration.

In the context of cultural factors of migration, the existence of a common language proved to be statistically insignificant. We have replaced it with an index of the linguistic similarity of the countries.

We have decided not to include any other explanatory variables in the models because we do not consider them relevant for international migration among EU member states. Those are for example common colonial past, immigration rules, civil liberties and civil rights, and so on.

3. Utilized models

Analysis is based on three models. The base model does not include a variable of income level inequality. When compared to models 1 and 2, significant changes can be observed by including this variable.

In models 1 and 2, we worked with the Gini coefficient as the explanatory variable against the base model. In model 1, we used Gini's sending and receiving country coefficient. In model 2, we only worked with the Gini Coefficient for the sending country and this variable had to explain the

economic variable for this country. The economic explanatory variable for the receiving country was the gross domestic product per capita in purchasing power parity.

Base Model

$$\begin{aligned}\ln(Mig_v_B) = & \beta_0 + \beta_1(hranica) + \beta_2(jazyk_podob) + \\ & + \beta_3 \ln(vzdial_hl_m) + \beta_4 \ln(obyv_A) + \beta_5 \ln(obyv_B) + \\ & + \beta_6 \ln(HDP_obyv_PKS_A) + \beta_7 \ln(HDP_obyv_PKS_B) + u\end{aligned}\quad [1]$$

Model 1: Gini coefficient as an explanatory economic variable for both countries

$$\begin{aligned}\ln(Mig_v_B) = & \beta_0 + \beta_1(hranica) + \beta_2(jazyk_podob) + \\ & + \beta_3 \ln(vzdial_hl_m) + \beta_4 \ln(obyv_A) + \beta_5 \ln(obyv_B) + \\ & + \beta_6 \ln(HDP_obyv_PKS_A) + \beta_7 \ln(HDP_obyv_PKS_B) + \\ & + \beta_8(GINI_A) + \beta_9(GINI_B) + u\end{aligned}\quad [2]$$

Model 2: Gini's coefficient for the sending country and gross domestic product per capita in purchasing power parity of the receiving country as explanatory economic variables

$$\begin{aligned}\ln(Mig_v_B) = & \beta_0 + \beta_1(hranica) + \beta_2(jazyk_podob) + \\ & + \beta_3 \ln(vzdial_hl_m) + \beta_4 \ln(obyv_A) + \beta_5 \ln(obyv_B) + \\ & + \beta_6 \ln(HDP_obyv_PKS_B) + \beta_7(GINI_A) + u\end{aligned}\quad [3]$$

All models were tested for collinearity, utilizing Whit test for heteroskedasticity, and a test confirming normal residue distribution.

4. Model Results

In the baseline model, all utilized explanatory variables are statistically significant. Non-economic determinants of migration were confirmed by the model. These are: common border between states, the distance of the capital cities, population of country A and country B as well as the GDP per capita in the parity purchasing standards (PPS) in country A and country B. The model confirmed the asymmetry between countries with the last determinant. This fact triggered the need to add another explanatory variable. One of the alternatives was the income level inequality expressed by the Gini coefficient.

We have compiled a new model complemented by the Gini coefficient, all in line with our assumption that retirement inequality within the observed countries is an important determinant of international migration in the European Union countries. We have decided to verify the statistical significance of Gini's sending and receiving country coefficient by adding these variables to the basic model (as Vikhrov (2012)). Outputs of the Model 1 are presented in Table 2.

By adding two new variables (the Gini sending and receiving coefficient), we observe interesting changes in the model outputs. Reliability values are higher than the reference model. Gross domestic product per capita in the PPS in the sending country has become statistically insignificant, which is an important change compared to the base model and past results. However, the Gini coefficient of the receiving country is also statistically insignificant. On the other hand, Gini's sending country coefficient is statistically significant, indicating that income level inequality in the sending country may be an economic pushing factor for international migration.

To be able to better describe the achieved results, we have tested the model to omit statistically insignificant variables (I_HDP_inhab_PKS_A and I_GINI_B). The application confirmed the correctness of the exclusion of these variables and therefore, in Table 3, we present the results of the Model 2 without the variables mentioned above.

TAB. 1: Model 2 results

Model 2:

	Coefficient	Std. Error	t-ratio	p-value	
const	-53,8221	2,73675	-19,6665	<0,00001	***
Hranica (Border)	0,904849	0,238362	3,7961	0,00017	***
Jazyk_podob (Language similarity)	0,015462	0,00526822	2,9350	0,00351	***
I_Vzial_hl_m_ (Capital cities distance)	-0,734272	0,12301	-5,9692	<0,00001	***
I_Obyv_A (Population A)	0,849435	0,0548877	15,4759	<0,00001	***
I_Obyv_B (Population B)	1,04672	0,0541185	19,3413	<0,00001	***
I_HDP_obyv_PKS_B (GDP in PPS B)	3,23479	0,234967	13,7670	<0,00001	***
GINI_A	0,067513	0,0178168	3,7893	0,00017	***

Mean dependent var	8,189730		S.D. dependent var	2,446323
Sum squared resid	736,6333		S.E. of regression	1,279438

R-squared	0,730656		Adjusted R-squared	0,726466
F(7, 450)	174,3892		P-value(F)	7,0e-124
Log-likelihood	-758,6995		Akaike criterion	1533,399
Schwarz criterion	1566,414		Hannan-Quinn	1546,402

Source: Author

Model 2 confirms the statistical significance of all utilized variables, as well as the higher confidence value compared to the reference model with the same number of explanatory variables.

5. Conclusion

Retirement inequality within the sending country results to be the deflator factor and the overall "wealth" of the recipient country represents an attracting factor- both being economic determinants of migration. These findings could be explained by Duesenberry's theory of relative income level. According to this theory, the consumption of individuals also depends on the consumption of other surrounding individuals. Thus, we can assume that income level inequality can lead to individual frustration, increasing the individual motivation to migrate. However, individuals will consider mainly the overall wealth of the country, regardless of their its internal income level inequality, when deciding where to migrate. On the other hand, we can assume that in a country with low income level inequality, individuals will have fairly even consumption and their motivation to migrate will be low, even if the country is considered to be poor. Since models 2 and 3 have shown that the impact of income level inequality is a statistically significant unilateral determinant of the migration, we can assume that retirement inequality within member states is a determinant of international migration within European Union member states. According to our results, this determinant is significant for the migrants, but it is of course not the only determinant. Determining the weight of this factor requires further research.

Literature:

Bijak, J. (2006). *Forecasting International Migration: selected theories, models and methods*. CEFMR Working Paper, Central European Forum for Migration Research.

Borjas, G.J. (1989). *Economic Theory and International Migration*. In *International Migration Review*, Vol. 23, No. 3, s 457-485. Retrieved from http://www.dipecodir.it/upload/file/Giannetti/Docs/Economic%20Theory%20and%20International%20Migration_%20Borjas.pdf.

Crespo Cuaresma, J. et al. (2013). *On the Determinants of Global Bilateral Migration Flows*. Retrieved from

http://www.foreurope.eu/fileadmin/documents/pdf/Workingpapers/WWWforEurope_WPS_no005_MS14.pdf.

Duesenberry, J.S. (1949). *Income, Saving and the Theory of Consumer Behaviour*. Harward University Press, Cambridge, MA.

Faist, T. (2000). *The volume and dynamics of international migration and transnational social spaces*. Oxford: Oxford University Press.

Fagiolo, G., Santoni, G. (2014). *Revisiting the Role of Social Networks as Determinants of International Migration Flows: A Note*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2511892.

Guriev, S. M., Vakulenko, E. (2015). *Breaking Out of Poverty Traps: Internal Migration and Interregional Convergence in Russia*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2200539.

Harris, J. R., Todaro, M. P. (1970). Migration, Unemployment and Development: A Two-Sector Analysis. In: *The American Economic Review*, Vol. 60. No. 1, s. 126-142. Retrieved from <http://down.cenet.org.cn/upfile/51/200521913143145.pdf>.

Haug, S. (2008). Migration Networks and Migration Decision-Making. In: *Journal of Ethnic and Migration Studies*, Vol 34, No. 4. Routledge.

ILO, 2015. *World Employment and Social Outlook*. Trends 2015. ISBN 978-92-2-129260-9.

IMI, 2012. *Rethinking migration theory*. Retrieved from <http://www.imi.ox.ac.uk/research-projects/research-themes/rethinking-migration-theory>.

IOM, 2015. *World Migration Report 2015*. Retrieved from http://publications.iom.int/system/files/wmr2015_en.pdf.

Jennisen, R. (2007). *Causality Chains in the International Migration Systems Approach*. Population research and Policy Review. Vol. 26, no. 4, ISSN 0167-5923.

Koser, K. (2007). *International Migration: A Very Short Introduction*. New York: Oxford University Press.

Kurekova, L. (2010). *Theories of Migration: Critical Review in the Context of the EU East-West Flows*. CARIM IV AS 2010/44, Robert Schuman Centre for Advanced Studies, San Domenico di Fiesole (FI): European University Institute. Accessible on WEB: Retrieved from http://cadmus.eui.eu/bitstream/handle/1814/14049/CARIM_ASN_2010_44.pdf?sequence=1&isAllowed=y.

Leblang, D. et al. (2009). *Defying the Law of Gravity: The Political Economy of International Migration*. Retrieved from <http://ssrn.com/abstract=1421326>.

Massey, D.S. a kol. (1998). *Worlds in Motion: Understanding International Migration at the End of the Millennium*. Oxford: Oxford University Press 1998. ISBN13 978-0-19-928276-0.

Mayda, A. M. (2010). International migration: a panel data analysis of the determinants of bilateral flows. In: *Journal of Population Economics*, Vol. 23, No. 4, Springer.

Moses, J.W. (2006). *International Migration: Globalization's Last Frontier*. White Lothus Press.

Pedersen, P. J., Pytlikova, M. (2008). *EU Enlargement: Migration flows from Central and Eastern Europe into the Nordic countries – exploiting a natural experiment*. Working Paper 08 – 29, ISBN 9788778824028 (online).

Pedersen, P. J. et al. (2008). *Selection and network effects – Migration Flows in OECD countries 1990 – 2000*. European Economic Review, Vol. 52, Issue 7, Elsevier.

Pries, L. (1999). *Migration and Transnational Social Spaces*. ISBN-10. 1840145802, Ashgate.

Přívarová, M., Toma, J. (2014). Income disparity as factor of international migration. In: *SGEM conference on political sciences, law, finance, economics & tourism*. International multidisciplinary scientific conferences on social sciences & arts. Sofia : STEF92 Technology Ltd., 2014. ISBN 978-619-7105-27-8.

Ravenstein, E.G. (1885). The Laws of Migration. In: *Journal of the Statistical Society of London.*, Vol. 48. Retrieved from https://cla.umn.edu/sites/cla.umn.edu/files/the_laws_of_migration.pdf.

Ravlik, M. (2014). *Determinants of International Migration: A Global Analysis*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2504441.

Sprenger, E. (2013). *The Determinants of International Migration in the European Union: An Empirical Analysis*. IOS Working Paper. Retrieved from http://www.dokumente.ios-regensburg.de/publikationen/wp/wp_ios_325.pdf.

Stark, O. et al. (2009). *Relative poverty as a determinant of migration: Evidence from Poland*. In: *Economics Letters* 103, s. 119-122.

Stark, O. (2006). *Inequality and migration: a behavioral link*. *Economics Letters* 91,146–152.

Todaro, M. P. (1969). *A Model for Labor Migration and Urban Unemployment in Less Developed Countries*. In: *American Economic Review*. 1969, vol. 59, no. 1, s. 138–148. ISSN 0002-8282.

Tranos, E. et al. (2012). *International Migration: A Global Complex Network*. TI 2012 – 123/VIII Tinbergen Institute Discussion Paper. Retrieved from <http://ssrn.com/abstract=2176744>.

Van Der Gaag, N. et al. (2003). *Study of Past and Future Interregional Migration Trends and Patterns within EU Countries In Search of a Generally Applicable Explanatory Model*. Retrieved from <http://www.nidi.knaw.nl/shared/content/output/2003/nidi-2003-eu-interregional-migration.pdf>.

Vikhrov, D. (2013). Migration Costs and Determinants of Bilateral Migration Flows. Retrieved from <http://www.migrationpolicycentre.eu/docs/ASN2013-02.pdf>.

Additional internet sources and databases:

http://ec.europa.eu/dgs/home-affairs/what-wedo/networks/european_migration_network/glossary/index_a_en.htm

http://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics

<http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data>

<http://data.worldbank.org/>

https://en.wikipedia.org/wiki/Lexical_similarity

<http://jordic.com/langsim/>

[https://www.vdab.be/varia/hrxml/doc/ISO%20639-1%20LANGUAGE%20codes%20\(22022013\).xls](https://www.vdab.be/varia/hrxml/doc/ISO%20639-1%20LANGUAGE%20codes%20(22022013).xls)

http://www.cepii.fr/distance/geo_cepii.xls

http://www.cepii.fr/distance/dist_cepii.zip

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IMPACT OF A COMPREHENSIVE ECONOMIC AND TRADE AGREEMENT (CETA) ON THE AUTOMOTIVE INDUSTRY OF SLOVAKIA

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Abstract: *This paper focuses on a comprehensive summary of the impact of CETA on the Slovak economy and especially on the automotive industry and employment. CETA's proponents argue that cutting trade costs by removing tariffs and nontariff barriers to trade will boost exports and generate mutually beneficial economic gains. Widely cited official projections suggest modest GDP gains after about a decade, varying from between 0.003% and 0.08% in the European Union and between 0.03% and 0.76% in Canada. Critics of CETA again argue that liberalization may generate unemployment, inequality, and welfare losses.*

Keywords: *Comprehensive Economic and Trade Agreement (CETA), international integration, automotive industry, trade liberalization.*

JEL classification: *F6 Economic Impact of Globalization.*

Grant affiliation: *This paper was created within the VEGA project no. 2/0109/16 Institutional competitiveness in the light of changes in the external environment.*

1. Introduction

Determining factor of the current world economy is more and more vigorous promotion of globalization processes which are directly or indirectly present in almost all economic activities. Globalization, which is often defined as the integration of economies through trade, investment, financial, information and labor markets, has become a determining factor in the expansion of the world economy. Globalization has become „the consummation of the development trajectory from growing internationalization and integration as well as the consummation of expanding interdependence and transnationality up to expanding international specialization and co-operation“ (Baláž et al., 2010, p. 112).

A particular success of the multilateral economic diplomacy of the Slovak Republic is the successful completion and signature of the Comprehensive Economic and Trade Agreement (CETA) between EU and Canada at EU-Canada Summit on 30th October 2016 in Brussels.

Canadian Market with 36 million inhabitants and with a gross domestic product of 1.6 billion USD is for the EU, which has more than half a billion inhabitants and a gross domestic product exceeding 19 trillion. USD, undoubtedly an interesting business and investment partner (STATCAN, 2016). The CETA Agreement therefore constitutes a mutually beneficial form of removal of a whole range of different types and forms of barriers to international trade in goods and services as well as international movement of persons and capital.

On the other hand, nowadays, there is a tendency to shut down national economies and protect national interests. For example Donald Trump declares the fight against illegal immigrants, Hillary Clinton recalls her support for Free Trade Area Agreements, Angela Merkel faces criticism for her open-door policy toward refugees from the Middle East and Africa, right-wing populist Marie Le Pen was a promising candidate for president in the French elections, and the British plan withdrawal from EU. Under these circumstances, the Canadian interest in concluding an extensive and sophisticated liberal agreement on economic and trade cooperation with the EU appears to be quite unusual political intention. Canadians each year take in more than 300 000 refugees (almost 1% of the Canadian population) including 30 000 Syrians and they successfully manage to integrate them into diverse Canadian society. It is assumed that by 2021 there will be an increase in the number of taken in immigrants to 450 000 per year. And several opinion polls confirm that more than four-fifths of Canadians agree with this policy (BEDDOES, 2016).

Following study highlights the most important opportunities and potential threats that CETA agreement is likely to bring to the Slovak economy. However, benefits resulting from the adoption of this agreement far outweigh its potential negative impacts.

2. Economic impacts of the CETA Agreement on Slovakia

Slovakia has very open, export-oriented, developed central European economy. Foreign trade has an important position in the Slovak economy because it is largely involved in the economic growth of the country, creation of GDP and at the same time it forms a substantial part of the foreign exchange revenue of the state. One of the basic objectives of Slovakia's economic policy is to increase the economic performance and competitiveness of the Slovak economy. As a matter of fact, foreign trade is an important tool for achieving such a goal (Kašťáková, 2015, p. 385).

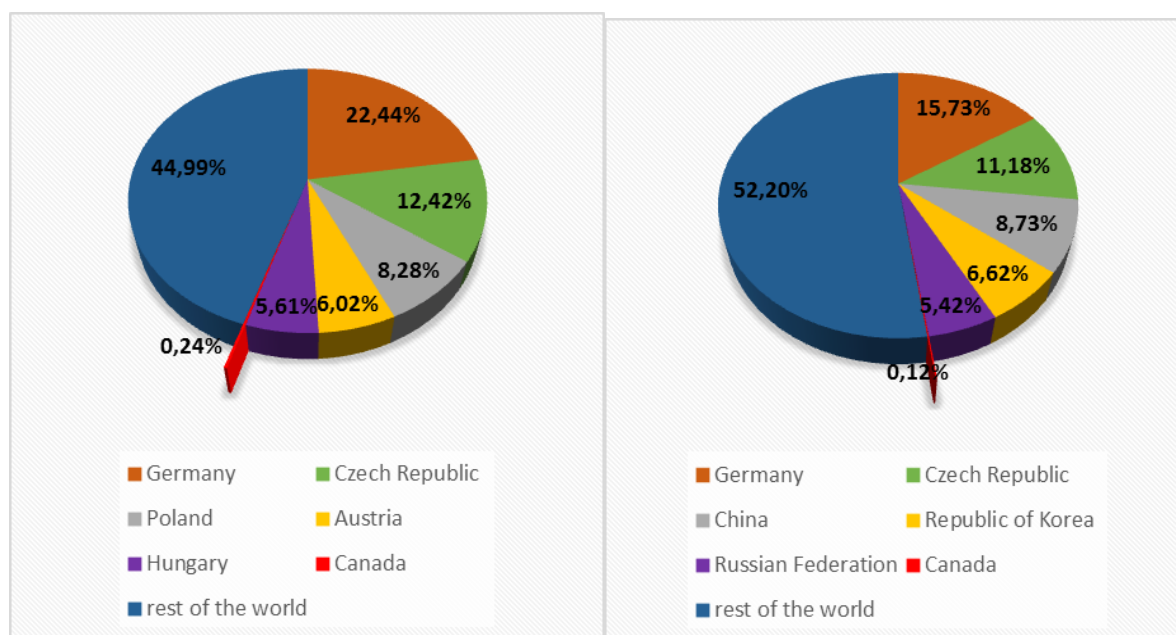
The export performance of the Slovak economy (measured by the share of exports of products and services to GDP) reached 85% in 2015. Import complexity (share of imports of goods and services into GDP) reached 81%. The openness of the Slovak economy (foreign trade turnover to GDP) reached 167% in 2015 (SLOVSTAT, 2015).

Among the most important trading partners in the Slovak export area are almost all EU countries. In 2015, the leading positions traditionally had: Germany, the Czech Republic, Poland, Austria and Hungary. It was mainly due to export of electrotechnics and cars.

Economic relations between Slovakia and Canada take place in a wide range of sectors, departments, business and trade activities. Canada is the 14th most important trading partner of Slovakia outside the EU. The value of Slovak export to Canada is 187 million euro and the value of Slovak import from Canada is 83 million euro (European Commission, 2017). On the basis of statistical data, we can

observe the insignificant importance of Canada as a trading partner of Slovakia and an even more marginal position of the Slovak economy as a partner in Canadian foreign trade. In terms of gross exports of goods and services from Slovakia, Canada accounts for a 0.24% share, while annual imports of goods and services from Canada to Slovakia account for only 0.12% of total Slovak imports (see Graph 1) (SLOVSTAT, 2015). Gross exports from Canada to Slovakia account for 5.98% of total Canadian gross exports.

GRAPH 1: Territorial representation of gross exports (on the left) and imports (on the right) of Slovakia in 2015



Source: processing based on data of SLOVSTAT

We based the detection of Slovakia's sectoral exports to Canada and import from Canada on statistics from the Ministry of Foreign and European Affairs of the Slovak Republic. The key element of Slovak exports under the structure of HS2 (displays the chapters of the customs tariff) is vehicles (other than rail), whose share in total exports reached 72.80% in 2016, with a year-on-year increase of 72.30%. Nuclear reactors, boilers, machinery, equipment and mechanical equipment accounted for 12.94% of exports in 2016. Electric machinery and equipment accounted for 4.20%. Other commodity groups accounted for less than two percent of total exports (Ministry of Foreign and European Affairs of the Slovak Republic, 2016).

The main item of Slovak imports from Canada in 2016 in the HS2 structure was mineral fuels, minerals, which covered 32.76% of total imports. Imports of aircraft, spacecraft and parts (16.50% of imports), machinery and equipment (16.21%) and pharmaceuticals (4.10% of total imports) were also important (Ministry of Foreign and European Affairs of the Slovak Republic, 2016).

The CETA agreement will bring benefits to people across Slovakia. Based on the CETA Agreement, there will be following changes in the conditions for the SR (European Commission, 2017):

1. Duty for Slovak exporters and importers will be eliminated - this liberalization of trade will cancel 99% of all tariff items. In addition to considerable savings on tariffs, the CETA agreement will allow Slovak businesses to dispose of the cost of double testing through the recognition of conformity assessment certificates in the following areas: machines, electrical appliances and electronic equipment. These areas also benefit from the provisions of the CETA Agreement on Public Procurement and the Movement of Experts.

2. CETA will open Canadian service market for Slovak companies - the value of exports of Slovakian services to Canada is 21 million EUR.

3. It will allow Slovak companies to bid more for public contracts in Canada - Slovak companies will be able to bid for supply of goods and services on offer at all government levels in Canada (federal, provincial and municipal).

4. It will protect Slovak research and creativity - CETA agreement will guarantee similar level of protection in Canada as in Europe for Slovak innovations, copyrights and trademarks.

5. It will make it easier for Slovak professionals to work in Canada - The CETA agreement contains provisions that make it easier for European professionals to work in Canada (and vice versa) and recognition of their qualifications.

6. It will investment between Slovakia and Canada - the CETA agreement will support direct foreign investment (25 million EUR) for Canada in Slovakia, which is an important source of growth and job creation for Slovakia.

7. It will help Slovak small businesses to increase the volume of exports to Canada - Thanks to that small businesses can (European Commission, 2017):

- more easily compete with larger businesses,
- in the case of cars and caravans (10% duty rate) after five or seven years,
- in the case of lorries (10% or 22% duty rate) after three years.

2.1. The Impact of the CETA Agreement on the Automotive Industry

Motor vehicles are the only industrial goods to which the CETA lays down a transitional period for the abolition of tariffs. The tariffs in the EU must be degraded gradually (GAC, 2016):

- in the case of buses (10% or 16% duty rate) after five years,
- in the case of cars and caravans (10% duty rate) after five or seven years,
- in the case of lorries (10% or 22% duty rate) after three years.

In addition, the CETA Agreement contains detailed rules of origin that determine the share of value added in Canada or the EU as a whole. These rules are particularly relevant for goods containing components produced in third countries. According to the list of rules of origin (forming part of the CETA Agreement) at least 50% of the value of cars must be of Canadian or EU origin. The CETA Agreement will increase to 55% seven years after entering into force (European Commission, 2016).

In this respect, it should be emphasized that making home content is easier for car manufacturers in the EU Member States because components from all EU Member States are counted as part of domestic added value. In Canada, there are mainly assembly branches of American automotive manufacturers (General Motors, Ford, Chrysler) and Japanese automotive manufacturers (Toyota, Honda) that import much of the components from the USA or Mexico and can not be considered a Canadian component. For this reason, the CETA agreement grants a quota of 100 000 cars exported from Canada, where the domestic content may be lower, 30% or 20% of net costs (European Commission, 2016).

Canada exports only a relatively small number of cars to the EU. In 2015 Canadian imports had a value of only 318 million EUR. While European car exporters have registered exports to Canada of 4 421 million EUR this year. European car exporters reached 17.40% growth in exports in year 2016 in Canada. While the export from Canada to EU dropped by 2.40%. Car exports to Canada accounted for 12.60% of total EU exports in 2015, while Canadian car exports accounted for 1% of total Canadian exports to the EU (European Commission, 2016). Canadian UNIFOR (the largest Canadian trade union in the private sector operating in all major sectors of the Canadian economy) has no doubt that the new quota will lead to a substantial increase in Canadian car exports. However, the car brands produced in Canada are relatively unknown in the EU and their market share is negligible. In addition, car manufacturers operating in Canada have little interest in increasing exports to the EU. Quotas are therefore rather symbolic (Stanford, 2014).

However, we can not rule out the fact that Canadian car exports to the EU will increase in the future. The CETA agreement provides both parties with the so-called "cumulation" that allows the use of components from countries with which Canada and the EU have signed free trade agreements with similar regulations. Canada, as a member of the North American Free Trade Area (NAFTA), has a free trade agreement with the US. If the EU-US Transatlantic Trade and Investment Cooperation (TTIP) enters into force, only 100,000 cars will be exempted from the Canadian export quota, resulting from the rules of origin set out in the CETA Agreement.

The conclusions of the case study, which the European Commission assigned to Colin Kirkpatrick and his team, include the prediction of increased exports of the European automotive industry due to reduced tariff barriers in the long term by 0.08% to 0.17% and an increase in employment in the automotive industry by 0.03% to 0.09% (Kirkpatrick, 2011).

In terms of trade balance, Slovakia has a strong position in the automotive industry. The share of the automotive industry in industrial production in Slovakia was 44% in 2015. Since 2010, automotive production has grown by up to 95% (see Graph 2). The automotive export of Slovakia accounted for 40.2% of total exports in 2015. This year Slovakia produced 190 cars per 1,000 inhabitants, and the automotive industry employed about 125,000 employees, representing 6.07% of total employment in Slovakia (Holeček, 2016). The automotive industry in Slovakia also generates indirect effects on other sectors (mainly metal, rubber and plastic, but also energy, etc.).

GRAPH 2: Automotive Industry in Slovakia in 2016



Source: processing based on data of SLOVSTAT

It seems that, as far as the automotive industry is concerned, European producers will benefit from liberalization much more than their Canadian counterparts. However, it is debatable whether this will have a major impact on exports, GDP and employment in Slovakia. Especially due to the very low importance of the Canadian market for the Slovak automotive industry.

3. Conclusion

The CETA agreement is more important for Canada than for the EU because it opens its access to a larger market, as Canada has 36 million inhabitants and the EU has 500 million inhabitants, which is 14 times more. In the case of the EU, it is rather a symbolic victory, which confirms that the EU is able to negotiate important foreign agreements that will also help European entrepreneurs.

The main positive point of the CETA agreement is that it will open up more free trade, which means that countries can more specialize in producing those goods in the production of which they have a comparative advantage and can export them in larger numbers to countries where they do not. The EU is better in the export of cars and machinery products. On the other hand, Canada exports more metals, copper and other ores and food. The little promoted but significant benefit of the CETA is that it goes beyond the usual bargaining arrangements within the WTO.

The CETA agreement will entail the transfer of jobs. For example, in the 1990s, when Volkswagen started to operate in Slovakia, its production in Spain was weakened and job losses, on the other hand new jobs have been created in Slovakia. In areas where Canadians are better, there will be job losses in EU countries and vice versa.

The CETA agreement will affect Slovakia only indirectly. Canada is by no means one of Slovakia's main trading partners, so the Slovak economy does not directly feel the benefits of the trade agreement with Canada. However, on the other hand, the large multinational companies, which form the skeleton of the Slovak economy, will benefit from this agreement, which will also be reflected in the Slovak economy. When the EU entered into a similar agreement with South Korea, after a few years there was an increase in exports of goods by 55% and services by 40%. This means that such large agreements have a real positive impact on the development of foreign trade, and in the end, they may eventually increase by a few percent of foreign trade between Slovakia and Canada.

Literature:

Baláž, T. et al. (2010). *International Business*. Bratislava: Sprint vfra.

Beddoes, Z. M. (2016). Liberty Moves North. In *The Economist*, 421(9013), (pp. 9-26). London, United Kingdom.

GAC, (2016). *Consolidated CETA Text: EU's Negative List Tariff Schedule*. Ottawa, Kanada: Global Affairs Canada. Retrieved July 20, 2017, from http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/ceta-aecg/text-texte/03_02.aspx?lang=eng.

European Commission, (2016). *European Union: Trade in Goods with Canada*. Brusel, Belgie. Retrieved July 22, 2017, from http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113363.pdf.

European Commission, (2017). *The Comprehensive Economic and Trade Agreement between Canada, of the one part, and the European Union and its Member States, of the other part*. Strasbourg, France. Retrieved July 22, 2017, from <http://eur-lex.europa.eu/legal-content/SK/TXT/DOC/?uri=CELEX:52016PC0470&from=EN>.

Holeček, J. (2016). *Automotive Industry in Slovakia*. Bratislava, Slovakia: Union of Automotive Industry of the Slovak Republic. Retrieved July 29, 2017, from <http://slovakia.speedchain.eu/files/uploaded/UserFiles/2016%20SK/prezentace/zap.pdf>.

Kašťáková, E. (2015). Revealed Comparative Advantages of Slovakia in Penetrating Foreign Markets. In *Studia commercialia Bratislavensia*, 31, no. 3 (pp. 384-392). Bratislava, Slovakia.

Kirkpatrick, C. et al. (2011). *Trade Sustainability Impact Assessment (SIA) on the Comprehensive Economic and Trade Agreement (CETA) between the EU and Canada: Final Report*. Munich Personal RePEc Archive Paper. Retrieved July 15, 2017, from <http://mpa.ub.uni-muenchen.de/28812/>.

Ministry of Foreign and European Affairs of the Slovak Republic, (2016). *Economic Information about the Territory*. Bratislava, Slovakia. Retrieved July 15, 2017, from <https://www.mzv.sk/documents/10182/620840/Kanada+-+ekonomick%C3%A9+inform%C3%A1cie+o+terit%C3%B3riu+2017>.

SLOVSTAT, (2015). *Imports and exports indicators*. Bratislava, Slovakia. Retrieved July 29, 2017, from <http://www.statistics.sk/pls/elisw/MetaInfo.explorer?obj=78&cmd=go&s=1005&sso=5&so=29>.

Stanford, J. (2014). *CETA and Canada's Auto Industry: Making a Bad Situation Worse*. Canadian Centre for Policy Alternatives. Retrieved July 15, 2017, from https://www.policyalternatives.ca/sites/default/files/uploads/publications/NationalOffice/2014/05/CETA_and_Canadas_Auto_Industry.pdf.

STATCAN, (2016). *Canada: Economic and Financial Data*. Retrieved July 14, 2017, from <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/dsbbcan-eng.htm>.

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FRANCHISING – MODERN FORM OF BUSINESS FOR SMALL AND MEDIUM SIZED ENTERPRISES IN 21ST CENTURY

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Abstract: *Franchising is a specific form of business, which began with development in the 50th of last century, whereby the noticeable dynamics gained at the end of last two decades of 20th century. Its specific substance wins by offering of attractive possibilities for small and medium sized enterprises, in particular by effectivity, lifetime stability in first five years of business activities and its positive vision for survival in the period of crisis and turbulent time. The successfulness of entrepreneurship by franchising form is one of the safety forms of entrepreneurial activity. It offers anyway the rational format with clearly divided tasks, which is the base of dynamical and effective system. Franchising is model for small and medium sized enterprises, which works well if both sides become integrated with it.*

Keywords: *Business environment, entrepreneurship, business, competitiveness of company.*

JEL classification: L26, M31

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1. Introduction

The market is, more and more saturated, the conditions for business are made harder, the market niches are found more difficult, and so franchising offers for enterprise beginners, but not only them, the ideal possibility how to begin the business activities. Besides, the entering into new markets is more and more complicated and the entrepreneurs use always more sophisticated ways. Franchising we may consider as one of main development powers of business, even of development of national and world economy. It represents the modern form of cooperation.

2. Chapter

Franchising belongs to vertical marketing systems. The conventional marketing channel is created by independent producer, wholesaler and retailer. Every of them is an independent company striving

for maximization of own profit, even, if such effort runs to lower profit of the system, as unit. Nobody of the members of the marketing channel has a complete and crucial control over the other members. The vertical marketing system are splitted to three types: the corporate one, administrative one and contractual one Kotler – Keller (2013). Franchising, as contractual marketing vertical system is used nearly all sectors of economics.

The variety of franchising concepts depends on content, purpose and the concrete realization in the practice. In this sense the members are active in three basic sectors, as production franchising (product), distribution franchising and franchising of services. In the production sector the entrepreneurs prefer the allocation of their factories into third countries, on account of cheaper manpower. The segments of services and commerce prefer more sophisticated ways how to rich new markets, one of them is franchising.

We tend to delineating of franchising term, as follow: Franchising is a vertical marketing system, verified by franchisor, who offers it to legally and economically independent franchisee, based on franchising contract for a fee, incl. know-how, licence, schooling (input and continuous) and trade mark. The common synergy of activity of both partners is by application the workload method, which is based on the ability to calculate the total amount of work necessary to serve the entire market Winer – Dhar (2011). The number of sail points depends on evaluating the chosen region or area. They create the basic geographic unit, which insists on estimated market potential in each basic geographic unit. The units should be combined so as to make the territories equal in the market potential. The number of such territories should be based on calculations of the appropriate purchase power. Every such unit has it's own exclusivity.

3. Chapter

In European economy space are active nearly to 20 million of micro–, small– and medium sized enterprises (SME's). They are the main source of job opportunities and are the call for economic competition. The micro companies and SME's are the motive force of European economy. They contribute to working places creation and to economy development and insure the social stability. In 2013 they represented more than 23 million of SME's and in EU 88,8 million of working places. Nine of ten enterprises were the SME's and created two of three working places. SME's encouraged the business mind and innovations in whole EU, therefor they have a cardinal importance from point of support of competitiveness and employment. EU has the aim to increase the competitiveness of European economy and to support the working places creation and the economy growth by creation of business beneficial environment, especially for SME's.

- Represent to 99 % of companies,
- Offers 67 % of working places,
- Create 85 % of new working positons.

The European Commission so fixed these priorities for internal market, entrepreneurship and small and medium sized business EC (2017):

- Ensure an open internal market for goods and services in the EU;
- Improve the range, quality, and competitiveness of products and services on the internal market;
- Strengthen the industrial base in Europe;
- Provide sector-specific and business-friendly policies;
- Promote industrial innovation to generate new sources of growth;
- Ensure a modernised system for public procurement, which provides better access to public contracts on an EU-wide basis;
- Encourage the growth of SMEs and promote an entrepreneurial culture;
- Support the internationalisation of EU businesses;
- Facilitate access to finance for SMEs;
- Support the free movement of professionals in EU;
- Support the development of global satellite-based navigation infrastructure and services (Galileo);
- Promote the use of EU earth observation-based services (Copernicus).

To these attributes fully answers franchising, which is a dynamic and effective form of business increasing. It's the engine of self-employment, or employment of family members. The survive probability of the company in this business format is high and contributes to sustainability and in the time of crisis to employment increasing, as well (after five years of existence live through only 12 % of companies, in franchising more than 80 %).

As observes IFA (2015) in the report published in Washington on April, 10th, 2015 „Franchise employment growth continues to outpace economy – wide hiring, the franchising business will increase and create new working place in the future faster than in 2015. IFA underlines the fact, that franchising is very attractive opportunity for the beginning entrepreneurs:

- In 2015 the number of franchising companies increased to 781 931, the growth 1,6 % comparing 2014,
- The franchising systems in 2015 offered 8 820 000 working places, the growth 2,9 %,
- estimated growth for period (2017 – 2020) is 4,2 %.

European Franchise Federation engages with the franchising position in current period. It's assumed, that in this century will be franchising the vector of growth of economic activities EFF (2011):

1. Franchising in Europe has proven to promote the creation of enterprises and small-business ownership and, as a consequence, of employment and of turnover.
2. Franchising with its business-format rationale, its contractually-specified roles, responsibilities of franchisor and franchisee respectively, the transfer of know-how from franchisor to franchisee, and the built-in two-way communication, is a dynamic and efficient system for enterprise growth.

3. It is also an entry vehicle to self-employment for many segments of the work force, including people who want to re-orientate their working lives and who do not necessarily have prior entrepreneurial experience.
4. A proper franchise system ensures the continuing provision of commercial and technical assistance throughout the term of the contract and thus truly increases the survivability rate of start-ups as well as their sustainable growth, particularly in times of crisis as the circumstances of the latest crisis has shown.
5. Franchising is a mode of business development both at local/domestic level where it generates enterprise creation, employment and wealth as well as at international level. At this level, it is a natural vector for the export of business and for cross-border trade, as well as a venue for incoming foreign investment.
6. Franchising contributes to the transformation, modernisation and professionalization of traditional trades and services as well as the formatting of new trades and services. It also professionalises and renders transparent significant portions of the informal retail and service sectors, both in terms of employment and tax benefits.
7. Franchising contributes to the development of a middle-level platform of independent enterprises between the large incorporated distribution groups and the small stand-alone entrepreneur in the retail and service sectors. It thus increases competition on the market.
8. Franchising, through the in-house training programs for franchisees, and often of their staff, promotes the learning of entrepreneurship as witnessed by the many examples of organic growth stemming from franchisee staff members eventually becoming franchisees themselves.
9. Franchising promotes best practice and healthy competition between franchise networks (inter-brand competition).
10. A franchise contract contains vertical restrictions to protect the franchise know-how, identity and brand image on which everyone in the network depends.

Franchising has ability to achieve true economic empowerment through small business creation. Franchising, when implemented correctly, is a powerful tool to grow a business. Resuming all materials and sources we offer our vision to franchising development in 21st century – as a modern form of business, especially for SME's.

We expect next trends of franchising development in this century:

- Casual fast restaurants will be growing. Sector of grocery, health, sport, beauty care, as well;
- Mass customisation is becoming more important;
- The demand of services (on-demand, too) will play an important role;
- New forms of marketing will be implemented;
- Online shopping, as modern form in commerce sector, will be gaining ground quickly;

- Consumers want experiences not products, notably by importance of millennials;
- Consumers will be looking for variety and added value;
- Franchising and similar cooperation forms will dominate in commerce sector;
- Franchising will be most dynamic form of development in commerce sector;
- The power is in unity; the unity is franchising;
- In 21. century will be successful only those, who will establish the network or those, who will be a part of the net.

4. Conclusion

At the conclusion we may observe, that franchising is a very modern form of business, which is passing in recent years the phase of renaissance. It's a relatively secure form of entrepreneurial activities. The core of compactness, integration, seriousness of the system is an assumption of survival and achieving success. We anticipate, that in this century the franchising business will create of the storey post of doing business, will generate new working places and will contribute to stabilization of SME in commerce sector, industry, tourism and services. Franchising is able to adopt the market requirements and belongs to those, who responses the consumer claims. Its GDP share will permanently increase. One of the franchising enterprisers ascertained that in 20 years the franchising entrepreneurship share will arrive 50 %. This affirmation we consider as to brave and optimistic, but nevertheless it brings a realistic view on franchising, as characteristic model of business in 21st century.

Literature:

Eff. (2011). *Franchising – a vector for economic growth in Europe*. Brussel 2011.

European Commision. (2017). *The priorities of DG Internal Market, Industry, Entrepreneurship and SMEs*. Brussel, 2017.

IFA. (2015). „*Franchise employment growth continues to outpace economy – wide hiring*“. Washington: IFA, Educational Foundation. 2015.

Kotler P., Keller, K. L. (2013). *Marketing management*. Praha: Grada Publishing 14th edition, 2013.

Winer, R. S., Dhar, R. (2011). *Marketing Management*. Pearson Educaion, Columbus, 2001.

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SYSTEMATIC EDUCATION OF STATE EMPLOYEES AS NECESSARY CONDITION FOR THE PROVISION OF QUALITY SERVICE

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Abstract: Among the priorities of the Government of the Czech Republic is the provision of services to its citizens, which are provided by state organizations. The current trend demands for employees of these organizations to provide their services in a good and professional manner. Top management of these organizations realizes that they are their employees who provide these services in the exercise of their profession. It is a prerequisite to have employees in their ranks who can fully use their knowledge and skills in their jobs. This knowledge and skills need to be constantly developed and improved. One of the tools to achieve this is to offer its employees various forms of further education in the organization. State organizations should have established forms of systematic education for their employees. The paper presents the results of the survey on the issue of the evaluation of state employees, which was implemented at the beginning of 2017. In this research, data from 1078 respondents employed in state organizations across the whole country were processed.

Keywords: State organizations, employees, systematic education, research.

JEL classification: M 12, M 19

Grant affiliation: Development Program (Framework) of the Police Academy of the Czech Republic in Prague as a research organization for the years 2017-2023.

1. Introduction

Requirements for the knowledge and skills of a person in modern society are constantly changing, and in order for man to function as a workforce and to be employable, one needs to deepen and expand its knowledge and skills. Education and the formation of work skills become a lifelong process in modern society. The basic rule of business and the success of any organization is flexibility and readiness for change. This statement also applies to all state organizations (ministries, authorities, security corps, etc.) However, the flexibility of the organization itself is made by flexible people who are not only ready for change but accept and support the change. It is now becoming the most important task in the field of human resources management, which should have a natural interest in having workers who are able to participate as much as possible in the organization's tasks. To work

best for the best candidates, to manage their optimal performance appropriately, to reward them adequately, and to try to take care of their education and career development as much as possible (Koubek, 2006) The most successful organizations are starting today to use such tools and resources, using kt (Mládek, 2005), who can be professionally involved at all levels of management in the organization (top, middle and lowest management). The very process of organizational knowledge creation is conditioned by many factors (Kokavcová, 2008), among which the most important are:

- the willingness of individuals to learn
- willingness to share information and knowledge with other members of the organization
- the organization's ability to create a knowledge-sharing environment
- the organization's ability to create a learning environment

That is why we wanted to have feedback as it is in the concrete practice of state organizations. To obtain the relevant answer, we used an evaluation of the data obtained from our own research.

2. Research

2.1. Research problem and goal

From the conclusions of already implemented research in previous years, certain reserves were found in the training systems of state employees. Despite good awareness of the needs of education, organizations do not pay enough attention to this problem. The aim of the research was to find out how employees of state organizations perceive the issue of education at their workplaces.

Research questions

The main research questions emerged from the research objective:

- How is the issue of training of civil servants on the basis of gender perceived?
- How is the issue of training of state employees dependent on the length of practice?
- How is the issue of training of civil servants pertaining to the job position perceived?
- How is the issue of education of state employees living in the city and the village perceived?

Research prerequisites

- We do not expect statistically significant differences in the perception of the issue of education of civil servants based on gender.
- There are two important factors in the perception of the issue of training civil servants with less than 3 years of experience and over 3 years of practice, partly against each other. On the one hand, employees with less than 3 years' experience are graduates who do not have work experience and therefore need to increase their skills in the work environment. On the other hand, tertiary school study programs seek to innovate and adapt to practice and therefore have the knowledge of modern technologies. Older employees (3 years and older) have work skills, but they are trying to increase

their knowledge of modern technologies. Given this, statistically significant differences can not be expected among these groups.

- It is not possible to assume statistically significant differences in the perception of the issue of training of state employees in relation to the job position due to the similar nature of the work.
- There can be no statistically significant differences in the perception of the issue of education of state employees living in the city and the village due to the nature of the work.

The aim of the research was to map the attitudes of respondents in the field of further education at their workplaces to civil servants in the Czech Republic. On the basis of a qualitative analysis of professional literature, a standardized questionnaire with a fixed structure was proposed - a fixed list of questions / assertions responded to by fixed answers. The questionnaire was created in paper form (1 sheet A4 on both sides) and the form of the printed questionnaire (compared to the electronic questioning) was chosen to ensure higher returns of the questionnaires (based on practical experience).

The first part of the questionnaire contained the identifying features of the respondents (gender, age, highest education, length of service, job classification, etc.).

The second part of the questionnaire form was the survey section of the questionnaire form. The investigative part consisted of five statements:

- The organization where I work provides training and further training for staff.
- The number of training I have completed in connection with my current job is considered sufficient.
- In order to manage their job responsibilities they need further training.
- I have the opportunity to acquire and develop my skills at the workplace.
- I can choose the content (focus) of the company for my further development.

2.2. Collection, processing and control of data

Data collection took place between 19 January 2017 and 15 February 2017. During this period, 1216 questionnaires were received.

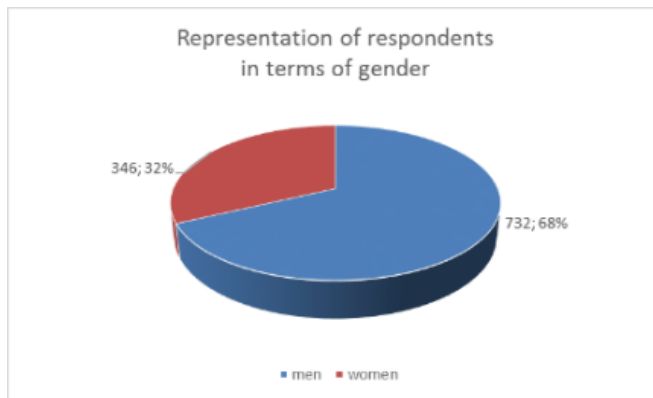
Subsequent computer processing excluded 138 questionnaires (11.3% of the total number of questionnaires received) due to incomplete performance. A total of 1078 questionnaires were used for statistical fulfillment.

All the questionnaires were subsequently recoded into MS Excel 2016 so that their statistical analysis was possible. The volume of data that was imported into the Statistica v. 10 software environment was created to subsequently analyze the data in this environment. The next step was to check the data that did not reveal any errors or discrepancies, so the number of questionnaires remained the same after the check - the sample thus contains 1078 questionnaires.

2.3. Obtained results

Representation of respondents in terms of gender is shown in Figure 1 below.

FIG. 1: Structure of respondents in terms of gender

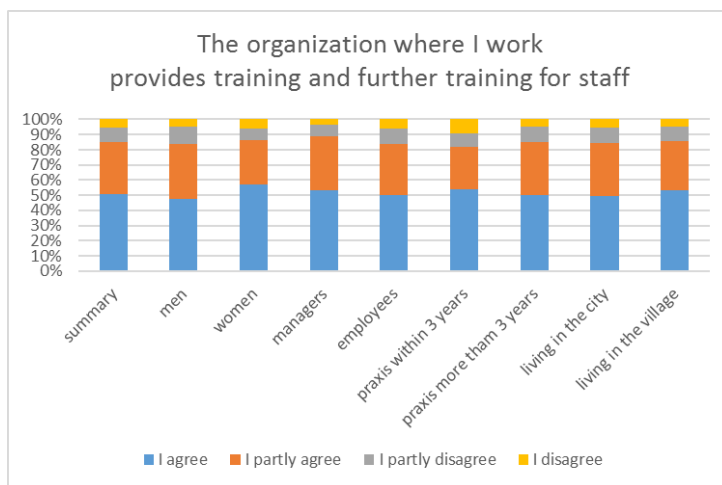


Of the 1078 respondents, males predominate, of which 732 (68%) over women, of which 346 (32%).

The results obtained are as follows:

To claim that the organization in which I am working provides training and further training of workers, the results are shown in Figure 2.

FIG. 2: The results obtained on the issue

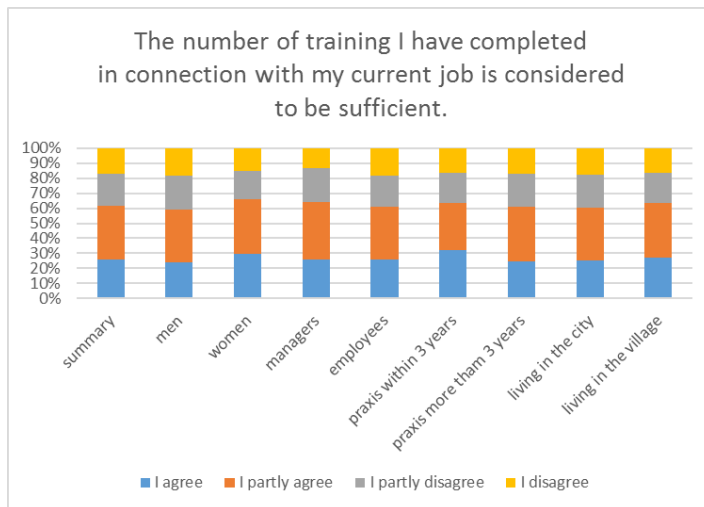


Source: own research, 1 078 respondents

Most respondents (914 respondents, about 85%) declare the possibility of further education at the workplace.

To claim that the number of training I have completed in connection with my current job is considered to be sufficient, the results are shown in Figure 3.

FIG. 3: The results obtained on the issue

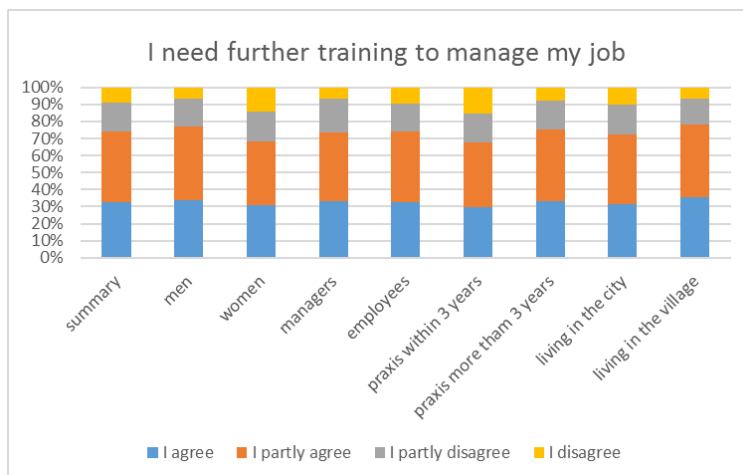


Source: own research, 1 078 respondents

Satisfaction with the total number of workplace trainings is declared by the majority (663, ie 61.5%) of the respondents.

To claim that I need further training for the good handling of my duties, the results are shown in Figure 4.

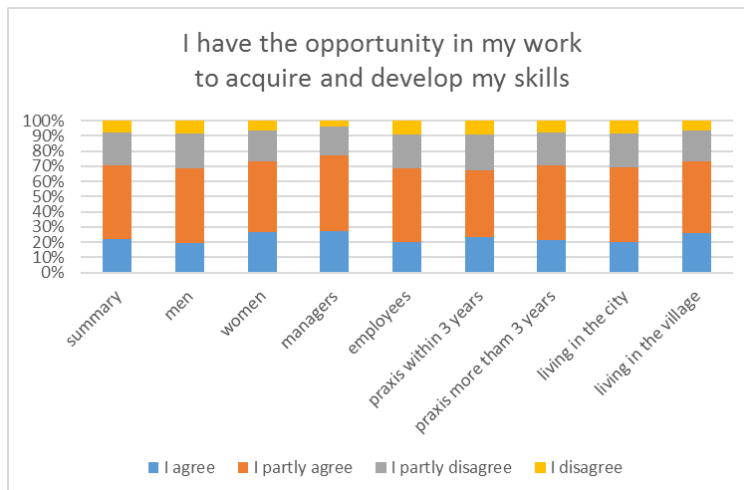
FIG. 4: The results obtained on the issue



Source: own research, 1 078 respondents

The need for further education was declared by the majority (798, ie 74%) of the respondents. To claim that I have the opportunity to acquire and develop my skills at the workplace, the results are shown in Figure 5.

FIG. 5: The results obtained on the issue

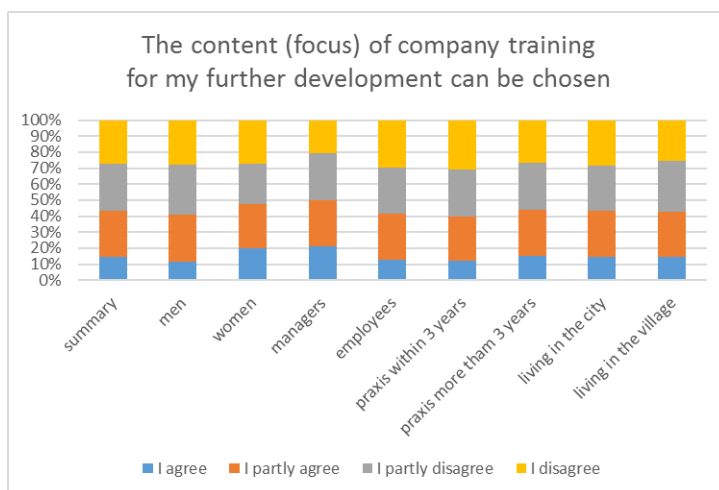


Source: own research, 1 078 respondents

Sufficient opportunity to acquire and develop their skills at their workplace was declared by most (757, ie 70%) respondents. Differences in attitudes towards the possibilities of acquiring and developing their skills at their workplace by individual groups of respondents are minimal (women declare sufficient ability to acquire and develop their skills at their workplace by about 4.2% better than men; managers declare sufficient opportunity to acquire and develop their Skills in their workplace are about 8.5% better than employees, workers with 3 years of experience and higher experience declare their ability to acquire and develop their skills at their workplace by about 3.2% better than workers with work experience up to 3 years; Villages declare sufficient opportunity to acquire and develop their skills at their workplace about 4,3% better than city workers).

To claim that the content (focus) of company training for my further development can be chosen, the results are shown in Figure 6.

FIG. 6: The results obtained on the issue

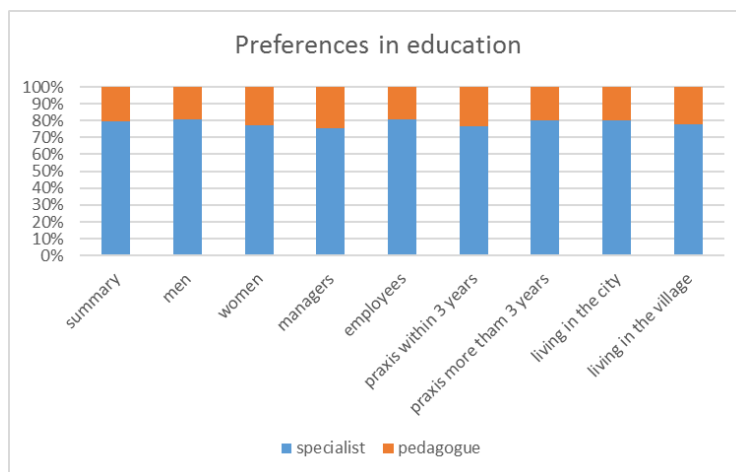


Source: own research, 1 078 respondents

The possibility of selecting (content) further education at their workplace was declared by a total of 466, ie approximately 43% of respondents. Differences in attitudes to the choice of (content) of further education at their workplace by individual groups of respondents are minimal (women declare the ability to choose (content) further education at their workplace by about 6.6% better than men, managers declare the choice (content) Further education at their workplace is about 8.6% better than employees, workers with 3 years of experience and higher practice declare the possibility of choosing (content) further education at their workplace by about 4.4% better than workers with experience under 3 years; In the village declare the possibility of choosing (content) further education at their workplace by about 1% better than the employees living in the cities).

In conclusion, we were interested in the question often debated as to whether the lecturer should be a specialist or a pedagogue. The results are shown in Fig 11.

FIG. 11: Preferences in education



Source: own research, 1078 respondents

Figure 11 shows that respondents prefer (about 80%) expertise and about 20% of pedagogical art. The differences of these preferences are minimal within each group.

3. Conclusion

In the contribution, the authors tried to point out the issue of training of workers in state organizations. Based on the analysis of the results from the conducted research it can be concluded that the state organizations are trying to provide their employees with adequate education. The organization even tries to offer employees some form of training that can facilitate their further career in organizing. Slight differences are given by the various factories that are listed in the research reports.

Precisely prepared and implemented education and the systematic development of the competencies and merits of state employees, including managers, will make them even more successful in the future. (Blašková, 2011).

Literature:

Blašková, M. (2011). *Rozvoj ľudského potenciálu*. Žilinská univerzita v Žilině, 2011, ISBN 978-80-554-0430-1.

Kokavcová, D. (2008). *Teória tvorby organizačných znalostí ako východiskový predpoklad manažmentu znalostí*. In: eFocus 1/2008, roč. VIII. ISSN 1336-1805.

Koubek, J. (2006) *Řízení lidských zdrojů, základy moderní personalistiky*. Management Press, Praha 2006, ISBN 80-7261-033-3.

Mládková, L. (2005). *Moderní přístupy k managementu*. Tacitní znalost a jak jí řídit, 1. vyd., C. H. Beck, Praha 2005, ISBN 80 7179-310-8.

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Petr Jedinák graduated from the University of Ostrava in Ostrava. Currently he is an academic at the Department of Management and Informatics, Faculty of Security Management, Police Academy of the Czech Republic in Prague. He is the author of some publications and articles focusing on the process of evaluating and developing staff in the organization and members of the security corps.

IMPORTANCE OF THE EVALUATION OF STATE EMPLOYEES WITHIN THE DEVELOPMENT OF THEIR KNOWLEDGE

PETR JEDINÁK, MAREK ČANDÍK

Police Academy of the Czech Republic in Prague, Faculty of Security Management, Department of Management and Informatics

Abstract: Nowadays, there are still greater demands on ensuring that all activities are done for services of citizens belonging to state organizations. In the Czech Republic, these services provide almost half a million civil employees. These organizations have begun to realize that, without educated and motivated employees, their activities will not be professionally qualitatively developed at the desired pace. The top management of these institutions has a range of management tools to improve their performance and one of the main ones is to mark a quality employee evaluation system. The paper presents the results of the research on the issue of the evaluation of state employees, which was implemented at the beginning of 2017. In this research, data from 1078 respondents employed in state organizations across the whole country.

Keywords: State organizations, employees, evaluation system, knowledge appraisal.

JEL classification: M 12, M 19

Grant affiliation: Development Program (Framework) of the Police Academy of the Czech Republic in Prague as a research organization for the years 2017-2023.

1. Introduction

The paper deals with the evaluation process in state organizations. Assessment is a systematic process that has individual successive phases and procedures. Approved methods are used to apply it to the organization. We can evaluate the entire organization, its individual organizational articles, and every employee of the organization. At present, great emphasis is placed on evaluating the work performance of the organization's employees. From the organizational point of view, the manager is very important. By a manager in state organizations, we understand every manager who derives his responsibilities from a supported job, based on the organizational structure of the organization. The priority activity of all managers is to fulfill the required tasks to a specific managerial position of the organization using all the resources at their disposal, mainly human resources (subordinate workers). Within the framework of the highly applied work performance management concept, managers are required to manage the performance of their subordinate employees and also to evaluate them. The evaluation is carried out according to the established methodology, which should be applied to all

employees of the organization. The output of the employee's work performance is an evaluation of the work performance, which is monitored using appropriately chosen assessment methods (Mládková, Jedinák, 2011). It is very important for this evaluation methodology to be taken by staff members themselves. The outcomes of this evaluation should be directly proportional to the remuneration of the evaluated employee and should be the main measure within his / her career in the organization (Jedinák, Mládková, Kovařík, 2011). In our own research, we tried to get feedback as employees themselves see the importance of the evaluation.

2. Research

2.1. Research problem and goal

From the conclusions of the research already carried out in the past years, certain reserves were found in the systems of evaluation of state employees. Despite the fact that most organizations have a methodology for assessing their employees, in practice, outputs do not correspond to the objectives expected from the evaluation system. Outputs from the evaluation should be among the priority documents for the employee's further development in the organization and its remuneration. The aim of the research was to find out how employees of state organizations perceive the issue of assessing their performance and how they have opportunities for further development in the organization.

Research questions

The main research question emerged from the research objective:

- How is the issue of the assessment of civil servants on the basis of gender perceived?
- How is the issue of assessment of public employees with experience under 3 years and practice over 3 years?
- How is the issue of the assessment of civil servants per job position perceived?
- How is the issue of the assessment of civil servants pertaining to their further development perceived?
- How is the assessment of state employees living in the city and the village perceived?

Research prerequisites

- We do not expect statistically significant differences in the perception of gender-based assessment of government employees.
- Two perceived factors, partly against one another, are the perception of the issue of the evaluation of state employees with the practice of up to 3 years and the practice over 3 years. On the one hand, employees with less than 3 years' experience are graduates who have no working experience and have not yet been evaluated. Older employees (3 years and older) already have some experience and already know what they expect from work performance. In view of this, statistically significant differences between the groups can be expected.

- The perception of the issue of the evaluation of state employees in relation to the job position due to the similar nature of the work can not be assumed to be statistically significant differences
- For the perception of the issue of the evaluation of the civil servants in relation to their further development due to their development, statistically significant differences can be expected in all indicators.
- It is not possible to assume statistically significant differences in the perception of the issue of evaluation of state employees living in the city and the village due to the nature of the work.

The aim of the research was to map the attitudes of respondents in the field of performance evaluation at their workplaces to civil servants in the Czech Republic. On the basis of a qualitative analysis of professional literature, a standardized questionnaire with a fixed structure was proposed - a fixed list of questions / assertions responded to by fixed answers. The questionnaire was created in paper form (1 sheet A4 on both sides) and the form of the printed questionnaire (compared to the electronic questioning) was chosen to ensure higher returns on the questionnaires (based on practical experience).

The questionnaire consisted of a total of 11 questions, which were partly open and partly closed. The questionnaire was composed in three parts.

The first part contained the identifying characteristics of the respondents (gender, age, highest educational attainment, length of practice, job classification, etc.).

The second part of the questionnaire form was the survey section of the questionnaire form. The finding section consisted of five statements:

- I believe that the results of my job evaluation were judged objectively by the manager.
- My direct supervisor continuously assesses my job performance (for example, she will appreciate a well-accomplished task).
- My direct supervisor is conducting interviews evaluating my work performance.
- My direct supervisor is conducting interviews evaluating my work performance - These interviews have met my expectations.
- In our organization there is a methodology of work performance evaluation.
- In our organization there is a methodology of work performance evaluation - this methodology can fully evaluate the work performance of the employee.

2.2. Collection, processing and control of data

Data collection took place between 19 January 2017 and 15 February 2017. During this period, 1216 questionnaires were received.

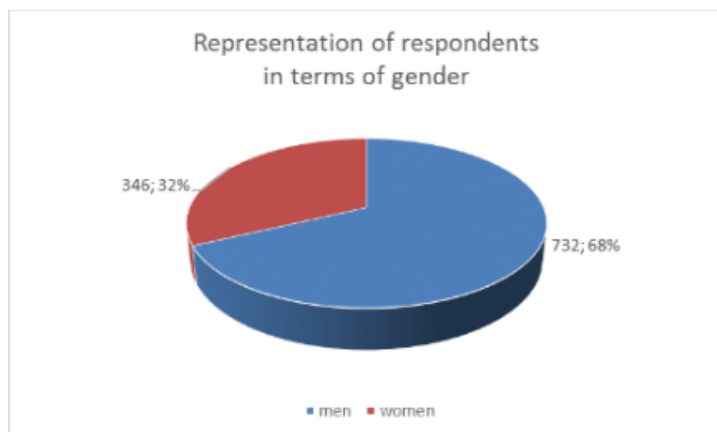
Subsequent computer processing excluded 138 questionnaires (11.3% of the total number of questionnaires received) due to incomplete performance. A total of 1078 questionnaires were used for statistical fulfillment.

All the questionnaires were subsequently recoded into MS Excel 2016 so that their statistical analysis was possible. The volume of data that was imported into the Statistica v. 10 software environment was created to subsequently analyze the data in this environment. The next step was to check the data that did not reveal any errors or discrepancies, so the number of questionnaires remained the same after the check - the sample thus contains 1078 questionnaires.

2.3. Obtained results

Representation of respondents in terms of gender is shown in Figure 1 below.

FIG. 1: Structure of respondents in terms of gender



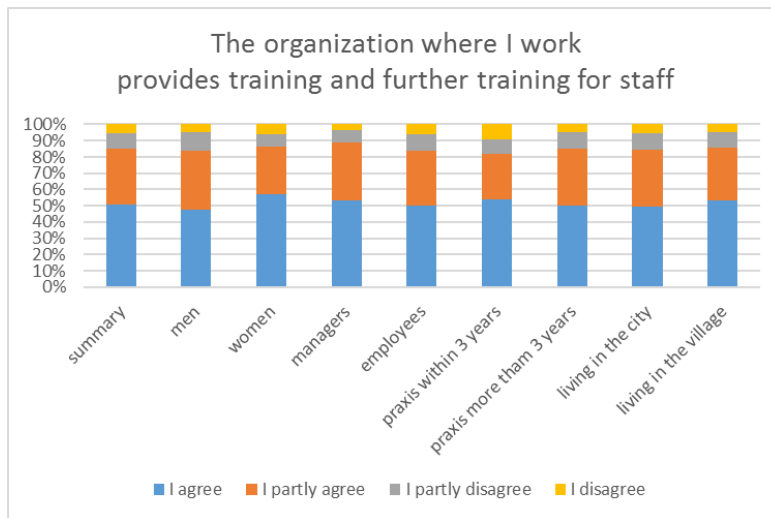
Of the 1078 respondents, males predominate, of which 732 (68%) over women, of which 346 (32%).

The youngest respondent in the survey was a 19-year-old respondent (minimum), the oldest respondent was a 56-year-old respondent (maximum). The average age of the respondents was 33.1 years, the median age of the respondents was 34 years, the most frequent group of respondents was a group of 37 years old (modus). This group of respondents had a practice of one year (minimum) to 36 years (maximum), the average length of practice of the respondents was 12.5 years, the median value of the practice was 12 years, the most frequent group of respondents was a one year old practitioner (modus).

The results obtained are as follows:

To the assertion: I believe that the results of my job evaluation were judged objectively by the manager - the results are shown in Fig. 2.

FIG. 2: Results obtained in connection with this issue

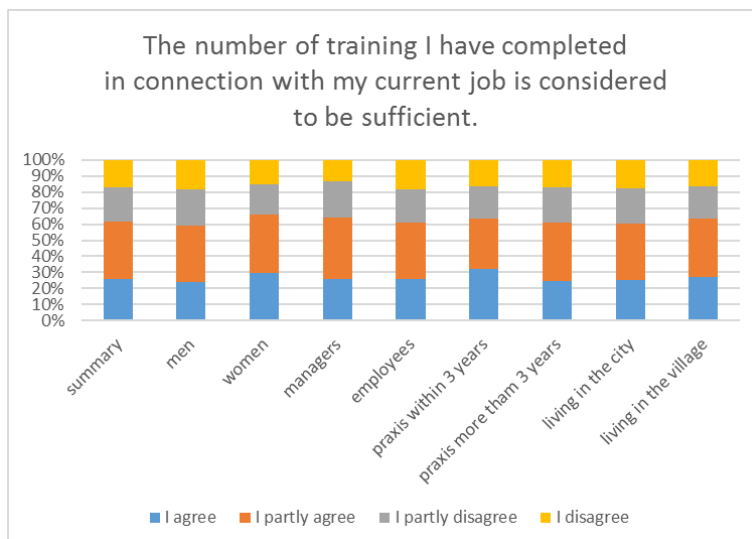


Source: own research, 1 078 respondents

Most respondents (893 respondents, about 83%) consider the evaluation of the results of their work evaluation to be objective. Differences in attitudes of individual groups of respondents are minimal.

To the assertion: My direct supervisor continuously assesses my work performance - the results are shown in Figure 3.

FIG. 3: Results obtained in connection with this issue

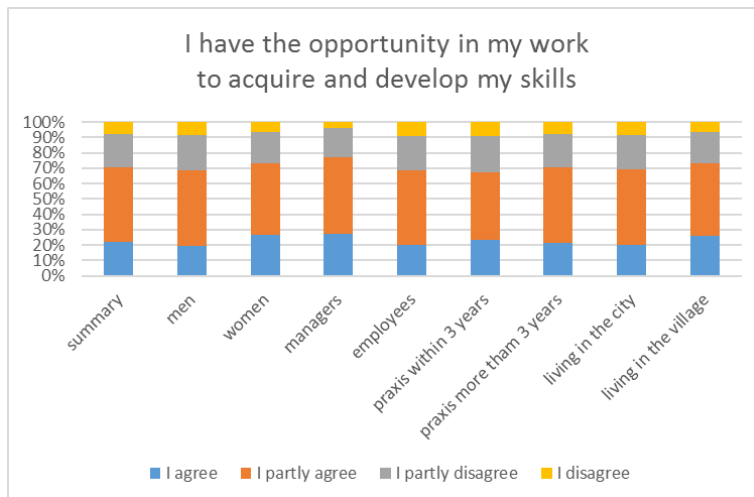


Source: own research, 1,078 respondents

Most respondents (833 respondents, about 77%) declare that their work performance is assessed continuously. Differences in attitudes of individual groups of respondents are minimal.

To the statement: My direct supervisor conducts interviews evaluating my work performance - These interviews have met my expectations - the results are shown in Figure 4.

FIG. 4: Results obtained in connection with this issue

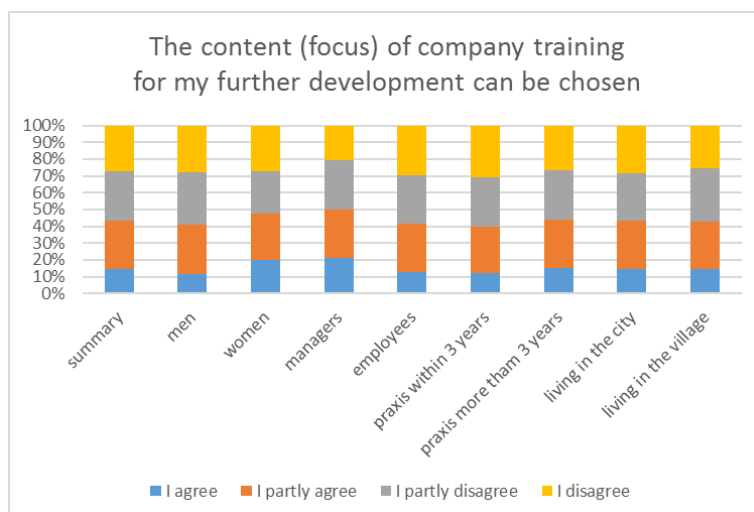


Source: own research, 1,078 respondents

Most respondents (633 respondents, about 58%) declare that interviews evaluating their work performance by a direct superior have met their expectations. Differences in attitudes of different groups of respondents vary. The biggest difference in attitudes can be seen among groups of respondents classified according to their job position - managers positively assess the satisfaction of their superiors' expectations regarding the performance of the interviewing interviews in relation to their work performance by about 10% than the non-managers.

To the assertion: In our organization there is a methodology for the evaluation of the work performance - the results are shown in Fig. 5.

FIG. 5: Results obtained in connection with this issue

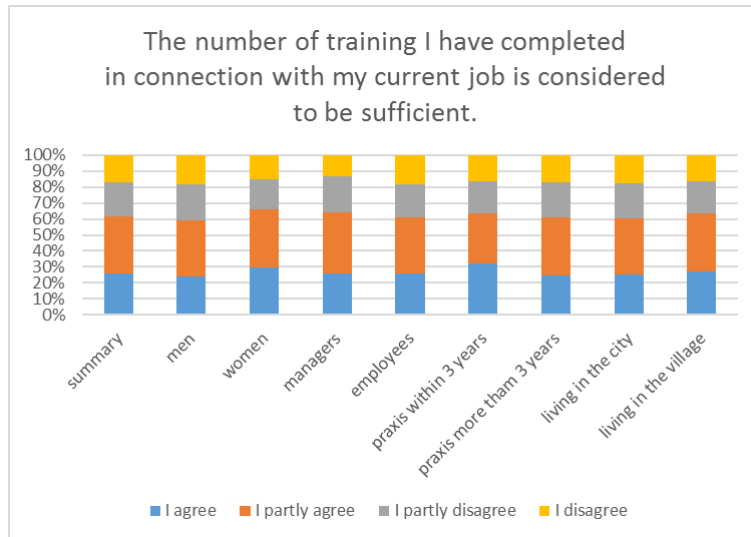


Source: own research, 1,078 respondents

Most respondents (760 respondents, about 71%) declare that there is a motorcycle in their organization where they are employed. Differences in the attitudes of individual groups of respondents are not great.

To the assertion: From the side of my supervisor, it was explained to me what work performance is required of me - the results are shown in Fig. 6.

FIG. 6: Results obtained in connection with this issue

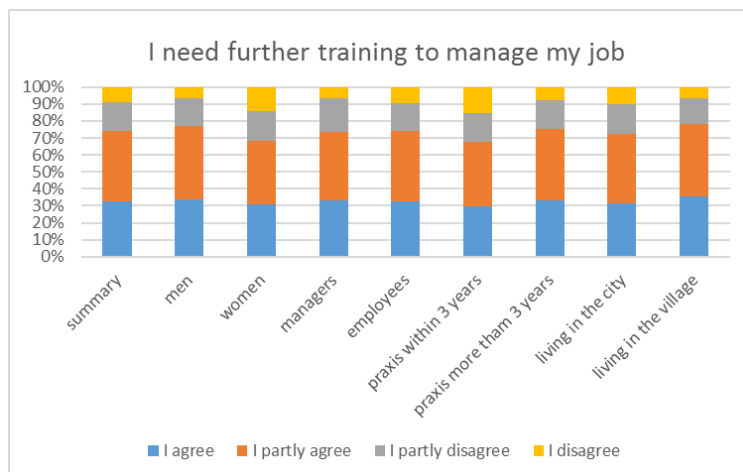


Source: own research, 1,078 respondents

871 respondents (ie about 81%) declare that their supervisor has been told what job performance they expect from their workplaces. Differences in attitudes of individual groups of respondents are small.

The assertion: My direct supervisor I have been assigned tasks for my further development within the profession in an organization - the results of FIG. 7 shows.

FIG. 7: Results obtained in connection with this issue

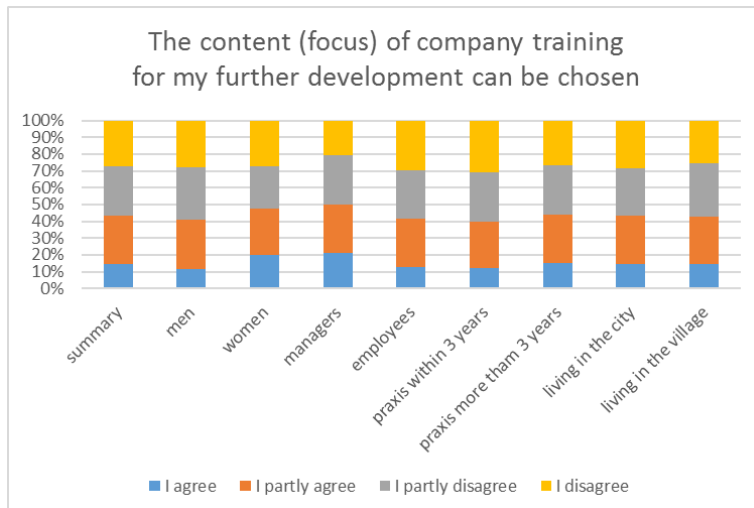


Source: own research, 1,078 respondents

691 respondents (ie approx. 64%) declared that they were made by his supervisor assigned duties towards their further development in the exercise of their profession in the workplace. Differences in attitudes of individual groups of respondents are small.

To the statement: The workplace where I am employed is a good feedback on performance - the results are shown in Figure 8.

FIG. 8: Results obtained in connection with this issue



Source: own research, 1,078 respondents

Most respondents (666 respondents, about 62%) declare that their organization has a good feedback on performance. Differences in attitudes of different groups of respondents vary. The largest difference in attitudes can be seen in the groups of respondents broken down by job classification (9.5%). Managers at their workplaces declare good feedback more often than non-managers. The difference in attitudes to assessing feedback on performance at the workplace for respondents with 3 years of experience and 3 years of experience is about 8.2% (for respondents with less than three years' experience, the positive evaluation is more frequent than for respondents with 3 years of experience and longer). For the remaining groups of respondents, the differences are minimal (up to 5%): From the point of view of gender, the difference in perception of feedback on workplace performance is about 3.5% - women more often declare positive attitudes towards workplace feedback than men; Respondents living in cities declare a positive attitude towards feedback in the workplace relative to work performance than respondents living in villages (about 3%).

3. Conclusion

At present, in organizations, there is a strong pressure on work performance from each employee. Employees are beginning to see themselves as entrepreneurs themselves. The work forms a significant part of human activity and offers many possibilities and satisfaction. Work is also a source

of social values for many people a major source of self-realization. Work performance is determined not only by motivation of employees but by many other factors. These include working conditions, skills and experience, workplace atmosphere, interpersonal relationships, senior personality, access to information, etc. The basic objectives of each organization are therefore to keep their employees highly motivated and positively tuned. Therefore, it is important to realize the importance and value of human resources, their management and subsequent evaluation. This determines and influences the extent to which the organization will be successful (Jedinák, 2016). Well-Rated Employee Appraisal is one of the tools that empowers employees with a high level of engagement and improved skills and abilities for effective behavior through feedback, coaching and personal development planning, Armstrong, 2011).

Literature:

Armstrong, M. (2011). *Řízení pracovního výkonu v podnikové praxi*. Fragment, Praha 2011. ISBN 978-80-253-1198-1.

Jedinak, P., Mládková, L., Kovařík, Z. (2011). *Uplatňování manažerských dovedností pro oblast hodnocení ve státních organizacích*. VerBuM, Zlín 2011, ISBN 978-80-87500-09-5.

Jedinák, P. (2016). *Hodnocení pracovního výkonu II*. PA ČR v Praze, 2016, ISBN 978-80-7251-459-5.

Mládková, L., Jedinák, P. a kol. (2011). *Vybrané aspekty systému řízení státních organizací*. VerBuM, Zlín 2011, ISBN 978-80-87500-10-1.

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PRODUCT ENDORSEMENT AND THE GENDER STEREOTYPE IN THE PRESS ADVERT

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Abstract: *Product endorsers, or advertising characters, are often portrayed in adverts in stereotypical roles. The purpose of the article is to determine what types of products are advertised by representatives of both genders. An interesting issue is also to identify who is the product endorser in the press ads: a well-known person, an expert, an ordinary user of different types of products. The method of cognitive-critical analysis of the literature and the content analysis have been applied. The content analysis has been used for several press titles: for women, men and the weekly magazine. Research confirms the presence of gender stereotypes in the press advertising.*

Keywords: *Product endorsement, gender stereotype, press advert.*

JEL classification: M31, M37

Grant affiliation:

1. Introduction

Product endorsers are advertising characters who affect the attitudes and behavior of the recipient. The term endorser usually refers to the character that presents a product in an advertisement and/or encourages its purchase (Wiśniewska & Liczmańska, 2011). It is a well-known person, expert or a traditional customer. A number of studies have been conducted to show that a person in the advertisement performs a persuasive function (Hovland & Weiss, 1951; Kelman, 1958; Kall 1998; Tokarz, 2006; Kozłowska, 2012; Kozłowska, 2013).

Gender stereotypes are a factor that influences significantly the functioning of social norms. This is because people often want to be subordinate to a stereotype that is attributed to a given gender. This fact is used in the development of product endorsement. It is then important to investigate whether the person in the press release (a product endorser) advertises the products according to the gender stereotype.

The purpose of this article is to determine what types of products are advertised by representatives of both genders. It is also interesting to identify who is the product endorser in the press ads: a well-known person, an expert, or a typical consumer for different types of products.

Several research hypotheses have been put forward:

1. A woman most often advertises cosmetics, cleaning products and baby products.
2. A man most often advertises financial services and cars.
3. A woman in a press release is usually a well-known person or a typical consumer.
4. A man in the press release usually appears as an expert.

2. Theoretical foundations of gender stereotypes

The stereotype concept derives from social science and it can be defined as a schema, a simplification, a formula, a template, a personal pattern, an attitude or a habit. Stereotypes are generally understood as negative, as something that expresses prejudices to others (Grochowski, 2003).

Stereotypes are defined as opinions taken over from others, resulting from the lack of knowledge of individuals. The built-in feedback facilitates the evaluation of other people and makes it easier to determine how it is treated, although it is important to remember that stereotypes are often abusive (Szacka, 2003).

There are many definitions of stereotype in the literature (Zatwarnicka-Madura, 2008). The definition of stereotypical thinking developed by Białyszewski assumes that these are mental and emotional predispositions for the absorption of phenomena and proper evaluation. They represent the mental images applied to reality; they are simulated visions, insensible to change, emanate on the emotional basis. Stereotype creates limits between the image of reality and the real situation (Białyszewski, 1983).

According to L. Brannon (2002), the images of a stereotypical woman and a stereotypical man are created on the basis of their mental qualities and behavior. There are four parts of the gender stereotype. They consist of personality traits, social roles and professions and appearance. The most important component of the gender stereotype is the appearance as it is most closely related to other components of the stereotype, hence it also has the greatest impact on the perception of a person (Cialdini, 2003).

3. The use of gender stereotypes in advertising

Persuasion in advertising aims inducing the customer to purchase a product. It is often used as a stereotype. The person in the advertisement is trying to act as a typical man or woman to identify with a customer.

Research has shown that ads that use gender stereotypes are more quickly absorbed by consumers than ads where the characters behaved unconventionally. But research also indicates that the mind of a human being is quicker to remember unusual situations (see: <http://coaching.focus.pl/zycie/stereotypy-w-reklamie-138>).

A typical stereotype is the belief that a woman should care for home, while a man makes a living for a family and develops a career.

A woman is usually a family member, a housekeeper, a mother, and a model wife. On the other hand, the stereotype of a working woman is presented. The most often a stereotypical woman is: a teacher, a midwife, a nurse, a secretary, a cleaner, a dressmaker.

Looking at appearance, femininity comes down to having a neat appearance, grace and personal charm, pleasant and delicate tone of voice, as well as the gentleness of the way to move. In contrast, stereotypical appearance of a man is attributed to such characteristics as being tall and in a good shape.

A broad report from a research project on the stereotypical perception of the advertising character in the Polish press was presented by A. Kozłowska (2012).

4. An analysis of newspaper ads in selected magazines

Several press magazines have been selected for the analysis of newspaper ads: the women's segment, the men's section, and the weekly magazine. The target of their choice was as diverse as the target groups, and consequently the variety of characters featured in the press release.

The women's magazine segment has been selected as the leader in total sales in the "Woman and Life" magazine in 2016. This monthly magazine also maintained the highest sales among guides in 2017 (data for the first half).

Almost 300 advertisements in the 12 issues of the monthly magazine "Woman and Life" were analyzed - 6 issues from 2016 (July-December) and 6 from 2017 (January-June). The products advertised in the order of the most common are presented in TAB. 1.

TAB. 1: Products advertised in the monthly magazine "Woman and Life"

No.	Products advertised	Share in %
1.	Diet supplements	37
2.	White cosmetics	18
3.	Foodstuff	12
4.	Others	11
5.	Medical products	8
6.	Medicaments	8
7.	Coloured cosmetics	2,5
8.	Hair care products	2,5
9.	Books	1

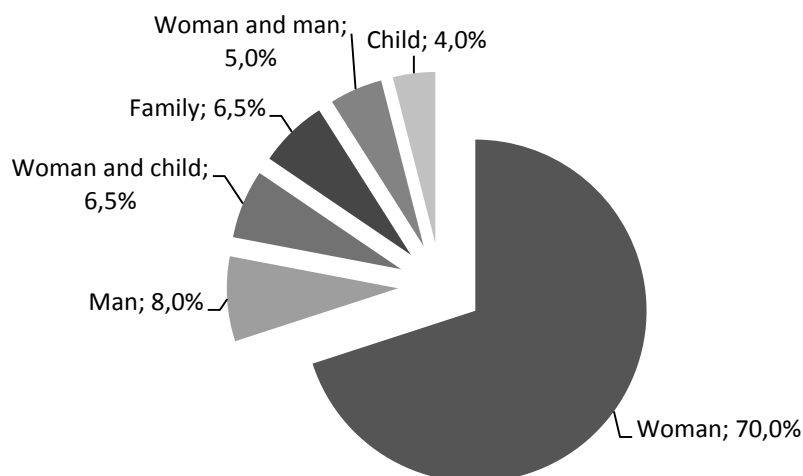
Source: own research

In the monthly magazine "Woman and Life" diet supplements are the most widely advertised products (37%). If you were to summarize the number of ads for dietary supplements, medicinal products and medical devices, then every second advertisement "Woman and Life" refers to medications. In almost every fourth advertisement one can see different types of cosmetics. Books (1%), which can be considered a stereotypical way of thinking, are definitely the least advertised products in the magazine for women.

Most ads in this magazine (53%) have no product endorser. In the rest (36%) the typical consumer was an endorser. Only 6% of all people in advertising were experts and only 4% - a well-known person. The share of experts - men and women was the same - at 50%. Celebrities (only women - actresses and presenters) have been used to advertise white cosmetics and in one case diet supplements.

In adverts a woman performed in up to 70%, just a man in only 8% of ads (FIG. 1). He performed a role of an expert.

FIG. 1: Product endorsement in the ads published in the monthly magazine "Woman and Life"



Source: own research

The "Computer World" monthly magazine devoted to computers and new technologies, and considered rather as male, 70 ads were identified during the year (12 magazine issues in the same schedule as the previous one). Less than half of them (30 ads, which accounted for 43%) contained product endorsement. A man was a part of 14 adverts, while a woman was in 10 ads. It is interesting that a woman was always a typical consumer, while a man was in 4 cases a well-known person, in 4 cases - expert and in 6 ads – a typical consumer.

In the magazine "Computer World" completely different products (TAB. 2) are advertised compared to "Woman and Life".

TAB. 2: Products advertised in the monthly magazine "Woman and Life"

No.	Products advertised	Share in %
1.	"Car World" magazine	20
2.	Modern technologies	16
3.	Books	14
4.	Telecommunication services	10
5.	"Forbes" magazine	7
6.	Antivirus protection	7
7.	Legal advice	6
8.	Others	20
Total	100	100

Source: own research

"Newsweek Poland" was selected as the weekly magazine where the advertisements featured in the 12 issues of this magazine (April-June 2017) were reviewed. Product endorsement was in 52% of the ads. It was usually a typical consumer. Occasionally a celebrity appeared, usually in a radio station advertisement. In the ads featured in Newsweek most often a man is presented (37%). The advertised products in this weekly magazine are the most varied. Mostly there are advertised books (17%), watches (11%), sportswear and shoes (10%). In addition, ads were related to bicycles, services and building materials, radio stations and many other products.

5. Conclusion

The analysis of the research conducted leads to several conclusions. Many gender stereotypes have been confirmed. The first hypothesis has been partly confirmed. Women in most advertise cosmetics, but in magazines for women. In the press for men and in the weekly opinion magazine women are presented very rarely in advertising. A woman, if she appears in an advertisement in a men's magazine, is most likely to advertise other magazines for men (e.g. Playboy, CKM) or holiday services. Cleaning and children's products were not advertised in the opinion magazine or in the men's magazine, but in the women's magazine they were advertised very rarely. However, the attention should be paid to the highest proportion of dietary supplements advertised in the women's magazines, which is not included in the research hypothesis.

Men most often appeared in advertisements in the "Newsweek Poland" weekly magazine and "Computer World" monthly one. They typically advertised technology innovations, legal and financial services, and a bi-weekly financial issue magazine - Forbes. So the hypothesis has not been confirmed in its entirety, cars were advertised occasionally.

In the magazine "Woman and Life" - a woman in advertising usually acted as a typical consumer and occasionally was a well-known person, partly confirming the third hypothesis. The man who appears in the adverts in the magazines for women is an expert in the vast majority, as confirmed by the fourth hypothesis. In the other magazines analyzed, the role of an expert appeared rarely, but the most common it was a man.

Research has shown that stereotypes are still frequently used in magazine ads. However, taking into account only three press titles one cannot generalize, hence further studies involving more magazines and a wider time range are necessary.

Literature:

Białyśzewski H. (1983). *Teoretyczne problemy sprzeczności i konfliktów społecznych*. Warszawa: PWN, pp. 62-63.

Brannon L. (2002). *Psychologia rodzaju*. Gdańsk: GWP, pp. 608.

Cialdini, R. (2003). *Wywieranie wpływu na ludzi, Teoria i praktyka*. Gdańsk: GWP, pp. 157.

Grochowski G. (2003). Stereotypy - komunikacja - literatura. In *Przestrzenie Teorii 2*. Poznań: Wydawnictwo Uniwersytetu Adama Mickiewicza, pp. 49-71.

Hovland C.I. & Weiss W. (1951). The influence of Source Credibility on Communication Effectiveness. *Public Opinion Quarterly*, 15 (1), pp. 635-650.

Kall J. (1998). *Reklama*. Warszawa: PWE, pp. 131.

Kelman H.C. (1958). Compliance, Identification and Internalization: Three Processes of Attitude Change, *Journal of Conflict Resolution*, 2, pp. 51.

Kozłowska A. (2013). Bohater reklamowy, czyli jak budować wiarygodność w reklamie. *Studia i Prace. Kwartalnik Kolegium Ekonomiczno-Społecznego*, 1, pp. 119-121.

Kozłowska A. (red.) (2012). *Bohater w reklamie telewizyjnej. Raport badawczy*. Warszawa: WSP, retrieved June 15, 2017, from http://wsp.pl/file/628_713299574.pdf.

Szacka B. (2003). *Wprowadzenie do socjologii*. Warszawa: Oficyna Wydawnicza Naukowa, pp. 26.

Tokarz M. (2006). *Argumentacja, perswazja, manipulacja*. Gdańsk: GWP, pp. 230.

Wiśniewska A. & Liczmańska K. (2011). *Wykorzystanie postaci jako instrumentu perswazji w reklamie*. Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy. Bydgoszcz: Wydawnictwo Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy, pp. 134-135.

Zatwarnicka-Madura B. (2008). Stereotypy czy rzeczywistość w działaniach marketingowych adresowanych do segmentu kobiet? In G. Sobczyk (ed.). *Współczesny marketing. Trendy. Działania*. Warszawa: PWE, pp. 287-289.

For more see: <http://coaching.focus.pl/zycie/stereotypy-w-reklamie-138>.

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HOW DO POLISH FIRMS PROTECT THEIR INNOVATIONS FROM IMITATION?

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Abstract: *The aim of this paper is to evaluate the degree of use of formal (legal) and informal (strategic) instruments for the protection of innovation by enterprises in Poland, and to identify the factors influencing the choice of particular forms of protection. In the study the results of a survey conducted among intentionally selected group of 48 enterprises (mostly small and medium-sized) were used. Time range of research covered the period 2014-2016. The results allow us to conclude that, although the surveyed companies use a wide range of legal instruments for the protection of intellectual property, however, some informal mechanisms (secrecy, lead time, complexity of design) seem to be also quite important to them.*

Keywords: *Imitation, innovation, intellectual property protection, manufacturing enterprises.*

JEL classification: D23, O31, O32

Grant affiliation:

1. Introduction

There is no doubt that innovation has become a key competitive factor for modern enterprises. However, innovation activity can be very costly and risky. In addition, an important threat to companies implementing innovation is also the danger of imitation by competitors. As a result, innovators may be deprived of benefits from their own creative efforts.

Therefore, it is necessary to take action to ensure effective protection of innovation against undesirable behaviour of competitors. To achieve this, firms should adopt appropriate protection strategies, using a wide range of various instruments, both legal (eg. patents, trademarks) as well as strategic (eg. secrecy, lead time, complexity of design).

The aim of this paper is to evaluate the degree of use of formal (legal) and informal (strategic) instruments for the protection of innovation by manufacturing enterprises in Poland. The article also attempts to identify the factors influencing the choice of particular forms of protection. In the study the results of a survey conducted among intentionally selected sample of 48 enterprises were used. Time range of research covered the period 2014-2016.

2. Literature review

According to the industrial property law, there is possibility to obtain several categories of exclusive rights (eg. patents, industrial designs and trademarks). Their common feature is the nature of the protection provided: a certain form of legal monopoly. This means that protected solution cannot be used by others for commercial purposes without permission of the exclusive right owner.

In order to obtain such exclusive right, company has to file an application to the patent office, which checks whether the subject of application fulfil certain legal criteria. For example, patented inventions have to represent the novelty in worldwide domain, to be non-obvious, and to be capable of industrial application (Greenhalgh & Rogers, 2010).

However, legal protection of innovation also has a number of drawbacks (Gallie & Legros, 2012; Bos, Broekhuizen & de Faria, 2015): high cost of obtaining and maintaining exclusive rights, excessive length of patent proceedings, difficulties in detecting and combating potential infringements, risk of revealing too much relevant information about protected solution, as well as possibility of inventing around by competitors.

In turn, informal protection instruments constitute a very heterogeneous group of practices and methods, which may differ from each other not only by their nature but also by the purpose of their use. The most common means of informal protection is secrecy. The main advantages of secrecy are relatively low cost and potentially unlimited duration of protection. However, firms using such form of protection are exposed to the continuous risk of knowledge leakage, and as a consequence - loss of competitive advantage (Bos, Broekhuizen & de Faria 2015). Maintaining secrecy may be difficult, due to the increased employee mobility in the modern economy (Delerue & Lejenue, 2010). Hence, HRM instruments seem to be an important mechanism for protecting knowledge and innovation (Olander, Hurmelinna-Laukkanen & Heilmann, 2011). In addition, companies can use legal instruments (eg. non-disclosure and non-competition agreements), in order to reinforcement the protection resulting from the usage of informal methods.

Lead time advantage consists in gaining a technological edge and innovating more quickly than competitors (Milesi, Petelski & Verre, 2013). Companies using this strategy may not only benefit from a quasi-monopoly until their innovation will be copied by imitators, but they are also able to respond by introducing another innovation.

Another way to prevent imitation may be the complexity of design. Many sophisticated products rely on integration of a wide range of components and technologies, which in turn requires highly specialized capabilities and competences. Therefore, the likelihood of copying such solutions is relatively low (Gallie & Legros, 2012). Companies can also benefit from innovation through developing complementary assets (eg. control of distribution channels), which are often crucial for successful commercialization (Milesi, Petelski & Verre, 2013).

3. Research methodology

In the article the results of a survey carried out on a purposefully selected sample of manufacturing companies from Poland were used. The time range of research covered the period 2014-2016. The survey was addressed to enterprises representing relatively high level of innovativeness. The identification of such entities was made on the basis of available rankings of innovative companies, lists of beneficiaries of programs supported by EU funds, as well as information about enterprises applying for various forms of IPRs. In total, empirical data from 48 enterprises was collected.

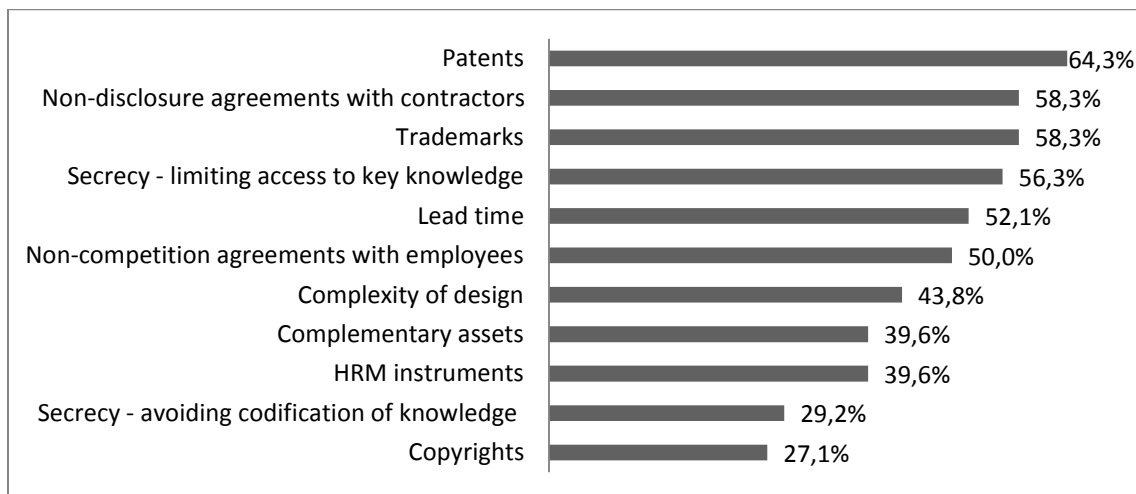
In the study a total of 11 appropriation mechanisms were taken into account: 6 legal instruments and 5 strategic ones. Respondents rated the importance of each instrument using a 5-point Likert scale. It was assumed that a particular form of protection was being used by the company if it was scored 4 points or more.

Due to the fact that one of the research objectives was to identify the factors influencing the choice of particular forms of protection, the survey results were also analyzed according to the following criteria: firm size, level of internationalization, level of innovativeness, innovation-related cooperation with external entities.

4. Results

The surveyed companies tend to prefer formal means of protection (especially patents), although some informal mechanisms (eg. secrecy, lead time) have also been used relatively often (FIG. 1). These findings are opposed to previous studies (predominantly conducted in Western countries), indicating that most companies choose rather strategic instruments to protect their innovation (Hall, Helmers, Rogers & Sena, 2014). A possible explanation for this might be the lack of sufficient knowledge of some informal methods among Polish managers. It should be also mentioned that legal forms of intellectual property protection have been strongly promoted and supported by the Polish government in recent years.

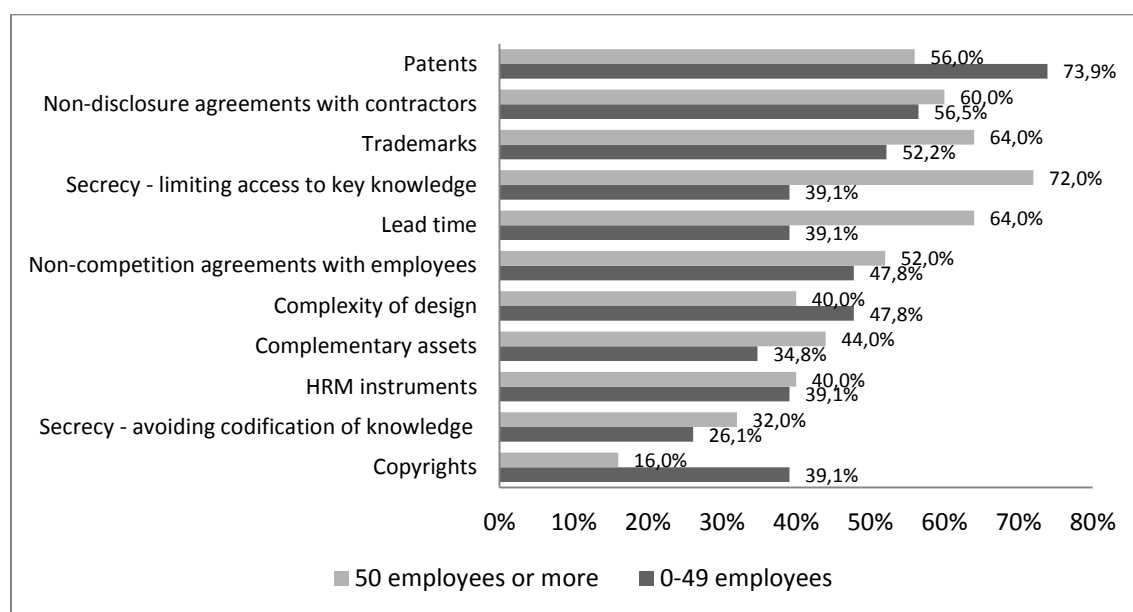
FIG. 1: Usage of formal and informal protection instruments (% of surveyed enterprises)



Source: own research

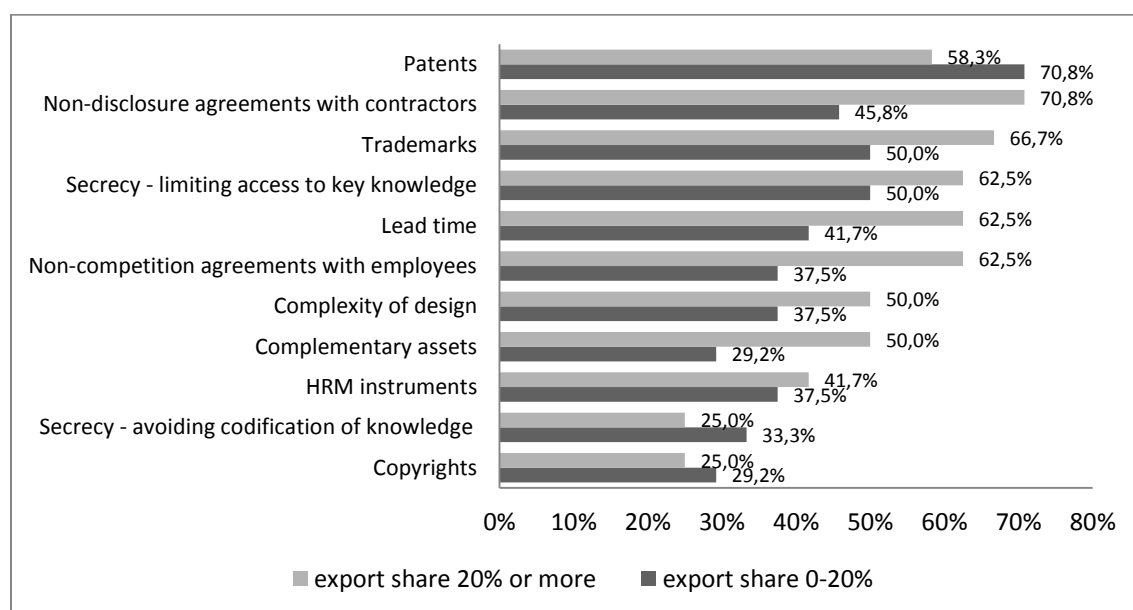
According to the firm size, some quite surprising results can also be observed (FIG. 2). Small firms were more likely to use patents and copyrights, whereas their larger counterparts seemed to prefer trademarks and such strategic means like secrecy, lead time or complementary assets. These findings were unexpected because most authors (eg. Agostini, Nosella & Soranzo, 2015) claim that small firms have no sufficient resources and expertise to use patents effectively. However, small firms might use patents for various strategic reasons (eg. to improve technological image).

FIG. 2: Usage of formal and informal protection instruments according to firm size



Source: own research

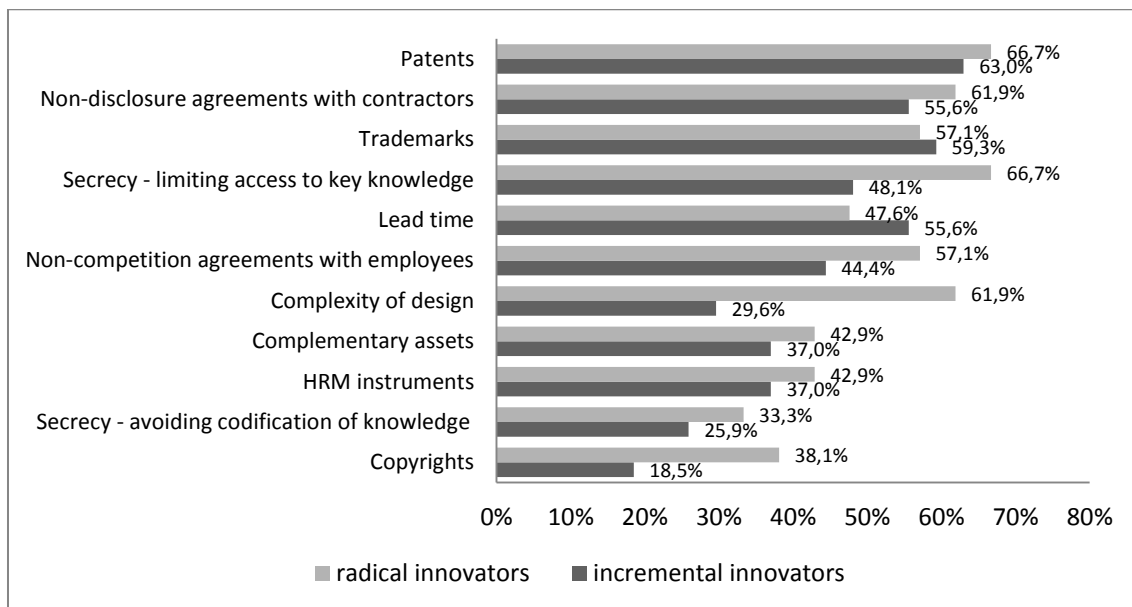
FIG. 3: Usage of formal and informal protection instruments according to level of internationalization



Source: own research

Highly internationalized companies tend to prefer legal agreements with contractors and employees, as well as trademarks but not patents (FIG. 3). Validity of patents is territorially limited (only in countries in which they were filed) and therefore patenting internationally leads to a considerable increase in costs of this form of protection (Neuhäusler, 2012). There is also no wonder that this group of enterprises were more likely to use almost all strategic instruments. Companies operating in foreign markets are faced with intense competitive pressure and therefore they need a strong protection for their innovation.

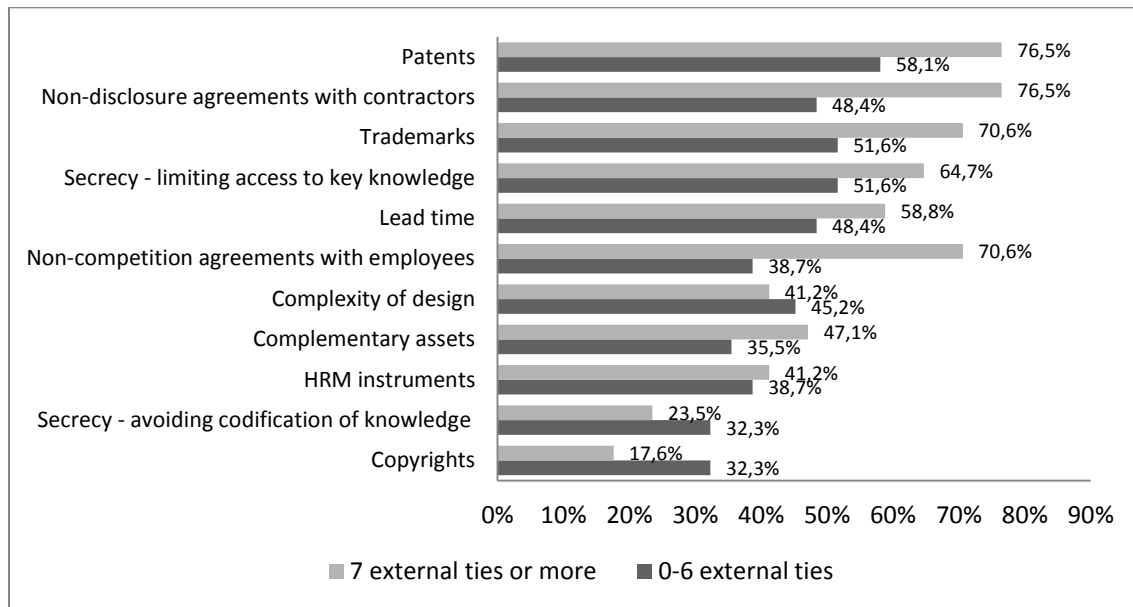
FIG. 4: Usage of formal and informal protection instruments according to level of innovativeness



Source: own research

Enterprises introducing radical innovations (new worldwide) seemed to prefer protection mechanisms based on their relationship with employees as well as informal instruments, such as complexity of design or complementary assets (FIG. 4). Patent protection, in turn, proved to be almost equally important for both groups of companies. This result seems to be a little surprising, because highly original innovations meet to a much greater extent the general patent criteria.

FIG. 5: Usage of formal and informal protection instruments according to the level of innovation-related cooperation with external entities



Source: own research

Companies maintaining numerous ties with external entities were much more likely to use formal means of protection, except copyrights (FIG. 5). These findings are in line with previous studies (eg. Zobel, Lokshin & Hagedoorn, 2017), suggesting that the usage of legal instruments increases with the degree of openness of innovation processes.

5. Conclusion

This paper attempts to identify methods using by Polish enterprises, in order to protect their innovation against imitation. In contrast to most previous works, the present study included a wide range of formal and informal instruments, which are at disposal of innovative companies.

The results of the study indicate that the surveyed companies tend to prefer formal means of protection (especially patents), however, some strategic mechanisms also seemed quite popular among the respondents. These findings are inconsistent with previous studies. It might mean that companies in Poland protect their innovations in a slightly different way, compared to the practices of enterprises in highly developed countries.

The most important limitation of the study is a relatively small sample size of the surveyed companies. It seems therefore necessary to conduct further research in this area, in order to confirm findings presented in this paper. It would also be interesting to replicate similar studies in other countries of Central and Eastern Europe.

Literature:

- Agostini, L., Nosella, A., & Soranzo, B. (2015). *The impact of formal and informal appropriability regimes on SME profitability in medium high-tech industries*. *Technology Analysis & Strategic Management*, 27(4), 405-419.
- Bos, B., Broekhuizen, T., & de Faria, P. (2015). A dynamic view on secrecy management. *Journal of Business Research*, 68(12), 2619-2627.
- Delerue, H., & Lejenue, A. (2010). *Job mobility restriction mechanisms and appropriability in organizations: The mediating role of secrecy and lead time*. *Technovation*, 30(5-6), 359-366.
- Gallie, E., & Legros, D. (2012). *French firms' strategies for protecting their intellectual property*. *Research Policy*, 41(4), 780-794.
- Greenhalgh, C., & Rogers, M. (2010). *Innovation, Intellectual Property, and Economic Growth*. Princeton & Oxford: Princeton University Press.
- Hall, B., Helmers, C., Rogers, M., & Sena, V. (2014). The choice between formal and informal intellectual property: a review. *Journal of Economic Literature*, 52(2), 375-423.
- Milesi, D., Petelski, N., & Verre, V. (2013). *Innovation and appropriation mechanism*. Evidence from Argentine microdata. *Technovation*, 33(2-3), 78-87.
- Mol, M., & Masurel, E. (2012). Differences and similarities between patents, registered designs and copyrights: empirical evidence from the Netherlands. *International Journal of Innovation Management*, 16(5).
- Neuhäusler, P. (2012). *The use of patents and informal appropriation mechanisms*. Differences between sectors and among companies. *Technovation*, 32(12), 681-693.
- Olander, H., Hurmelinna-Laukkanen, P., & Heilmann, P. (2011). Do SMEs benefit from HRM-related knowledge protection in innovation management? *International Journal of Innovation Management*, 15(3), 593-616.
- Zobel, A. K., Lokshin, B., & Hagedoorn, J. (2017). *Formal and informal appropriation mechanisms: the role of openness and innovativeness*. *Technovation*, 59, 44-54.

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EFFECTS OF NEW MECHANISMS OF THE VAT LAW

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Abstract: *The paper focuses on the problematic aspects of the new mechanisms of the value-added tax (VAT) Law, in particular the mechanism of the transfer of tax liability. VAT is an indirect tax with a broad base and a high degree of neutrality that is fully harmonized across the EU. The new rules, changes and regulation for VAT are set at EU level and require the approval of all Member States. The paper describes and analyzes new mechanisms in relation to the collection of VAT revenues into the budget of the Czech Republic. New law measures seek to reduce tax evasion in the area of VAT, the reverse charge mechanism focuses mainly on carousel fraud.*

Keywords: *Reverse charge, VAT GAP.*

JEL classification: *H 26*

Grant affiliation: *The paper is one of the outputs of a research project on family business taxation, IGA_AS_01 08/02.*

1. Introduction

VAT revenues in the Czech Republic are among the most important and also the most stable revenues of the state budget. VAT with its construction has a comprehensive impact on all households in the Czech Republic, so this tax is often used also to achieve the government's political redistribution goals. The evolution of VAT receipts is influenced by macroeconomic developments, changes in tax rates and the efficiency of tax collection.

In the EU-28 (EU) is the VAT the basic pillar of taxation. The Harmonized System, which was introduced in 1977 as a transitional system (in the Czech Republic since 1993), still works. In practice, this means that VAT is managed by 28 different EU tax administrations, with the flexibility of Member States in the choice of VAT regulated by EU legislation. The objective of EU tax policy is to achieve a simpler and more efficient VAT system to avoid carousel VAT fraud, as the EU estimates that this type of fraud has cost the member states up to €100bn per annum. In the single EU internal market without customs frontiers, VAT evolves widely. The European Commission's "Final Report VAT GAP 2016" estimates that VAT tax evasion costs EU Member States' national budgets billions of euros per year. Tax evasion thus increases the VAT GAP, casts doubt on the principle of fair taxation

and prevents fair competition between businesses. Therefore, one of the main priorities of the tax policy of the EU Commission (the Commission) is the implementation of instruments to reduce VAT evasion in the VAT Act of individual Member States. Consequences of carousel fraud can cause fluctuations in commodity prices, uncalled VAT can cause lower government investment, jeopardize macroeconomic stability and economic policy. New procedures introduced in the VAT Act are designed to reduce the risk of tax evasion and unjustified tax benefits.

2. Basic theoretical and practical points

The tax administration of individual taxes in the Czech tax system is implemented through the legal measures adopted, which, in the case of VAT, should increase the efficiency of the tax collection. In current practice, besides the reverse charge, there are also other parallel VAT law institutes such as disclosure of bank accounts, the "unreliable payer", guaranty for unpaid tax, the hedging command, the control reporting.

The general issue is regulated by the VAT Act, in line with the provisions of Council Directive 2006/112 /EC on the Common System of Value Added Tax. Reverse taxation is the procedure whereby services are not taxed by their supplier or provider (which is customary) but by their buyer or receiver. This allows the customer or the recipient to tax the service in their state instead of the complex exercise of the right to deduct in the state of the supplier or service provider. This allows the customer or the recipient to tax the service in their state instead of the complex exercise of the right to deduct in the state of the supplier or service provider. The reverse charge mechanism is a specific VAT Act, which in the Czech Republic was introduced in 2006 for gold trading and its expansion is still ongoing. The law divides the use of the reverse charge to permanent and temporary, which concerns in particular delivery of goods or provision of services.

Within the framework of reverse charge for selected supplies of goods and services, including other conditions, the supplier, but the recipient, is not obliged to pay VAT to the Czech tax authority. Contrary to the normal VAT enforcement mechanism, under reverse charge, the obligation to recognize and pay output tax is transferred to the recipient of the transaction. In general, the customer's VAT liability applies only if the beneficiary is an entrepreneur. Some taxable transactions also apply to recipients who are legal entities. The reverse-charge is applied if the total tax base of all delivered selected goods exceeds CZK 100,000. In the case of taxable transactions subject to the reverse charge, the following applies.

The supplier issues a "classical" tax document indicating that, in accordance with Section 92a of VAT Act. The VAT is a transfer of tax liability and therefore the customer of goods or services has a duty to pay VAT.

The customer calculates for this taxable amount the correct amount of VAT he/she will enter in the VAT records and then pays that amount. At the same time, this customer also has the right to deduct the amount of VAT paid.

TAB. 1: Expanding the application of the reverse charge VAT Act

Permanently use

2006	Delivery of gold	§ 92b
2011	Delivery of goods	according to Annex No. 5 to VAT Act
2012	Construction and assembly work	§ 92e
2015	The supply of goods or services provided by the government by a regulation	§ 92g
	Rapid response mechanism	
2016	Selected telecommunication services	§ 92c
	Delivery of real estate (the supplier has opted for taxation)	

Temporary use

2011	Greenhouse gas emission allowances	§ 92f/annex 6
	Gases	
2013	Rapid response mechanism (antifraud in the area of VAT)	its content is only applicable until 31 December 2018
2015	Delivery of mobile phones	§ 92f/annex 6
	Delivery of devices with integrated circuits	
	Delivery of game consoles, tablets and laptops	
	Delivery of cereals and technical crops	1 April maize and technical crops (part 1) 1 July cereals and technical crops (extension for the remainder), 1 September sugar beet
	Obligatory assessment for the application of the reverse charge procedure	§ 92h
	Request for binding assessment for application of the reverse charge	§ 92i

	procedure	
2016	Supply of gas and electricity to the trader	§ 92f/annex 6
	Provision of selected telecommunication services	§ 92f/annex 6

From the beginning of 2015, the reverse charge is distinguished as permanent and temporary. The permanent reverse charge has no time limit. Temporary use includes goods which, under Government Decree No 361/2014 Sb, are subject to reverse charge for a limited period of time. For example in 2014 Central Europe, tax fraudsters focused on sugar fraud. They declared sugar exports to another EU Member State, but they did not physically take place and the sugar did not leave the country of the seller. The supplier has reported to the financial administration the supply of sugar to another EU Member State and has applied for the VAT deduction in the VAT return. The fraudulently deducted VAT has caused sugar to be sold on the domestic market at a lower market price than the usual price. Buyers bought cheaper, but the state lost Revenue on VAT. As a result, at the beginning of September 2015, beet sugar was temporarily included in the reverse charge.

3. Discussions and conclusions

The standardly reverse charge works on the principle of taxation in the country of consumption, applies the principle of VAT deduction and excludes double taxation. In order to reduce evasions to the VAT, the Czech Republic requested the Commission to grant a temporary exemption to a pilot project to introduce a so-called general reverse charge in order to apply it to all domestic taxable transactions excess of EUR 10,000. Domestic general the reverse charge would operate under defined conditions on taxable transactions carried out between payers within the chain of business who would invoice the prices without VAT. The price inclusive of VAT would be invoiced only by the last Payer in the chain supplying the goods or service to the final consumer. The last Payer in the distribution chain would deduct all VAT from all payers for all taxable transactions. VAT would be taken at the end of the chain only once and would not be paid within the chain.

The advantage of general reverse charge would be that carousel scams have been eliminated. If a national general reverse charge was introduced in the Czech Republic and another EU Member State, it would not be possible for the recipient of cross-border VAT to pay VAT because it would not invoice any output VAT.

The disadvantage is the risk that if the last Payer in the retail chain does not pay VAT, the state budget loses VAT on the entire distribution chain. It is also a direct impact on the state budget cash flow. The cash flow of VAT should be the same as in the standard scheme, but due to another method of paying the tax, the state will lose the benefit of the periodicity of the ongoing implementation of the budget. Another problem is retail sales because, in providing basic goods and services to payers and non-payers, the reverse charge would not work in its basic form. The system would have to be modified, which would bring about the accompanying burdens and costs on the

part of the tax administrator as well as the payers. A possible solution for retail could be that goods and services would include a price including VAT, regardless of whether the buyer is a non-payer or a VAT payer. VAT payers should be able to refund the VAT paid.

The original domestic reverse charge were rejected by the Commission, but in December 2016 the Commission adopted a proposal for a temporary general reverse charge for over € 10,000, subject to the condition. The Member State asks the Commission for implementing decisions on the introduction of the general reverse charge. The condition of approval is that the VAT GAP of the applicant is at least EU median plus 5 percentage points, and carousel fraud by the state accounts for at least 25% of total VAT fraud. At the same time, the applicant must show that no conventional measures can effectively combat VAT evasion. Subsequently, the Commission will review the application and decide on the issue of the authorization.

Paradoxically, the condition for applicants for the implementation of the General RCH set by the Commission may exclude the Czech Republic from the list of applicants. According to EU statistics, the median is 10.4%, so the minimum VAT GAP of the state for a request for general reverse charge is 15.4%. The Czech VAT GAP is currently 16.14%, although according to the Commission's statistics, the VAT collection in the Czech Republic is still improving in the international comparison. In September 2017, a VAT GAP is expected to show whether VAT has improved.

The question is whether the implementation of the domestic general reverse charge will meet the expectations of the Tax Administration. Maybe new types of VAT fraud arise, who knows? Probably there will always exist taxpayers circumventing tax law, seeking an unjustified tax benefits and has profiting from VAT.

Literature:

Marková, H. (2017). *Daňové zákony*. Praha, Grada.

Information on the Activities of the Czech Republic's Financial Administration (2011-2016), retrieved from [http://www.mfcr.cz/financni sprava](http://www.mfcr.cz/financni_sprava).

Study and Reports on the VAT Gap in the EU-28 Member States (2016), retrieved from http://ec.europa.eu/taxation_customs/sites/.

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THE POSSIBILITIES OF A MODEL OF DETECTING AND INVESTIGATING CYBERCRIME

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Abstract: *The article briefly expresses the possibilities of creating a cybernetic space model of the current Internet environment as a classic means of committing cyber crime as well as detecting these forms of crime. Part of the paper deals with the basic principles of the use of artificial intelligence to identify (identify) the basic and possible virtual images of criminalistic versions, primary and even urgent acts at the crime scene through operative search activities, and possible simplified evidence of cyber crime in criminal proceedings. It also deals briefly with international cooperation and prevention of cyber security in active cyber defense and the fight against cyber crime using police experience.*

Keywords: *Cyber security, information security, cyber crime, digital footprint cyberspace.*

JEL classification: *M 12, M 19*

Grant affiliation: *Development Program (Framework) of the Police Academy of the Czech Republic in Prague as a research organization for the years 2017-2023.*

1. Introduction

Information and communication technologies (ICT) have become an integral part of our lives today. Mastering these technologies includes reading, writing and counting towards the basics of literacy. The Internet and ICT in general are used by most people every day, both in the work process and in everyday life. In schools, computer science (generally ICT) is taught from the lowest grades, even in pre-school settings. Modern technologies are literally pursuing us at every step, in most cases, make work easier. ICTs are used as part of control subsystems in large hierarchically structured cybernetic systems (KS), for example, in fully automated operations of companies and organizations, in the distribution of basic energies such as electricity or gas. This is a big vulnerability of ICT in a cybernetic environment (cybernetic space). Often, the current social system is unable to distinguish the difference between reality and virtual environments implemented by cybernetic systems and technical means using the artificial intelligence of modern cyberspace throughout the world. (Smejkal, 2013)

The most serious dangers in Information and Communication Technologies (ICT) are information and cybercrime. Just like in everyday life like that even in the cyberspace there are social subsystems represented by over-beloved and ignorant people. These so-called users are easy to deceive, in cyberspace, and specifically in the ICT world, and can be easily attacked here (very capable hechers working in ICT). Some users who do not care about Internet security risks and record such activities. Not only do they give information about themselves but also have no idea who they share with their personal or entrusted data (out of the cyberspace of businesses and organizations), they do not know who is acquainted with them and who can abuse them. They do not know and can not know all those who are interested in such data. Very pervasive passwords may also be used to secure ICT or personal data, such as a simple 1234 combination in the best case 12345. (Smejkal, 2015)

2. Creating a model for a specific cybernetic disclosure space and criminal investigations

As a rule, this modeling activity can be based on the general part of the Criminal Investigation Methodology. Methodology, as stated in his book Musil, Konrád and Suchánek (2004), refers to three types of activities, each characterized by certain content specifics and legal forms:

- to detect criminal offenses (by actively searching for signals indicating that a crime has been committed); These activities are usually carried out in a so-called pre-trial stage, ie outside the framework of criminal proceedings and governed predominantly by police law,
- to investigate criminal offenses as a procedural form of the preparatory proceedings governed by the Criminal Procedure Code,
- Criminalistic prevention of crimes, implemented mainly by non-legal means.

Each investigative methodology consists of general components that intertwine each other, and it is not possible to clearly identify where one begins and the other ends. In the following subchapters, individual components are listed and partially adapted for further modern cyber crime investigations.

3. The concept of cyberspace and the term criminological characteristics

The criminological characteristics are about the typical features of the crime (Musil, 2004), In this case in cyberspace. It means the properties that influence the process of creating tracks and at the same time the process of knowing the offense and its perpetrator. A distinctive feature may be the existence or non-existence of specific legal standards to combat cybercrime. The various forms of unlawful conduct regulated by the Criminal Code are set out in the previous chapters and are typical forms of committing cybercrime. A specific case of committing criminal activity in the ITC area is characterized by the use of such procedures and means that do not fulfill any criminal nature of the crime such as spam. Act No. 480/2004 Coll. Regulates the sending of commercial messages (spam), but in case of violation of individual provisions, there is a danger of administrative punishment, namely a fine for a legal person with a maximum of CZK 10 million and a natural person up to one million crowns. (Grivna, Polcak, 2008) Nonetheless, it is an integral part of further negotiations that

are already punishable through criminal law. In the process of detecting offenders of this type of crime, the investigator can bring to the IP address of the offender. (Kolouch, Volevecký, 2013)

One must not forget one of the main features of forensic characteristics, i.e. the point of view of cybernetics, as the area of management and communication in the living (social) and artificial (technical) systems expressing the processes of cyber crime, and that is also the person of the perpetrator and his motives. The most common perpetrators of these crimes are people moving inside the injured party. Employees become the biggest threat to companies in leaking information.

Crime must be motivated. If the motive of a computer crime is detected, an offender with a predefined circle of suspects can be found more easily. The discovery of the motif is closely related to the question - who has or can benefit from the consequences of the crime. The most common reason is based on interpersonal relationships or the possible profit of finances. Computer specialists also find people who feel overwhelmed or trying to prove their intellectual superiority. There are cover motifs to cover other criminal activities (eg tax evasion) when needed.

4. Criminal activity using ITC

It was only a matter of time when offenders of ordinary crime began to move their illegal activities into the information and communication technology environment. In this context, we can talk about various forms of fraudulent behavior that have the characteristics of property criminality, the spread of pornography with features of moral criminality or manifestations of extremism. To uncover and clarify a combination of the methodology for the given issue and the use of technical means in the field of information technology can be used.

In order to clarify cyber-fraud, we can contact web site operators such as advertising portals where we can trace the offender who has inserted the ad in the IP address. But another way is as well as the use of the Institute § 8 paragraph 2 of the Code of Criminal Procedure, which will allow us to carry out financial investigations and follow-up of the owner of the bank account where the funds were sent.

With regard to the issue of the spread of child pornography, effective penetration into a defective environment can be effectively utilized. In the Internet environment, it means visiting different blogs, chat rooms and discussion forums. Analyze and analyze acquired knowledge. If we have information on an email account, from which the propagation of pornography occurs, the provisions of Section 88a of the Criminal Procedure Code can be reused in order to obtain the contents of the e-mail in question for further elaboration.

4.1. Proof in criminal proceedings

Evidence is regulated by the Criminal Procedure Code in Title V. In the framework of evidence, the bodies involved in criminal proceedings must proceed according to the provisions of Section 89, paragraph 1, of the Criminal Procedure Code. Thus, in criminal prosecution, it is necessary to prove to the extent necessary:

a. whether an act in which an offense is perceived,

- b. whether the act was committed by the accused or by what reasons,
- c. the material circumstances affecting the assessment of the nature and seriousness of the offense,
- d. the material circumstances for assessing the offender's personal circumstances,
- e. the material circumstances allowing the determination of the consequences, the amount of damage caused by the offense and unjust enrichment,
- f. the circumstances which led to or prevented the commission of the offense.

Other witnesses and accused persons will be interviewed. Some special methods of proof may also be used, such as an investigative trial under Section 104c or a reconstruction under Section 104d of the Criminal Procedure Code. In complex cases, we must not forget about an essential circumstance, such as the acquisition of an expert and the preparation of an expert opinion.

4.2. An alarm message propagation model

On December 10, 2010, the Criminal Intelligence Group started to investigate the case of suspicion of committing the offense of spreading the alarm report pursuant to Section 357 (1) (2) of the Criminal Code. The offender was to commit a criminal offense and sent an e-mail message that same day in the morning at the reception desk of an unnamed hospital. The report contained German text with a threat of two bombs in the hospital area. It was also stated that from the delivery of an e-mail in one hour everything would explode, which should have caused damage to the hospital caused not only property damage.

An IP address was identified by the SIK group: XX.XXX.XX.XXX from which threatening email was sent. It was subsequently found that this is an IP address from the scope of UPC Česká republika a.s. Consultation with the company through UZČ has revealed that it has the required information about the user of the respective IP address and, on the basis of a court order pursuant to Section 88a of the Code of Criminal Procedure, is willing to issue this information for the purposes of criminal proceedings.

For this reason, a permit was issued to the District Permanent Prosecutor's Office (OSZ) for an order issued pursuant to Section 88a of the Code of Criminal Procedure, which would order UPC CR to issue the required data. OSZ issued this proposal without comment. Afterwards, the consent to the wiretapping was sent to the local district court, which rejected the decision to issue the order.

Due to the only possible way of identifying the likely offender via an IP address, this case was deferred at this stage by a resolution pursuant to Section 159a (5) of the Criminal Procedure Code.

5. Conclusion

Reducing cybercrime would greatly contribute to prevention. In particular, social network users should be aware that an unsecured profile can be a source of very sensitive information that is freely accessible to every Internet user worldwide. At home and in businesses, legal software should be installed on computers. Owners of today's smartphones should also be aware of the vulnerability of these devices. Downloading unknown apps may lead to financial losses, as cybercriminals are

beginning to be interested in the misuse of smart ICT and mobile phones. This is due to the lack of security, such as an antivirus program.

Literature:

Gřivna, T., Polčák, R. (2008). *Kyberkriminalita a právo*. Praha, vydání první. ISBN 978-80-903786-7-4.

Budka, I. (2010). *Organizovaná kriminalita II*. Praha: Policejní akademie ČR.

Kolouch, J., Volevecký, P. (2013). *Trestněprávní ochrana před kybernetickou kriminalitou*. Praha: Policejní akademie České republiky v Praze, 2013. ISBN 978-80-7251-402-1, s. 108-109.

Musil, J., Konrád, Z., Suchánek J. (2004). *Kriminalistika*. Praha: C.H. Beck – 2004. ISBN 80-7179-878-9, s. 456 – 459.

Musil, J., Konrád, Z., Suchánek J., Štraus J. *Teorie, metodologie a metody kriminalistické techniky*. Praha: Aleš Čeněk, s.r.o. ISBN 978-80-7380-535-7, s. 154 – 156.

Smejkal, V. (2013). Kybernetické nebezpečí a kybernetická válka. In *Sborník příspěvků z 6. Ročníku mezinárodní vědecké konference „Bezpečná Evropa 2013“*, 25. 11. 2013. Karlovy Vary: Vysoká škola Karlovy Vary, 2013, s. 142-149.

Smejkal, V. (2015). *Kybernetická kriminalita*, Plzeň: Aleš Čeněk, 2015, 636 s. ISBN 978-80-7380-501-2.

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COMPETITIVE BARRIERS, THEIR IMPORTANCE FOR COMPETITION POLICY AND THEORETICAL APPROACHES TO THEM

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Abstract: Competition policy is closely linked to the existence of competitive barriers, i.e. a situation when there are no barriers to market entry and exit. In markets with a free entry and exit, more efficient activities and entities push out the less efficient ones. A free market entry and exit, with some exceptions, supports allocative efficiency, which is ultimately reflected in the increasing wellbeing of consumers. Because competitive barriers are of big importance for an open and fair competition, and because they only began to be examined in economic theory after the Second World War, this paper will provide an overview of theoretical approaches to their development. A rather broad range of views and approaches can be found especially in anglophone and German literature, and they analyse competitive barriers from different viewpoints. At present, extensive attention is being paid to the barriers while monitoring the goals of competition policy.

Keywords: Competition, competitive barriers, competitive markets, effective competition, consumer effect.

JEL classification: LO, L11, L23

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1. Introduction

Competition policy is based on its own important goals, especially the support of market principles removing barriers to market entry and market exit and also the guarantee of level playing field for all market operators. It is important to follow the principles of competition, where all market operators must take decisions in accordance with these principles. This is supposed to lead to a development of the competition culture and to instil the competition principles into the awareness of all actors on the market. From this viewpoint, it is important to have a free and fair competition, i.e. a competition which does not create barriers to market (or industry) entry and exit for any entity.

Within the framework of different theories and approaches, the goal of this paper is to point out the importance of competitive barriers, which play a crucial role for the competition policy from both the theoretical and the practical viewpoints.

2. Basic considerations

The issue of competitive barriers is closely linked to the existing competition policy concepts, which is why we mention this connection.

In the narrower sense, the concept of competition policy can be understood as a set of goals of competition policy and the resulting mutual links between market structures, market behaviour and market outcomes, which characterise a certain recommended situation (Rajňák, 2002, p. 183).

Economic theory gave rise to two basic concepts of competition policy:

- a. the free competition concept based on the economic theories of the Freiburg School of 1930s (W. Eucken, F. Lutz, L. Miksch);
- b. the effective competition concept based on the economic theories of imperfect competition and contestable markets.

A contestable market is characterised by these conditions:

- market entry is free; there are no barriers to market entry;
- market exit is free and does not incur exceptional costs.

Thus, a contestable market is a market with conditions favourable for competition, and the focus is put on the possibilities of potential competition and the existence or non-existence of barriers to market entry (Tokárová, 2007, p. 110).

2.1. Original approaches to competitive barriers

The issues of competitive barriers only began to be examined in economic theory after the second world war. The most important thing was to determine the differences between the return on capital in some industries on one hand and the prevention of entry to other industries.

J. Bain is an important pioneer in this area. In his article entitled “Oligopoly and entry prevention” published in American Economic Review already in 1949, J. Bain defined the basic principles of his “limit price” theory, even before his main monumental work “Barriers to New Competition” (Bain, 1956). The aim of his paper was to explain why firms over a long period of time keep their prices on a level of demand where elasticity is lower than 1, i. e. they do not charge prices that would maximise their revenue. He concluded that traditional theory is not able to explain this empirical fact due to the omission from the pricing decision of an important factor, namely the threat of potential entry. Traditional theory only focused on actual entry (ex post), which leads to a long-term equilibrium of the firm and the industry (where $P = LAC$). However, according to Bain, the price does not fall to the level of LAC in the long run because there are barriers to entry, and at the same time price is not set at the level allowing for profit maximisation because of the threat of potential entry. So, in reality, the price is set on a level above the LAC (= pure competition price) and below the monopoly price (the price where $MC = MR$ and thus, profits are maximised in the short run). This behaviour can be

explained by assuming that the existing firms do not set the monopoly price but the so-called limit price, i.e. the highest price which the established firms believe they can charge without inducing entry.

2.2. Other theoretical approaches

The often mentioned and quoted model of P. Sylos-Labini is focused on the analysis of limit pricing in the oligopoly structure based on barriers to entry resulting from the production volumes (Sylos-Labini, 1968). Although it does contain some cumbersome and even overly strict assumptions, his analysis of barriers to entry resulting from economies of scale of production is in many ways more thorough than Bain's. In general, it does not matter that in some respects it is strikingly similar to the 1949 work of a less-known Englishman P. W. S. Andrews (Andrews, 1949). In principle, P. Sylos-Labini performed analysis for the case of homogeneous oligopoly, the technology of which is defined by technological discontinuity and economies of scale.

To illustrate the basics of his theoretical concept it is sufficient to see the simple definition of the oligopolistic market with one undifferentiated good and one established firm, where the demand and the conditions of cost generation are stable in a significantly long period of time. Let us further assume that all potential entrants consider the current output size of the established firm – let us call it X , i. e. an output which, from the viewpoint of marginal efficiency, must be produced now and for ever. X_L then stands for the lowest value of X and as the amount of output maximising the profit of a representative entrant it is nonpositive. The value of X_L is called the limit-output and price P_L is the limit-price. So, if we maintain the validity of Sylos' postulate, entry is not possible if and only if $X \geq X_L$ (we assume that zero profit will not entice entry to the industry or market).

Finally, it is important to stress that the level of a specific limit price is determined in Sylos-Labini's model by the following factors:

- the absolute market size for the given product;
- market demand elasticity;
- industry technology determining efficient size of an undertaking;
- price of production factors, which together with technologies determine the total average costs (TAC) of firms (von Weizsäcker, 1980, pp. 399 – 420).

In their later works, J. N. Bhagwati and B. P. Pashigian elaborated the alternative of using a mixed strategy by the established firms of oligopoly. They assumed that these firms can charge a monopoly price higher than the limit price and then lower it to the level of the limit price (Bhagwati, 1970, pp. 297 – 301; Pashigian, 1969, pp. 726 – 748).

Other authors, especially G. J. Stigler and H. Demsetz, oppose to this understanding of barriers to entry. H. Demsetz transformed Bain's understanding of the absolute advantage in costs as a barrier to entry (Demsetz, 1982, p. 47). He argued that this advantage arises from scarce factors of production and leads to an annuity resulting from the scarcity rather than to monopolistic profit.

G. J. Stigler defines long-term barriers to entry as obstacles from the viewpoint of risk, delay or costs that new entrants must overcome compared to already established firms, which did not have to bear these (Stigler, 1968). As a result, entry is less profitable or harder. According to G. J. Stigler, "a barrier

to entry is a cost of producing which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry”.

In 1970s and 1980s, it was the theory of contestable markets (W. J. Baumol, R. D. Willig, J. C. Panzar) that had a strong influence on competition policy. Contestable markets are understood as markets with favourable conditions for competition and they are characterised by the following conditions:

- market entry is free and there are no barriers to entry;
- market exit is free and does not incur exceptional costs (Baumol, Panzar, Willig, 1982).

Other approaches that deserve attention are those by J. Fergusson, R. Gilbert, O. E. Williamson, R. E. Caves, M. E. Porter, A. K. Dixit, A. S. Joskow, R. L. Johnson, G. J. Werden, S. C. Salop, M. Schwartz and others, i. e. authors who dealt with the issue of competitive barriers.

3. Conclusion

The issue of competitive barriers plays an important role in competition policy. With the view of maximising their profit, entities seek to allocate their resources also in this context. There must not be any barriers preventing transfer of resources to increase efficiency. Market entry and exit must be free and less efficient entities cannot be pushed out by the more efficient ones. This also supports efficient competition, which leads to effects for consumers.

Literature:

Rajňák, M. (2002). *Cenové rozhodovanie*. Bratislava: Sprint vfra.

Tokárová, M. (2007). *Politika hospodárskej súťaže*. In Vincúr, P. et. al. *Teória a prax hospodárskej politiky*. Bratislava: Sprint vfra.

Bain, J. (1956). *Barriers to new competition*. Cambridge: Mass. Harvard University Press.

Sylos-Labini, P. (1968). *Oligopol a technický pokrok*. Praha: Academia.

Andrews, P. W. S. (1949). *Manufacturing business*. London.

Von Weizsäcker, C. (1980). A welfare Analysis of Barriers to Entry. *Bell Journal of Economics*, 11.

Bhagwati, J. N. (1970). *Oligopoly theory, entry – prevention and growth*. Oxford Economic Papers, November 1970.

Pashighian, B. P. (1968). Limit price and the market share of the leading firm. *Journal of Industrial Economics*, June.

Stigler, G. J. (1968). *The Organization Industry*. Homewood, Illinois.

Demsetz, H. (1982). *Barriers to Entry*. American Economic Review 47.

Baumol, W. J., Panzar, J. C. and Willig, R. D. (1982). *Contestable markets and the Theory of Industry Structure*. New York: Harcourt Brace Jovanovich.

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INFORMATIONAL SCOPE ADJUSTMENTS IN SMALL AND MICRO ENTERPRISES' FINANCIAL REPORTS AS THE RESULT OF FINANCIAL REPORTING SIMPLIFICATIONS: THE CASE OF POLAND

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Abstract: *The aim of the paper is to verify how simplifications of legal regulations in accounting rules for selected SMEs (small and micro) have affected the real scope of financial reports prepared by these entities. The study is based on the analysis of law regulations and the literature, as well as the analysis of financial reports and questionnaires.*

Keywords: *Micro, small enterprises, financial reporting, simplification.*

JEL classification: *M41, M48*

Grant affiliation: *Not applicable.*

1. Introduction

An important role in the economy of each country is played by entities operating on a small scale, that is, the micro and small entities. These entities are subject to a variety of administrative obligations, including those related to the preparation of financial statements. It is important, that the costs of preparing the financial statements were balanced with the benefits obtained by the use of the information presented in them. This can be achieved by limiting the reporting obligations and simplifying the mandatory financial statements contained in legal regulations. Simplifications in the accounting of smaller entities are a subject of many studies, both in Poland and in other countries, e.g. Croatia (Sacer & Decman, Sever, 2015), Romania (Neag & Masca, 2012), Czech Republic (Busova, Drinovska, Glaserova & Otavova, 2016) or Australia (Dyt & Halabi, 2007).

The scope of financial statements of Polish micro and small entities was adjusted to their size. However, the question remains whether, despite legislators' simplifications, they are in practice understood and used by authorized entities, or do these simplifications affect the informative value of the report in the decision-making process? Finding answers to these questions is the main goal of the study.

2. Overview of simplifications in reporting of micro and small enterprises in Poland

Classifying Polish undertakings by size and their reporting obligations, one needs to refer to the Accounting Act, which in Art. 2 stipulates that the entities are required to hold accounts, thereby prepare financial statements (The Act, 29.09.1994).

The Directive of the European Parliament and of the Council 2013/34/EU distinguishes four categories of entities: micro, small, medium and large (The Directive, 2013). Poland, being an EU Member State, has been obliged to bring into force the laws, regulations and administrative provisions necessary to implement the Directive. By implementing the provisions of the Directive, in 2014 and in 2015, the Accounting Act was amended and the micro-entities (The Act, 11.07.2014) and small entities (The Act, 23.07.2015) were introduced into the accounting law.

Currently, the Accounting Act distinguishes three groups of reporting entities, namely: micro-, small-sized and other entities (The Act, 29.09.1994). The reporting obligations of these entities vary and depend on their size.

The Polish accounting law provides simplifications to be adopted in the preparation of financial statements for micro and small entities. However, their use is not obligatory (The Act, 29.09.1994).

The approving body decides on the scope of the information shown in the financial statements in accordance with Appendix No.1 to the Accounting Act, to the full extent, or confirms the drawing up of the financial statement using the simplifications according to Appendix No. 4 to the Accounting Act for micro entities and Appendix No. 5 to the Accounting Act for small entities (The Act, 29.09.1994).

Micro entities may therefore draw up an abridged financial statement consisting only of the simplified balance sheet and the profit and loss account. Micro entity, according to Art. 48, sec. 3 of the Accounting Act may be exempted from the obligation to draw up the notes and an annual activity report, provided that it submits supplementary notes to the balance sheet. This information relates to financial liabilities, advances and loans with administrative, management and supervisory bodies, as well as operations concerning equity (own) shares (Tkocz-Wolny, 2015).

On the other hand, small entities may draw up an abridged financial statement consisting only of the simplified balance sheet and the profit and loss account, and the notes with limited disclosures. A small entity in accordance with Art. 48, sec. 4 of the Accounting Act may be exempted from the obligation to prepare an annual statement of operations, statement of changes in equity and cash flows statement.

3. Usefulness of financial reports for decision-making purposes in small and micro enterprises – an empirical study

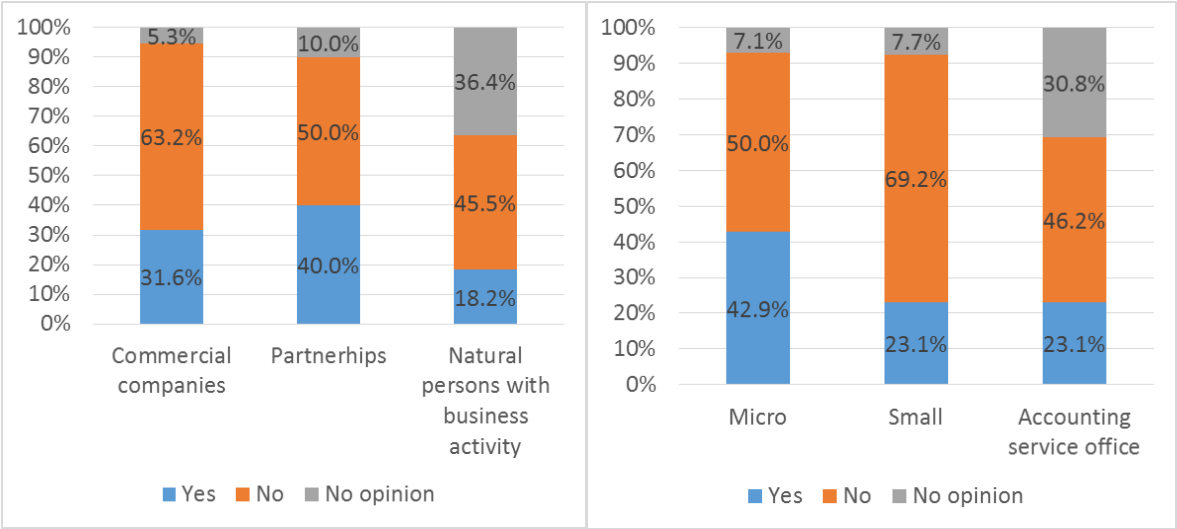
The questionnaire survey was aimed to determine whether and to what extent entities use accounting simplifications for micro and small entities and to gain an opinion on the suitability of these simplifications. The research was conducted as a preliminary study to identify the issue among

the respondent group consisting of representatives (owners, managers and accountants) of micro and small entities and accounting offices holding account records of such entities. 40 answers were used. The questionnaire consisted of an undertaking’s basic information and 8 multiple-choice questions (yes, no, I do not know), as well as two additional, optional descriptive questions.

The group of respondents consisted of predominantly persons with higher education (63%) and work experience up to 10 years (63%), occupying the position of an accountant or chief accountant (50%). Representatives of accounting offices accounted for 38% of all respondents. The respondents came mostly from capital companies (48%). From the perspective of the size of the entity, micro-entities (35%) were dominant, while others in equal proportions came from small entities and accounting offices (about 33%).

Considering the degree of implementation of simplifications in accounting of micro and small entities, it should be noted that only 30% of respondents confirmed the preparation of financial statements in a simplified version.

FIG. 1: The scope of preparing financial reports adopting possible simplifications

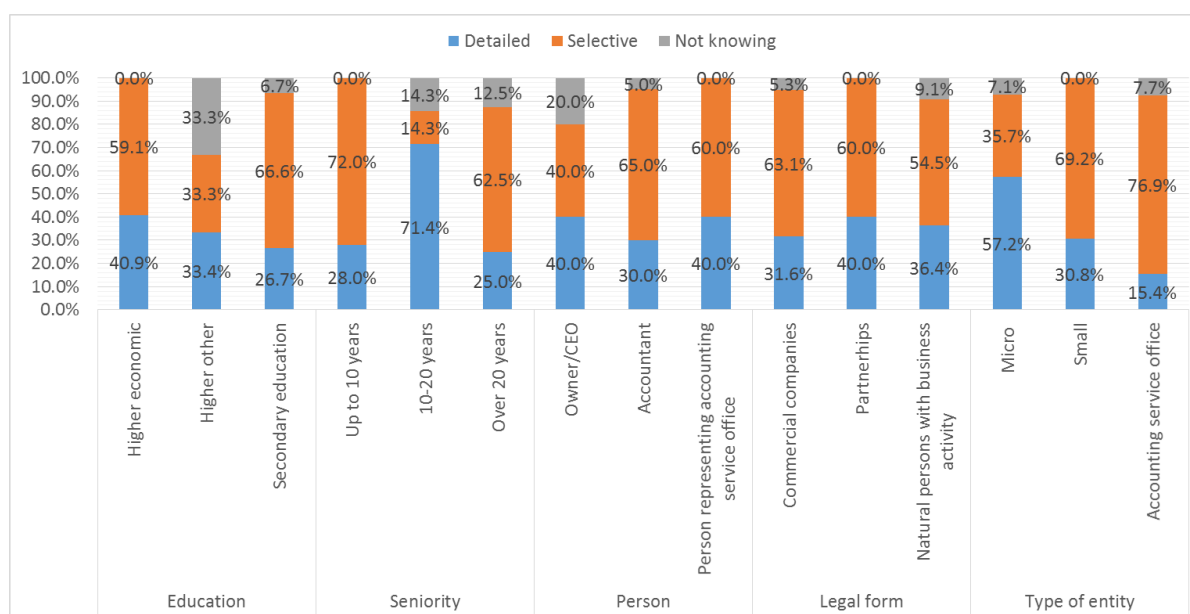


Source: own elaboration based on the conducted survey

Among the entities which draw up financial statements in simplified form the dominant legal form are partnerships (40% (Figure 1). In contrast, considering the type of entity by the size, the largest proportion which prepares the financial statements in a simplified version is in the group of micro entities (43%) (Figure 1).

The relatively low degree of adopting simplifications in the accounting of the tested entities may be associated with inadequate levels of knowledge about accounting rules and regulations (Figure 2). Among the surveyed persons only persons with work experience over 10-20 years have confirmed the detailed knowledge of the provisions of the accounting.

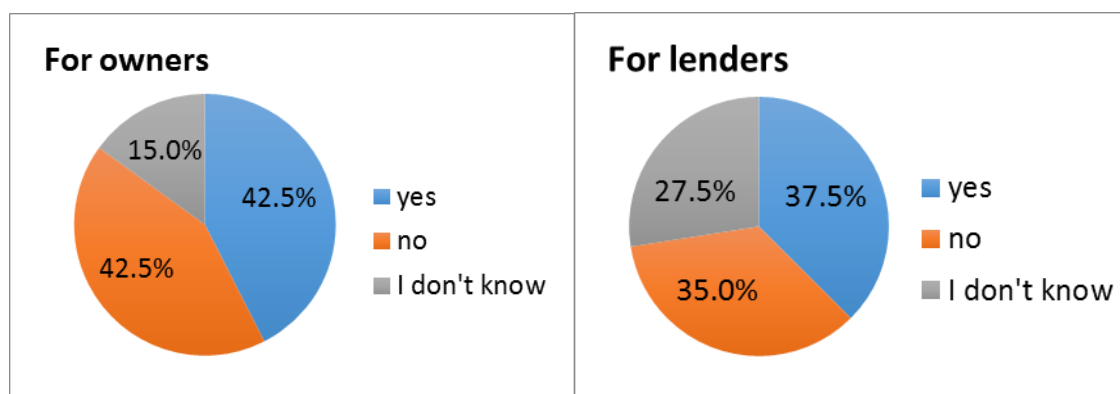
FIG. 2: The level of knowledge on simplifications in the accounting of micro and small entities



Source: own elaboration based on the conducted survey

From the perspective of the usefulness of the simplified financial statements for management decisions (Figure 3), the same percentage of respondents gave a positive (43%) and negative (43%) response. It is worth emphasizing that the all owners and executives took a negative position or did not give an opinion (80% of respondents gave negative opinion). On the other hand, in the group of accountants and accounting offices prevails the confirming opinion in this respect. In case of usefulness of financial reports for banks and other lenders (Figure 3), the affirmative opinions are less prevailing (38%), except that, as in the previous question, none of the owners, CEOs or managing directors did not give a positive opinion.

FIG. 3: Informational usefulness of small and micro entities' financial reports



Source: own elaboration based on the conducted survey

One of the main reasons for adopting simplifications in accounting of smaller entities was the reduction of workload and costs. The respondents agree with this opinion, who in 45% confirmed the reduction in workload and costs of holding accounting books. At the same time, one in four respondents disagreed with this statement (25% of negative opinions). 30% of the respondents did not have an opinion. In the group of accountants, 50% took a positive stand in this respect, but it is puzzling that another 50% of this group did not take any stand.

The above mentioned benefits were confirmed by the overwhelming majority of representatives of accounting offices (77% of this group), which accounted for 56% of all positive indications.

Summing up, only less than 18% of the respondents in the survey group confirmed that making financial statements in a simplified form gives owners benefits. The negative opinion was less than 33% and the remaining 50% of respondents did not give any opinion.

4. Conclusion

In spite of less than a 3-year period after the introduction of national accounting law simplification solutions for micro and small entities, it turns out that the degree of their implementation is not large. The adoption of simplifications in every third entity at the most, as the results of the studies indicate, may result from the low usability of the information in the simplified version of financial statements. The in-depth studies of the surveyed group revealed that owners and managers mostly negate the indicated information relevance in the decision-making process. Such a view does not raise any reservations, as it should be borne in mind that it refers to smaller entities, where ownership relations with the entity itself are “closer,” and the possibility of financial data analysis is greater than for dispersed shareholders and larger scale of business operations. Also, the informational usefulness of simplified financial statements for lenders is a limiting factor in the degree of their implementation. Less than half of the respondents expected the reduction in workload and costs of holding accounting books, but it is worth stressing that 55% disagreed with this opinion or did not have any opinion. Therefore, this area requires further in-depth research. On the other hand, the reservation against the introduced simplifications is the fact of their inadequacy for in-depth analysis, lack of influence on the way of holding accounting books, lack of adoption of accounting software to the specific requirements. As a result, it can be stated that the expected effect of introducing simplifications in the accounting of micro and small entities has not been achieved under the current shape of functioning solutions.

Literature:

The Accounting Act of 29th September 1994 (2016). *Journal of Laws*, 2016, item 1047.

The Act of 11th July 2014 on the amendments to the Accounting Act (2014). *Journal of Laws*, 2014, item 1100.

The Act of 23th July 2015 on the amendments to the Accounting Act and some other Acts (2015). *Journal of Laws*, 2015, item 1333.

Busova, A., Drinowska, E., Glaserova, J., & Otavova, M. (2016). *Will the Czech accounting entities benefit from the Directive 2013/34/EU?*. Procedia – Social and Behavioral Sciences, 220, 79-84.

The Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (2013). *Official Journal* L 182/19 of 29 June 2013.

Dyt, R., & Halabi, A. K. (2007). *Empirical Evidence Examining the Accounting Information Systems and Accounting Reports of Small and Micro Business in Australia*. Small Enterprise Research, 15(2), 1-9.

Neag, R., & Masca, E. (2012). *Determinants in accounting regulation for Micro-Entities-a Romanian perspective*. Procedia Economics and Finance 3, 223-229.

Sacer, I. M., Decman, N., & Sever, I. (2015). *The influence of accounting regulation simplification on the financial reporting of micro entities – the case of Croatia*. Economic Research, 28(1), 593-607, from: <http://dx.doi.org/10.1080/1331677X.2015.1084888>.

Tkocz-Wolny, K. (2015). *Zakres sprawozdania finansowego małych i średnich przedsiębiorstw*. Zeszyty naukowe Uniwersytetu Ekonomicznego w Katowicach, 252, 144-158.

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UTILIZATION OF NEURAL NETWORKS AS A TOOL FOR MANAGEMENT, LOGISTICS AND TRANSPORT EFFICIENCY

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Abstract: *Recently, we can see massive development in transportation in all its areas, such as management, logistics, transport efficiency and the others. And it's just the artificial intelligence and all its areas that have enabled this development. The article familiarizes the reader why can we notice the huge expansion of neural networks using everywhere around us and with a possibility of the neural networks using in the transport. Next part of the article describes advantages and disadvantages of using neural networks, brief description of neural networks - definition and basic elements. The main subject of the article is a description of some applications of using neural networks in the road transport.*

Keywords: *Perceptron, artificial intelligence, neural nets, unmanned vehicle, ATS.*

JEL classification: *L, O*

Grant affiliation:

1. Introduction

Information technologies usage became inherent component of “human” development. Ability to effectively process and use information and knowledge became one of the most important parts of economic growth and prosperity. In transportation, the still changing environment of many participants, special attention should be paid to artificial intelligence – progressive information technology.

Techniques of Artificial Intelligence (AI) allow using applications for entire transport system managing – vehicle, driver, infrastructure and the way in which these components dynamically offer transport services. All-purpose AI instruments and their power are suitable for complicated and diversified transport systems.

2. Artificial neural nets using in transportation

According to diversity of AI and to its growing usage I am only able to describe in this article neural networks use in some areas of road transport.

Nowadays IT era force us to handle more and more information in very short time. That is why it is inevitable to construct and use such technical devices which are able to sort out important information from quantity and according to its design suitable solution for current situation, perhaps even predict following situation. These complicated problems are partially solved by neural networks utilizing knowledge about data organizing and administration in human brain (Šusteková, & Knutelská, 2013).

2.1. Artificial neural nets definition

Artificial neural nets can be defined as massive parallel computing system open to saving and following execution of information while simulating human brain in collecting data during learning process and saving of these data using inter-neural connections.

2.2. Basic elements of neural nets

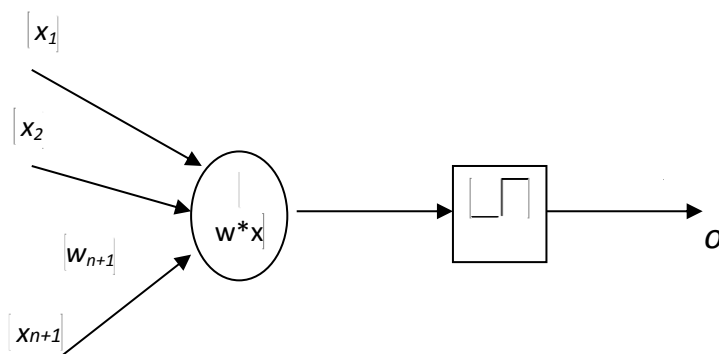
Perceptron is a neural model which receives input signals $X = (x_1, x_2, \dots, x_{n+1})$ through synaptic weights (in neurobiology synapse is connection between two neurons and a power acting in synapse is a synaptic weight) creating weight vector $W = (w_1, w_2, \dots, w_{n+1})$. Input vector is called sample or pattern. Components of input vector can gain real or binary values.

Perceptron output is defined as:

$$o = f(\text{net}) = f(W * X) = f\left(\sum_{j=1}^{n+1} w_j * x_j\right) = f\left(\sum_{j=1}^n w_j * x_j - \Theta\right),$$

where variable net assigns weight sum of inputs – dot product of weight and input vector. Function f is called activation function of perceptron, Θ is excitation threshold value of perceptron, o is perceptron output.

FIG. 1: Perceptron



Perceptron at FIG. 1 has $n+1$ inputs. $(N+1)$ input value is always -1 and $W_{n+1} = \Theta$ which is excitation threshold value of perceptron (Návrát, 2007).

If there are only feedforward connections between neurons these nets are called feedforward neural nets. Each neuron of each layer send signals to each neuron of following layer. Backward connections don't exist.

It is not necessary to know solved problem model when using artificial neural nets. Suitable training set and suitable net architecture offer enough information to train designed neural net and together with backward error spread set parameters (weights and thresholds) of net to receive acceptable result. Solution can be also obtained by simulations or experiments instead of rigorous and formal problem solving.

3. Examples of tasks solvable by neural nets

Neural networks (NN) applicability comes from some basic features of NN. The most important one is that NN are universal function approximator. According to the fact that many problems cannot be described with known functions, NN usage would grow in short time. The only decelerator is very high computing technique requests which on the other hand change rapidly with high performing computing systems development.

Neural networks generally can be used in following areas:

- Function approximation problem
- Category classification, situation classification
- Prediction problem solving
- Signal transformation
- Association problems, memory simulation

3.1. Advantages of using neural nets in transportation

Following advantages and disadvantages of using neural nets applies broadly as well as in road transport. For this reason I am mentioning them in this article:

NN allow parallel data processing and by using appropriate hardware it is possible to allocate calculations on more parallel processors.

NN doesn't need any information about process structure to which it is implicated, it learns and does not to be reprogrammed.

If neural net is used with learning algorithm it can be adapted to changes in parameters.

Neural nets are suitable for identification, classification and sorting of models – using in recognition of road signs, registration plates, driving licenses, people faces and others.

If neural nets are implemented without learning algorithm they are quite fast.

NN allows abstracting managing rules for different regulators (such as human being or regulator with long computing time) and replace them.

NN allows data reduction to smaller dimension.

NN are universal approximator – they allow approximation of any function with any accuracy.

3.2. Disadvantages of using neural nets in transportation

NN also need a huge hardware support.

There is no methodology for NN architecture and functions for neural description.

The architecture of a NN is different from the architecture of microprocessors therefore needs to be emulated.

Learning process can take very long time.

During the learning process can become the situation when neurons reach the state of saturation consequently their outputs lead to extreme values for example sensible error signals.

4. Some neural nets application description in road transport

4.1. Driving of unmanned vehicles or computer controlled cars

Artificial neural nets are used in area of unmanned vehicles. Their development is in full drift and they have already driven more than a half million kilometres. They are controlled by computer covered many different transport situations without an incident (Akkiyama & Sasaki 1992).

Their development is related to Automatic Transport Systems ATS which use only electric vehicles and different transport organization as usual. Main feature is using only unmanned vehicles and eliminating other drivers from limited ATS area what will bring more discipline and less accidents in the transport.

4.2. Driver behaviour modelling

There are models that bring more safety and effectiveness of human mobility. Feed forward neural nets are used in analysing desirable road from interactive simulators.

Such system was created as following:

Neural net was designed with volunteers providing trial journeys. According to the actions of volunteers neural net training set was created. This neural net learned same decisions as volunteering drivers and was able to choose journey from unknown data (Dougherty & Joint 1992).

4.3. Creation of models which can forecast following of traffic signs by driver - part in ATS

Current models use fuzzy logic and neural nets combination to overcome limitations of existing algorithms. Using neural nets to solve such problems is preferable due to their ability to solve nonlinear relations and because they are immune against mistakes obtained from imperfect inputs. NN are suitable for reactive behaviour modelling which is often described as rules connecting perceived situation with attributable measures.

4.4. Systems for advising maintenance and repair of paths and roads can foresee problems on the roads caused by weather or abrasion

These systems can be divided to:

Diagnostic subsystem - can be classified as pattern detecting problem. Neural nets are used here to process road surface snapshots and assigning them to different defect categories. Diagnostic subsystem also automatically detects by-pass roads or damaged roads (Bishop 1995).

Prognostic subsystem - is complex according to its conformity – road repair actions are not only dependant on actual road condition but also on traffic intensity and on financial needs required for road repair. Data collection for all potential situations is extremely difficult. Suitable solution might be connecting more neural nets to one system.

4.5. Systems for classification and registering of passing vehicles

NN are in this case used to process input data from signallers built beside the roads (video cam with high performing snapshot processing, sensors, etc.) Their main contribution is noticeable during bad external conditions. These systems were successfully run in licensed trademark reading.

4.6. Traffic net analysis and Journey planning and optimizing

These systems use neural nets to diagnose traffic jams and analyse season changes in the traffic and can plan the most effective route what can shorten journeys, lower accidents and finally save environment. The most difficult part is setting parameters for the problem which is nonlinear (Dougherty & Joint 1992).

4.7. Traffic streaming forecast

Very important parts of ATS or ATS are systems to recognize and predict congestions to inform all road users about actual situation. Are solved:

Short term forecast – forecasting few minutes, can be part of transport managing system.

Long term forecast – forecasting months or years, important in planning and building roads.

4.8. Transport economics

Neural nets can also be used in solving problems in the area no one would expect – impact of noise on real estate price close to transport arteries. Used neural net consisted of instrument which could analyse many variables – real estate condition, age, largeness and of course noise factor of vehicles.

4.9. Traffic sign recognition

Existing systems can recognise traffic signs and also locate and gather them. Locating is realised by approximating location from GPS device and location of traffic sign acquired from video cam or video file. Traffic signs gathering help to build traffic sign database which in the same time composes training data set.

There are more methods which use machine learning algorithms for classification and detection.

5. Conclusion

Neural nets included in there have broad utilization in every area of transport. Their applications can be found in all systems involving road transport management, such as ATS, intelligent, highway, logistic and in many other systems.

Nowadays all rich developed countries involve in development of these systems which costs high financial means.

Literature:

Akaiyama, T., & Sasaki, T. (1992). *A neural network approach to the identification of real time origin-destination flows from traffic counts*. In: Proc. Int. Conf. on Artificial Intelligence Applications in Transportation Engineering.

Collins, A. & Evans, A. (1994). *Aircraft noise and residential property values, an artificial neural network approach*. In: Transp. Econ. Policy (pp. 175–197).

Bishop, C. M. (1995). *Neural Networks for Pattern recognition*. In: Clarendon Press, Oxford.

Dougherty, M. & Joint, M. (1992). *A behavioural model of driver route choice using neural networks*. In: Proc. Int. Conf. on Artificial Intelligence Applications in Transportation Engineering.

Šusteková, D. & Knutelská, M. (2013). *Artificial intelligence applications especially the neural networks use in the road transport*. In: Transport and Telecommunication Institute, Riga (pp. 265-271).

Panwai, S. (1992). Evaluation of discrete choice and neural network approaches for modelling driver compliance with traffic information, In: Transportmetrica, *Journal of the Hong Kong Society for Transportation Studies*.

Velkoborský, J. (2003). *Moderní informační systémy pro plánování a řízení výroby*. In: JT System.

Návrát, P. (2007). *Umelá inteligencia*. In: STU Bratislava Press.

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HUMAN FACTOR IN THE FOREST MANAGEMENT

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Abstract: *The most important function of forest management is the production of wood. The characteristic feature of wood production is that it takes a very long time. As a result, from the moment of planting the seedlings until the tree is cut and sold, as many as three foresters will be involved in the production. The aim of the study is to indicate the influence of the human factor on the final result of forest production in terms of successive phases of tree development and possible decisions of successive generations of foresters. The following hypothesis is accepted: the management style of a wood-producing company is more influenced by the way of production than the knowledge and experience of individual foresters.*

Keywords: *Human factor, management style, forest economy.*

JEL classification: *M41, O16*

Grant affiliation:

1. Introduction

Historically, the forests existed without the intervention of humans, but since the beginning of their existence people have been connected to (dependent on) the forest. Forest for people was home, workplace and "shop". So it can be stated that forests would exist without people but people without forests would not. On every continent where the forests occur, man affects more or less the natural processes running in them. The role of a man who has a strong influence on the natural environment today is of particular importance for forest management.

The aim of the study was to determine the impact of the human factor on the final result of forest production in terms of successive phases of tree stand development and possible future generations of foresters. In this way the subject matter was considerably narrowed due to the limited framework of the study, which influenced the hypothesis assumed in the article: the management style of a wood-producing company influences the way of production to a greater extent than the knowledge

and experience of individual foresters. The article has a theoretical character and was written on the basis of literature research, direct interviews with forest workers in Poland using deduction and induction methods. Due to its monopolistic character on the wood production market in Poland, the examined subject is State Forests National Forest Holding (PGL LP – Państwowe Gospodarstwo Leśne Lasy Państwowe).

2. Characteristics of forest management

The Polish law defines both the concept of forest management, and the sustainable forest management (The Act on Forests: art. 6.1.). "Forest management" means activity in a forest in respect of the utilization, protection and management thereof; the maintenance and augmentation of forest resources and plantations; game management; the acquisition – other than by purchase – of wood, resin, Christmas trees, stump wood, bark, needles, game animals and products of the forest floor vegetation; as well as the sale of these products and the securing of the non-productive functions of forest.

On the other hand, "sustainable forest management" (SFM) means activity seeking to shape the structure of forests and make use of them in a manner and at a rate ensuring the permanent protection of their biological diversity, a high level of productivity and regeneration potential, vitality and a capacity to serve – now and in the future – all the important protective, economic and social functions at local, national and global levels, without harm being done to other ecosystems.

As H. Szramka rightly observes, "The specific production resources in the forest are the stands which, in the production process, function both as a work object and as a means of work, and after cutting it become the result of work." (Ważyński (ed.) 2014, p. 374-375]. Such a state of affairs makes it difficult to properly account the efficiency of forest production. Next, H. Szramka presents the most important, from the economic point of view, features of forest production, namely, [Ważyński (ed.) 2014, p. 378-379):

- high dependence on natural conditions;
- long maturation (growth) of stands;
- existence of two ranges and two periods of tree production: (1) range of production on the trunk – multi-annual period, (2) range of production at the stump – annual one;
- little human influence on the growth of production;
- difficulties in properly defining global forest production;
- seasonality subordinated to natural conditions;
- problems with the correct definition of effects of the management.

All of the above economic characteristics that determine the production of wood can be reduced to two principal ones, namely:

- Production is of a natural character.
- The production period is very long.

Due to the scope of the study it is important to point out the very small role of man in the wood production process. However, data on employment in PGL LP and the companies involved in the care

and harvesting of timber contradict this statement. There were 25 376 employees in PGL LP in 2014 (Forestry 2015, p. 211). To this should be added several thousand employees of forest services performing work commissioned by forest inspectorates (planting, cultivating, harvesting). Therefore, the question arises - is there really so little human influence on the results of wood production?

3. Phases of forest development and work of foresters

Wood production due to its long production period is divided into several phases of tree stand development. By abstracting the type of species, the forest production process can be divided into the following development phases:

- plantation,
- sapling stand,
- early pole stand,
- late pole stand,
- maturing stand,
- mature stand,
- overmature stand.

The age of the crop (the period from the plantation to the mature stand) varies, depending on the species of trees. For example, it is: 40 years (poplar), 80 years (hornbeam), 100 years (pine), 140 years (oak).

By assuming a dominant species in Polish forests, i.e. the pine, it is easy to see that from the moment of its planting to cutting, the work of at least three generations of foresters will be engaged. So another question arises – which generation of foresters has the decisive influence on the output of wood?

4. The role of human factor in the production and harvesting process of timber in PGL LP

In order to answer the above questions, a preliminary analysis should be made of the involvement of PGL LP employees in the results of wood production and, in that context, to the subsequent development phases of the forest.

The basic woodworking work is carried out at the Forest Inspectorate level, where employment accounts for approximately 91% of all PGL LP employees. However, it should be clearly stated that the adopted organizational structure of PGL LP has a great influence on the management style of the unit, which directly affects the way of forest management (including wood production). It may be assumed that forest management is conducted in each forest district in accordance with the guidelines not so much of the chief forester or the regional director, but the general director in accordance with his directives and decisions. Consequently, the number of PGL LP employees is not related to the output of the wood, therefore H. Szramka statement about little human impact on the output of the wood is true.

Regarding the second question, it is necessary to determine first which development phases of the forest require the involvement of the foresters and of what nature (which generation of foresters have an impact on the outcome of timber production). Table (TAB. 1) establishes whether and what kind of work the foresters perform in the subsequent stages of forest development.

TAB. 1: The basic scope of work according to the development phases of the forest

Phase	Is the work done?	Nature of work
plantation	yes	early cleaning
sapling stand	yes	late cleaning
early pole stand	yes	early thinning
late pole stand	yes	late thinning
maturing stand	yes	late thinning/intermediate cutting
mature stand	yes	clear-cutting
overmature stand	yes	clear-cutting or lack thereof/intermediate cutting

According to TAB. 1 it can be stated that at each stage of the forest life cycle, there is an involvement of foresters. However, the nature of the work performed does not clearly indicate when the work is crucial from the point of view of timber production. Therefore, it is difficult to determine which generation of foresters is the most important during the assumed phases of forest development. In addition, if we consider previous findings on the impact of PGL LP management style, the issue of the second question seems to be secondary.

In view of the above, can the role of the human factor in forest management be reduced to the general director and his deputies (advisers)? Definitely not, and that is why other factors (outside PGL LP) that influence the results of wood production should be mentioned here:

Abiotic factors,
Biotic factors,
Anthropogenic factors.

Abiotic (climatic) factors include light, temperature, winds, lightning, atmospheric precipitation, water excess and deficiency in the soil, nutrients excess and deficiency, and erosion. This group of factors, due to climatic nature, is only to a small extent subject to human action.

Biotic factors, i.e. the impact of harmful organisms, are tree diseases caused by pathogens, harmful forest insects, mammalian damage. In this case the role of the man is very large and affects the output of the wood.

The anthropogenic factors that are caused by human activity are: urbanization, extractive industry, energy industry, processing industry, communication, farms, environmental pollution, fires, wood theft. With regard to this group of factors, the role of non-foresters in the forest management is also evident.

Biotic and abiotic disorders have a significant impact on the growth and survival rates of trees, the quantity and quality of wood. Forest management due to global warming faces complex challenges. According to a study conducted by Forest Inspectorates of all state forest holdings in Germany, foresters predict that the frequency of droughts, gradation of insects, hurricanes, destabilization on the timber market, changes in species composition will increase (Oesten (2016), pp. 381-382).

5. Conclusion

The arguments presented in the article prompt a positive verification of assumed hypothesis. The main conclusions, however, include:

Today people play a big role in forest management due to the strong impact on the forest of biotic, abiotic and anthropogenic factors.

Due to the monopolistic character of wood production in Poland by PGL LP, individual skills and knowledge of foresters are strongly subordinated to the management processes resulting from the organization's organizational structure.

Human decisions concerning the production of wood at an early stage have their consequences even in a hundred-year perspective, given the long-term nature of timber production.

Literature:

Forestry (2015). *Statistical Information And Elaborations*. Warsaw, Central Statistical Office.

Oesten, G. (2016). *Wyzwania dla gospodarki leśnej w czasach burzliwych zmian klimatu i społeczeństwa*. Wkład ekonomiki leśnictwa w zarządzanie ryzykiem [in] Zimowa Szkoła Leśna.

Gil, W. (Eds.). (2016). *Zagrożenia lasu i jego funkcji – przyczyny, konsekwencje i szanse dla gospodarki leśnej*. Sękocin Stary, Instytut Badawczy Leśnictwa.

Act on Forests, 28 September 1991 (Dz. U. z 2015 r. poz. 2100).

Ważyński, B. (Eds.). (2014). *Podstawy gospodarki leśnej*. Poznań, Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu.

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THE POSITION OF RETIREMENT PENSION SAVINGS IN THE PENSION SYSTEM OF THE SLOVAK REPUBLIC

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Abstract: *In the reform of its pension system the Slovak Republic opted for a combined method of financing pensions, which caused high transformation costs, which considerably destabilize the pension system and deepen the public finance deficit and the financial sustainability of the pension system. Despite many government attempts to weaken private retirement pension savings and strengthen the public ongoing pension system, expected goals were not met, which was why the National Assembly of the Slovak Republic undertook to weaken retirement pension savings using a set of measures that include changes of the percentage rate of levy, as well as making the entry into the so-called second pillar voluntary. Since the introduction of voluntary entry into the second pillar, only 30% of those entering the labor market joined the second pillar. The low share of entrants increases current income of the pension system at the expense of future expenses. In the long run, this will cause increased deficits in the ongoing pension system, as well as lower future retirement pensions. If more people joined the second pillar, it would have meant a higher deficit of the first pillar in 2080 due to a larger income gap. The goal of this paper is to point out the position and role of retirement pension savings in the pension system of the Slovak Republic in the context of long-term sustainability of the pension system.*

Keywords: *Sustainability of the pension system, retirement pension savings, retirement age.*

JEL classification: G23, G28, J26

Grant affiliation: *The paper is the output of the VEGA project no. 1/0002/16 "Social-economic aspects of the housing policy in the context of work force migration" (50%) and of the VEGA project no. 1/0001/16: Present and perspectives of changes in employment and related processes in the context of meeting the goals of the European Employment Strategy (50%).*

1. Introduction

Pension systems developed especially after the Second World War and based on an ongoing financing system are getting into financial crises, putting increasing demands on taxpayers or economically active population (Rievajová, Sika, Husáková, 2012, p. 476). Financing of the pension system represents an important part of public finances and is therefore significantly influencing its

sustainability. The theory of pension economy points to the fact that pension systems require regular regulatory interventions that are caused by the cyclical behavior of the economy.

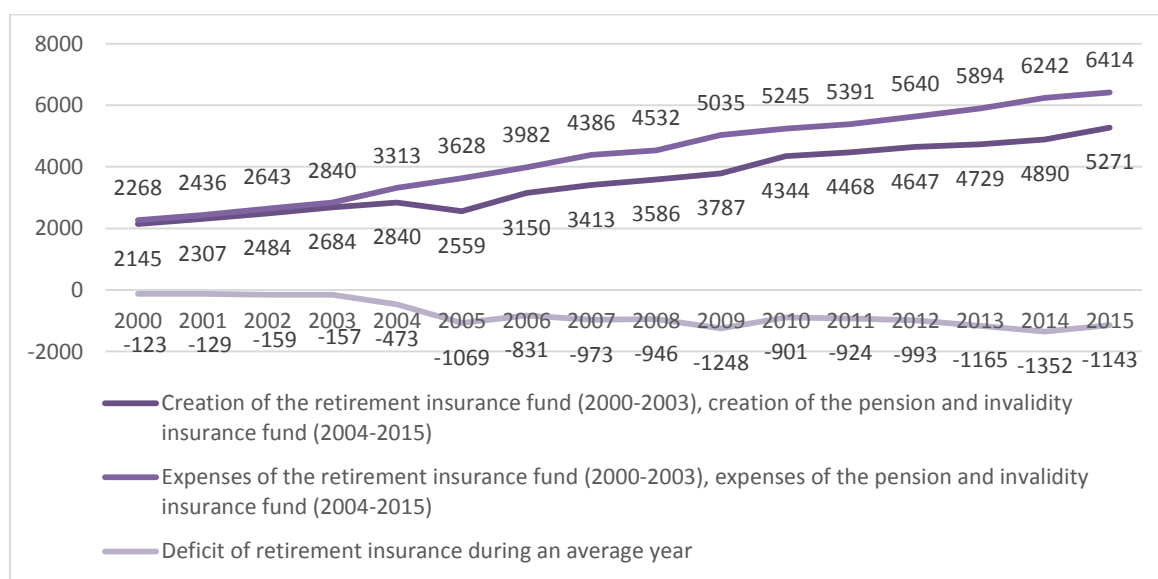
The goal of the paper is to specify the pension system implemented in the Slovak Republic in the context of the weight of retirement pension savings, point out the issue of sustainability of the pension system in terms of public finances and demographic trends, as well as identify measures contributing to the financial stabilization of the pension system.

2. Financial balance of the Slovak pension system

Social security in the Slovak Republic consists of three subsystems, which are social insurance, state social support, and social aid.

Retirement insurance has the largest deficits among all social insurance funds. This status is long-term, since it was caused primarily by unfavorable demographic trends, prolonging life expectancy, decrease of the number of economically active citizens caused by high unemployment rate, and also by the introduction of retirement pension savings with a high percentage of the levy in favor of the private pension system. The lack of pension funds also causes an increasing amount of evasions from contributions due to globalization or higher work force mobility (Vidová, J., 2006, p. 14).

Deficit of retirement insurance during an average year between 2004 and 2015 (in mil. €)



Source: Self processing based on the Social Insurance Company data.

The Social Insurance Company, in accordance with the Law on Social Insurance, improves the financial sustainability of retirement insurance by transferring resources from other profitable funds of social insurance, but without considering the interests of the citizens in the form of retirement pension benefits, which we definitely consider a non-systemic element in social insurance.

From a long-term perspective, each country has several tools at its disposal to keep financial balance of the pension system within acceptable borders, whereby most frequently used tools include increasing the retirement age, changing the appreciation mechanism of retirement pension benefits, and incorporating automatic stabilizers. In addition to financial sustainability it is necessary to take into account also the adequacy of retirement pension benefits.

The transition to a three-pillar pension system has shown increased transformation costs that were mitigated by opening the system several times, but mainly by changing the percentage contribution into the second capitalization pillar from 9% to 4%, which weakened the second pillar and politically strengthened the first pillar.

These costs will continue to increase, since in 2017 the mandatory contribution rate increases by 0.25% annually to a total of 6% by 2024.

TAB. 1: Impacts of accelerating the rate of mandatory contributions to the II. pillar by 0.25% annually to a maximum of 6%

v mil. €	2017	2018	2019	2020	2021	2022	2023	2024
Collected contributions to the RMC	490 604	544 075	603 912	670 329	743 389	824 411	914 263	1 013 909

Source: Ministry of Labor, Social Affairs, and Family of the Slovak Republic

The Government of the Slovak Republic recognized the urgency of sustainability of the pension system, but also the adequacy of retirement pension, and therefore it adopted changes of the pension system, the goal of which was to improve negative trends.

The most important parametric changes include:

- linking the retirement age to the development of life expectancy³,
- linking the valorization mechanism to retirement inflation⁴,
- strengthening solidarity in awarding retirement pension benefits from the ongoing pillar⁵,
- changes in the II. pillar of the pension system⁶.

According to the initial projections from the beginning of 2012 the deficit of the system should have deepened from the current 3% to 9% GDP by 2060, i.e. 6 percentage points. The 2012 pension reform significantly improves this status and reinforces the long-term sustainability of public finances. After this reform, the deficit of the system should reach about 5% GDP by 2060, which means an improvement of the public finance balance by 4 percentage points.

³ § 65a of the Law no. 461/2003 Coll. on Social Insurance as amended.

⁴ § 82 of the Law no. 461/2003 Coll. on Social Insurance as amended.

⁵ § 63 of the Law no. 461/2003 Coll. on Social Insurance as amended.

⁶ § 22 of the Law no. 43/2004 Coll. on Retirement pension saving and on the amendment of certain laws as amended.

3. Impact of introducing voluntary entry into the second pillar

The retirement pension saving system is defined contribution-wise and financed by contributions paid to personal pension accounts (Rievajová et al, 2008, p. 100).

The introduction of voluntary entry into the second pension pillar that took place in 2008 with certain deviations of this voluntary nature caused that only 30% of newcomers to the labor market joined the pillar. This legislative change caused increased incomes of social insurance managed by the Social Insurance Company, but it also increased future expenses of social insurance.

Around 47% of all clients of the Social Insurance Company opted to use the services of private pension companies. The most numerous group are the 35 year-olds, whose share is up to 75% of this age category. Older age groups have lower participation, when they remained insurers only in the first pillar.

TAB. 2: Number of insurers by age

Age limit	Number of insurers	% share
0 - 25 year	72 161	5,20%
26 year - 35 year	436 650	31,70%
36 year - 45 year	540 642	39,30%
46 year - 55 year	285 883	20,80%
56 + year	40 434	2,90%
Total	1 375 770	100,00%

Source: Association of retirement management companies

Low financial literacy of Slovak citizens or high caution has led to the fact that up to 82.74% of insurers use bond guaranteed pension funds and only 10.89% of insurers opted for index non-guaranteed pension funds.

The higher age groups' decision to postpone the decision on joining the second pillar causes shorter time to capitalize financial resources on capital markets, which is then reflected in lower accumulated savings and lower annuities. In short-term, this phenomenon causes increased incomes of the state pension system, but in long-term, it will generate increased future expenses that will be difficult to fund under current demographic development.

TAB. 3: Average performance of funds (in %) for April 2013 to December 2016

Bonded guaranteed pension funds	6,20%
Mixed non-guaranteed pension funds	20,10%
Equity non-guaranteed pension funds	24,50%
Indexed non-guaranteed pension funds	47,10%

Notes: For given period deflation of about 1% was recorded and average salary growth for given period reached about 10%.

Source: Ministry of Labor, Social Affairs, and Family of the Slovak Republic

In terms of salary valuation, higher-paid employed persons join the second capitalization pillar. Their salary is 28% higher than the salary of a person, who is not a participant of the second pillar.

4. Factors affecting the amount of retirement pension benefits in retirement pension saving

In January 2015 the amendment to the Act on Retirement Pension Saving (so-called annuity amendment) entered force that allowed the payment of the first pensions from the second capitalization pillar. As of 31. December 2016, 3,100 insurers could have applied for a pension from the II. pillar. As of that date, only 1,555 insurers applied, but only 707 closed a contract or an agreement of paying the programmed payment. This was caused by that fact that life insurance companies offered the clients very low retirement pension benefits, to which the insurers did not react and expect higher pensions in the future, since there is no need to close a contract with the life insurance company. The average amount of the retirement pension benefit paid by the life insurance company in the form of a lifetime pension in 2016 was 25.71 €.

TAB. 4: Payment of lifetime retirement pension from the II. pillar

Type of lifetime pension	Share of contracts from 536 contracts on lifetime pension	Reduction of the annuity compared to lifetime pension "without combinations"
Without combinations	71%	-
One-year probate coverage	8%	- 4%
Two-year probate coverage	18%	- 8%
Increasing	1%	- 24%
Increasing and one-year probate coverage	0%	- 28%

Increasing and two-year probate coverage 1% - 31%

Source: Ministry of Labor, Social Affairs, and Family of the Slovak Republic

The amount of the retirement pension benefit paid from the II. pillar is affected by several factors, specifically: retirement age, saving duration, paid amount of contributions to the RMC, chosen method of receiving the pension benefit, and valorization rate of the contributions.

The retirement age for 2017 in Slovakia is set for 62 years and 76 days. According to the Long-term sustainability of the pension system in the Slovak Republic published by the Ministry of Labor, Social Affairs, and family of the SR, by 2060 life expectancy of men is assumed to increase by 10.6 years and 8.6 years for women. Slovak society will age faster than the EU. Today, for 100 Slovaks in active age 15-64 there are 19 people older than 65, by 2060 this number will be almost 66.

Expenses for retirement pension benefits will slightly decline until 2030. The decline is caused mainly by linking the retirement age to the expected lifetime from 2017 and subsequent lower number of newly granted pensions. After 2030 the number of new retirees due to demographic reasons should grow again. More retirees and increasing life expectancy cause significant increase of expenses for retirement pension benefits after 2030 (IFP, MF, 2015, p. 3-4).

In our opinion, negative trends in demographic indicators can be reversed or mitigated through population policy, addressed support of family and migration, but also increasing the level of education and, of course, higher employment.

Saving duration is one of the other important factors that affect the amount of retirement pension benefits the recipient will receive. The longer the saving period, the higher the balance on the personal pension account, which also depends on the valorization rate of pension assets (Šipikalová, Pongrácz, 2016, p. 90-92).

The appreciation rate is also affected by the extent of willingness to undertake risk on financial markets. Since Slovak savers show low financial literacy in a number of statistics, this is also reflected in their willingness to take risks.

The choice of pension fund for which the person decides depends mainly on his or her willingness/unwillingness to undertake various risks. High risk means high appreciation, but on the other hand the possibility of significant decrease of the fund's value.

5. Conclusion

In order to strengthen the financial sustainability of the pension system, the Slovak Republic will have to again incorporate so-called automatic stabilizers in the calculation of pension entitlements. However this will reduce the compensation rate, which will have a negative impact on living standards of Slovak pensioners.

Most authors call automated balancing mechanisms rational mechanisms, since they make the pension reform process more rational and professional. A series of rational rules is set in advanced,

but subsequently they will be automatically applied only in specific situations, where legislature would hardly be able to introduce the necessary measures. Automated balancing mechanisms are transparent and predictable. (iNDEPENDENT TRADERSCLUB, 2010, p. 6)

Literature:

iNDEPENDENT TRADERSCLUB, o.z. (2010). *Šoková versus postupná „Liečba“ priebežného piliera dôchodkového zabezpečenia na Slovensku*. Možnosti uplatnenia automatického vyrovnávacieho mechanizmu (ABM) v slovenskom PAYGO systéme. Banská Bystrica, 2010.

Ministerstvo financií. (2015). Rýchlo starnúce Slovensko. Inštitút finančnej politiky. Ministerstvo financií SR. Komentár 2015/12. Retrieved June 5, 2017, from <http://www.finance.gov.sk/Default.aspx?CatID=10181>.

Ministerstvo práce, sociálnych vecí a rodiny Slovenskej republiky (2011). *Analýza dlhodobej udržateľnosti a návrhy na zmenu dôchodkového systému Slovenskej republiky*. Bratislava, 2011.

Rievajová, E. a kol. (2008). *Sociálne zabezpečenie*. Bratislava: Vydavateľstvo EKONÓM, 2008. ISBN 978-80-225-2545-9.

Rievajová, E., Sika, P., Husáková, M. (2012). Dôchodkový systém v zmenených sociálno-ekonomických podmienkach vo väzbe na príjmovú situáciu dôchodcov. In *Sociológia : časopis pre otázky sociológie*. Bratislava : Sociologický ústav SAV, 2012. ISSN 0049-1225, 2012, roč. 44, č. 4, s. 456-477.

Sika, P. (2013). *Nový rozmer dôchodkovej politiky a reformy v Slovenskej republike*. Bratislava : Vydavateľstvo EKONÓM, 2013. 123 s. ISBN 978-80-225-3702-5.

Šipikalová, S., Pongrácz, E. (2016). *Sociálne zabezpečenie – Aplikačné praktikum*. Bratislava : Ekonóm, 2016. s. 90-92. ISBN 978-80-225-4227-2.

Vidová, J. (2006). Prierez dôchodkovými systémami vo vybraných krajinách. Bratislava: Ekonomické spektrum – odborný on-line časopis o ekonómii a ekonomike, 3/2006. ISSN 1336-9105.

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BUSINESS INTELLIGENCE IN LOGISTICS ACTIVITIES OF ENTERPRISES

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Abstract: *The need for continuous development of enterprises, which is generated by the impact of the market environment, forces the search for new solutions to increase the efficiency of processes in the supply chain. Implementation of new solutions in the field of information systems e.g. Business Intelligence (BI) class is undoubtedly a great step forward in terms of supporting the logistics decisions. The article presents the general characteristics of BI systems in relation to enterprises activities, as well as the analysis of their applicability in the wide meaning of logistic and supply chain management.*

Keywords: *Logistics, information systems, BI, management.*

JEL classification: *M10, O10, D80, L86*

Grant affiliation:

1. Introduction

Enterprises operating on the market are subjected to a continuous process of computerization which provides many new opportunities in the form of tools used in everyday work. Vast amount of data and information must be constantly processed in order to develop their activity. Analytical tools, including Business Intelligence (BI) software are of great importance for the proper operation of enterprises. It is a still developing field of computer analytics which is to process diverse market data for the purposes of the specific company. The effect of the operation of BI is supporting decision-making processes in the enterprise.

Information is one of the major logistics flows in the economy. Its efficient acquisition and processing is associated with the use of appropriate technologies and IT tools. Undoubtedly, modern solutions in this field significantly contribute to optimization of logistics operations in information supply systems. A wide range of appropriate BI solutions on the market allows for the selection of the most customized software, meeting the expectations of users and management staff. By optimizing decision-making processes and improving information flows in enterprises and logistics chains one

aims at an increase in the efficiency of the operation of enterprises as well as an increase in their value (Olszak, 2007).

2. Business Intelligence and Data Warehouse Systems

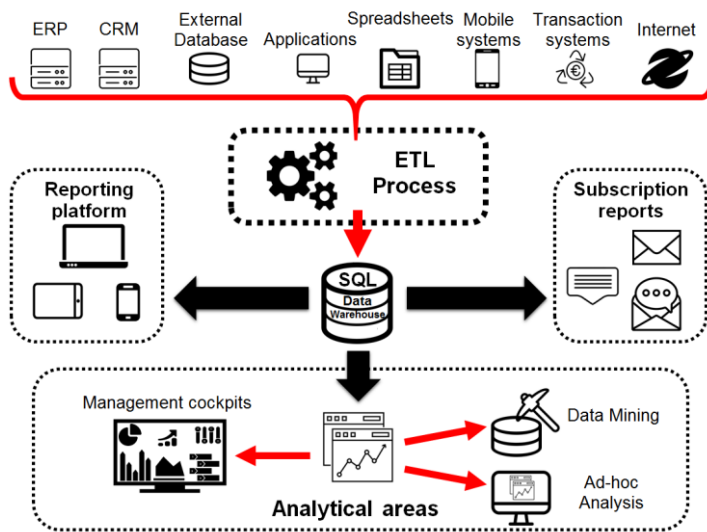
The main aspect of the functionality of BI systems is the provision of the properly processed information in the right form and time to take the right decision. Analytical capabilities of these systems allow managers to acquire information and knowledge of widely recognized market phenomena. As a result, they have an opportunity to take actions in the field of correction or support of business processes. The desired effect of the operation of enterprises based on BI systems is to improve the market position or achieve competitive advantage. The use of the systems is associated with additional benefits such as (Dziembek & Ziora, 2014):

- an increase in efficiency of management and reduction in time of analyzes and decision-making processes,
- an increase in efficiency of decision-making processes and accuracy of the decisions taken,
- reduction in the number of people involved in decision-making processes,
- standardization of the form and place of reliable information coming from all areas of business activity,
- facilitation of access to various sources of data dispersed in the market environment,
- improvement in planning, simulations and forecasts,
- rapid response to threats and opportunities related to own activity,
- rapid response to emerging market trends,
- efficient financial optimization.

The main task of Business Intelligence systems is to optimize business decisions through the use of appropriate methods, analytical processes and a set of concepts. Much attention is attached to the exploration of data mining itself, coming from Internet databases and repositories of historical data. There should also be mentioned DSS - Decision Support Systems, included in BI systems, which can be divided into three main groups: reporting, management and analysis (Liautaud & Hammond, 2003).

Figure 1 shows a diagram of BI information flow. It is important to emphasize the importance of ETL processes at the information processing stage.

FIG. 1: ETL processes in BI information flow and processing



Source: Based on: <https://www.informatec.com/en/offer/business-intelligence/etl-process>

An integral component of all the systems of BI type is ETL (Extraction, Transformation, Loading) subsystems, which allow the transfer of information from the data warehouse in order to process it. The selection of the database environment for stored information is one of the most important decisions during the implementation of BI systems in the company. ETL subsystems cooperate directly with DW - Data Warehouses, which are one of the most modern IT solutions supporting decision-making processes (Kopczewski & Szwarc, 2004).

3. Practical aspects of Business Intelligence

E-Business Intelligence (eBI) systems, which result from the use of the Internet and intranet and extranet technologies, are characterized by a wider range of functionality. The solutions of this type may be in the form of reporting and analytical applications with web browser access as well as extranets dedicated to eBI or analytical solutions for e-commerce (Kisielnicki, 2008).

Among users, there is a particular interest in the solutions with web browser access. They are characterized by transparency and simplicity of use, which translates into reduction in costs of training, which is of short duration. Additionally, the costs of implementation and maintenance themselves are lower since there is no need to install and update software. There has also been simplified the distribution of reports, authority management and adding new groups of users. This solution also allows the use of more advanced analyses requiring more computing power, however the condition is undisturbed access to high-speed Internet. E-Business Intelligence extranets provide both suppliers, customers and business partners with quick access to information. The result of the extension of the flow and availability of information is an increase in the efficiency of the whole value chain and decision-making processes. An example can be JIT (just-in-time) supply system, in which suppliers have an opportunity to access information, warehouse items but also analytical and

reporting tools. They can plan future supplies more accurately and efficiently. In the case of customers, they can get access to various studies and statistics concerning the amount and costs, delivery times, complaints or development of sales of specific products against the background of competitors (Wyrębek, 2011).

In modern supply chains and logistics, BI systems are widely used, taking over some tasks from ERP (Enterprise Resource Planning) systems. There should be emphasized the modular structure of both of these systems, however, BI systems additionally allow for building relationships with customers, modeling processes in real time and analyzing activities of competitors. The major producers of BI systems, also available on the Polish market, are: Oracle, Microsoft, SAS Institute, Bonair, GramSoftware, StatSoft (Anonymous, 2017).

4. Information supply systems

It is known that information is an integral structural component of logistics, whose subject of operation is the movement of goods. The complexity of the processes of information flow requires actions in the field of procurement, storage and distribution. In terms of this, information becomes the subject of logistics operations which are directed to optimize its flow. In practice, each economic entity operates on the basis of the specific information supply system (Chaberek, 2001).

The problem of information flows in the processes taking place in organizations is dealt with by information logistics. The task of logistics in terms of this, is to provide information in the processed or original form, passing through different organizational units to the appropriate place or person. This applies to the actions taken in the framework of production planning, demand forecasts or distribution of goods or services. Logistics plays an important role in creating management information systems, which must serve as tools supporting decision-making at a higher managerial level. It performs two basic functions: an arranging function, which refers to organizational aspects of the system, i.e. defines the contents and form of information as well as availability and frequency of its supply as well as an integrating function, allowing the balance between the quality of supply and needs of entities and costs related to its flow (Szmelter, 2013). Business Intelligence systems can be used to collect and process data in management of logistics processes of the supply chain (Wiśniewska-Sałek, 2011). Due to the implementation of analytical operations and the ones monitoring the processes it is possible to report effectively and provide information supporting process management in logistics (Wyskwarski, 2013). Information supply system in logistics supply chains, additionally supported by BI, is characterized by greater transparency of the results of the processes implemented. This particularly applies to the areas such as (Brannan, 2011):

- WMS systems (inventory turnover, cash flow cycles, control of shortages and aging of stocks),
- TMS systems (analysis of export indices, markets and customers, budgeting transport),
- Cooperation - SCM (indicators of quality of supplies and distribution, control of indicators of requirements for forwarders and infrastructure).

Information technologies in modern enterprises are an integral part of the implementation of logistics processes. Systems and tools allow the automation of the identification of goods and exchange of data in the framework of cooperation in logistics supply chains (Majewski, 2006).

5. Conclusions

The analysis and assessment of logistics processes, which are implemented within the organization or the supply chain, have become an important aspect of the activity of business entities in the modern economy. Business Intelligence systems have perfectly adapted to this task. Through tremendous analytical capabilities providing users with access to a wide range of data, their acquisition, interpretation, exploration and analysis, they contribute to an increase in efficiency and rationalization of logistics decision-making processes in enterprises. The opportunity to monitor the financial condition of the organization and the streamlining of the operations of business analysts are the main tasks of BI systems. By means of the above, in the future, there is expected an increase in interest in such solutions and their implementation as the primary IT tool in the company. These systems are characterized by a reliable and clear flow of information, which significantly improves the efficiency of its exchange between internal and external users. The adaptation of the systems to work with web browsers is the main factor of significant reduction in costs of implementation of the systems and staff training. The functionality and affordability is a great advantage of these systems, placing them at the same time at a high position among information solutions used in logistics and supply chain management.

Literature:

Olszak, C.M. (2007). *Tworzenie i wykorzystywanie systemów Business Intelligence na potrzeby współczesnej organizacji*. Wyd. Akademii Ekonomicznej, Katowice, s. 85.

Dziembek, D., Ziora, L. (2014). Business Intelligence Systems in the SaaS Model as a Tool Supporting Knowledge Acquisition in the Virtual Organization, *Online Journal of Applied Knowledge Management*, Vol. 2., 82-83.

Liautaud, B., Hammond, M. (2003). *e-Business Intelligence: od informacji przez wiedzę do zysków*, Premium Technology, Warszawa, 37-39.

Kopczewski, M., Szwarc, E. (2004). *Hurtownia danych w systemie zarządzania logistyką*. In I. Hejduk (Ed.), *Teoria i praktyka modelowania systemów logistycznych*, (pp. 5-6) Wydawnictwo Uczelniane Politechniki Koszalińskiej.

Kisielnicki, J. (2008). *MIS systemy informatyczne zarządzania*. Placet, Warszawa, p. 298.

Wyrębek, H. (2011) *Znaczenie aplikacji Business Intelligence w zarządzaniu przedsiębiorstwem*. Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego W Siedlcach, Nr 88 Seria: Administracja i Zarządzanie, p. 76.

Anonymous. *Systemy Business Intelligence we współczesnym przedsiębiorstwie*. Retrieved from <http://nf.pl/manager/systemy-business-intelligence-we-wspolczesnym-przedsiębiorstwie,,11924,87>.

Chaberek, M., (2001). *Logistyka informacji zarządczej w kontrolingu przedsiębiorstwa*. Wyd. Uniwersytetu Gdańskiego, p. 32.

Szmelter, A. (2013). *Business intelligence jako element systemu zaopatrzenia informacyjnego*. Roczniki Naukowe Wyższej Szkoły Bankowej w Toruniu, Vol. 12 (12).

Wiśniewska-Sałek, A. (2011). *Future Supply Chain - Cluster Supply Chain*. Advanced Logistic Systems. Theory and Practice, p. 112-113.

Wyskwarski, M. (2013). Wykorzystanie koncepcji business intelligence w zarządzaniu łańcuchem dostaw. Zeszyty Naukowe Politechniki Śląskiej Organizacja i Zarządzanie Vol. 64, Nr kol. 1894.

Brannan, M. (2011). *Improving the supply chain trough business intelligence*. Focus, s. 39-42.

Majewski, J. (2006). *Informatyka dla logistyki*. Instytut Logistyki i Magazynowania, Poznań.

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FINANCIAL INSTRUMENTS IN FINANCIAL STATEMENTS OF POLISH PUBLIC COMPANIES

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Abstract: *According to IFRS 7, the company should present financial information about the financial instruments and their impact on the financial position and financial result of the company. In the financial statements, the company should also provide information on the nature and range of the risk connected with financial instruments.*

The purpose of the paper is to analyze the information about financial instruments presented in financial statements of companies listed on the Warsaw Stock Exchange. The analysis concerned the following problems: classifications and valuation of financial instruments.

Findings show the lack of uniform presentation of information about financial instruments in financial statements.

Keywords: *Financial instruments.*

JEL classification: *G32, M41, M48*

Grant affiliation:

1. Introduction

The scope of information pertaining to financial instruments presented in financial statements is regulated by balance law. MSSF 7 (§1) obliges the economic entities to present, in their financial statements, the information on: accounting policy in the context of financial instruments, the influence these instruments have on reports of financial situation and a report of total income, risk connected with financial instruments and accounting of securities (Frendzel, 2010).

The purpose of the paper is to analyze the information about financial instruments

¹ presented in financial statements of Warsaw Stock Exchange listed companies. The analysis

concerned the following problems:

- classifications of financial instruments,
- valuation of financial instruments.

For the implementation of the purpose in the paper, both qualitative and quantitative methods were implemented: descriptive method, literature and law analysis method and methods of financial analysis.

2. Theoretical background

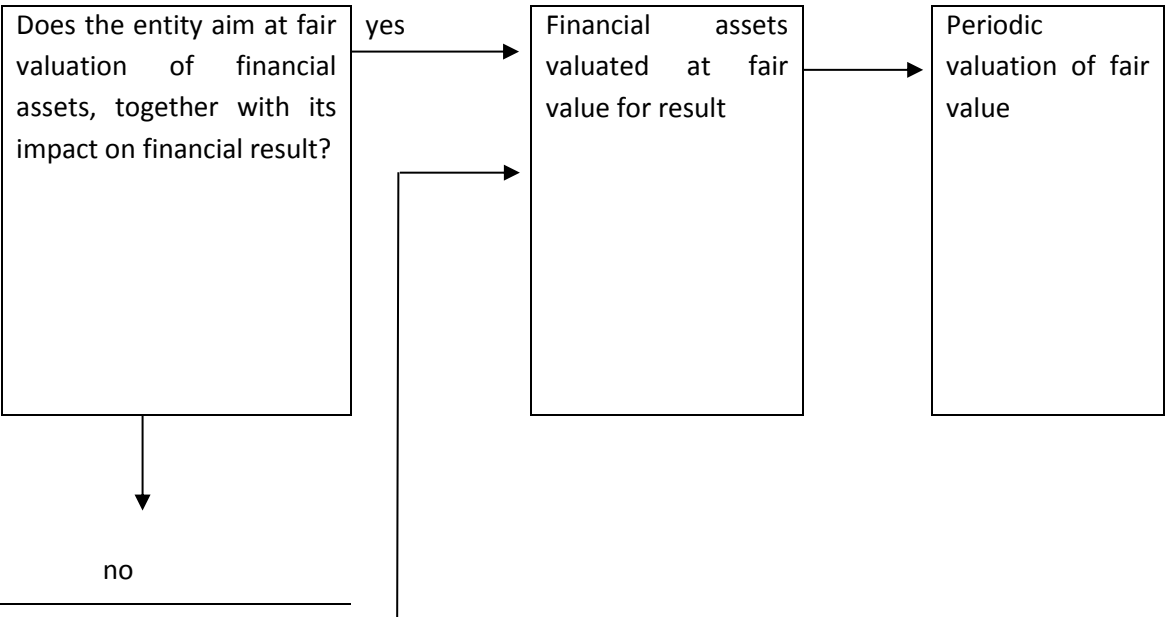
Financial statement of an entity should list the balance value of assets and financial obligations, divided in categories (MSSF 7, § 8).

In Poland publicly listed companies have the duty to prepare consolidated financial reports, pursuant to MSSF, dividing their financial assets according to the following categories (MSR 39, § 9):

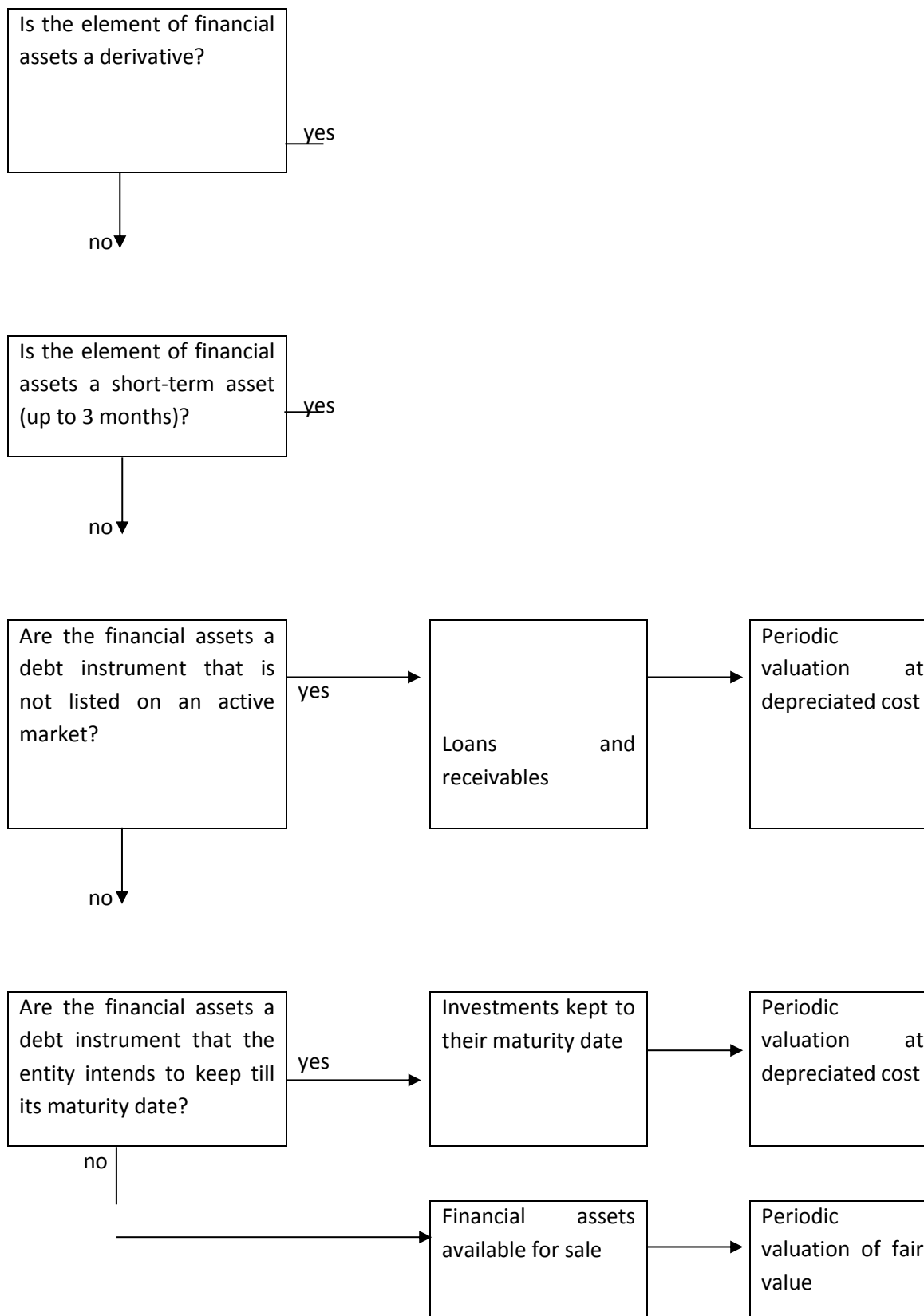
- financial assets valued at fair value for financial results,
- loans and receivables,
- investments kept to their maturity date,
- financial assets that are available for sale.

Qualification of financial assets in the respective categories conditions the adaptation of appropriate model for their periodic valuation. In this aspect the fair value or depreciated cost are utilized. The scheme for qualification of financial assets and their assignment to the categories for balance valuation is presented in the figure below.

FIG. 1: Rules for qualification and valuation of financial assets



¹Due to the limited volume of the present paper we concentrate our considerations on financial assets, omitting financial obligations and capital instruments.



Accounting of financial instruments is particularly connected with the use of fair value. According to MSSF 13 the entity should list the level in the fair value hierarchy corresponding to the valuated item. MSSF 13 characterizes three levels for setting the fair value (§ 76-90), namely:

- 1st level – market prices of identical assets and obligations,
- 2nd level – values set with use of valuation techniques that utilize observable (directly or indirectly) input data,
- 3rd level – values set with use of valuation techniques that utilize non-observable input data.

3. Data and methodology

Within our empirical research we analyzed the annual financial statements for the trading year of 2016 for 20 randomly chosen companies listed at the WSE in Warsaw. Due to the fact that one of these companies was not using the MSSF regulations, and financial statement was not available for another company, we qualified 18 listed companies for final research.

The object of the empirical research was the classification and valuation of financial instruments².

The research problem is thus limited to investigation of scope and form of the information on financial instruments published in financial statements.

The companies subject to analysis utilize MSR 39 and use four categories of financial assets for description of accounting practices.

4. Results and Discussion

4.1. Classifications of financial instruments

The accounting policies of companies subject to analysis demonstrate names of financial instruments that are similar to those resulting from MSR 39. In listing the categories of financial assets the companies characterize them, and those characteristics are concurrent with those of MSR. One (Gino Rossi) of the companies subject to our analysis utilizes the classification of financial assets pursuant to MSSF 9, distinguishing two categories: shares and loans & receivables.

The value of financial assets that the companies held as of December 31st, 2016 is presented in table 1. To illustrate the level of company engagement in financial instruments we also present their share in the balance sum.

TAB. 1: Categories of financial instruments held as of 31.12.2016 r. (data in thousand PLN)

No.	Company name	Categories of financial assets				Share of fin. ass. in balance sum
		FV	L&R	MD	FS	
	ALTA	173 276	13 558			0.98
	ARCUS		122		1 751	0.02

² Due to the limited volume of the present paper we concentrate our considerations on financial assets, omitting financial obligations and capital instruments.

	ATENDE	17 604	18 352		428	0.23
	AZOTY	829	177 568		12 134	0.02
	BENEFIT SYSTEM		160 342			0.57
	FAMUR		291 134			0.22
	GINO ROSSI	33 404	25 524			0.15
	HYDROTOR		9 704		24 743	0.31
	INTER CARS		10 839		301	0.01
	KOPEX	439	336 700		1 125	0.18
	LOTOS	11 203	2597 239		6 312	0.14
	MIT		95 691		5 189	0.36
	ORANGE POLSKA	99 000	248			0.004
	ORLEN	5	9 004	96	40	0.20
	QUMAK	452	146 179		1 458	0.55
	RAFAKO		462 965		369	0.45
	WAWEL		191 744			0.35
	WOJAS	13 215	35 713	51		0.32

Key:

FV – financial assets valued at their fair value for financial result,

L&R – loans and receivables,

MD – investments kept to their maturity date,

FS – financial assets available for sale,

All companies subject to our research presented financial instruments divided in categories, as required by MSSF regulations. A. Judkowiak (2014) came to similar conclusions in research. When the presentation mode is concerned (synthetic, details) and the scope of respective categories, we must notice that there is no data comparability. M. Remlein (2015) also notices this problem of lack of comparability of statement information. As table 1 suggest the companies generally “engage” in debt financial instruments (loans, receivables, credit) with only a negligible number of companies holding assets that are kept till their maturity date.

In analyzing the financial statements of selected companies we also observed large discrepancy in treatment of trade receivables. Some of the companies (Atende, Rafako) list receivables for supplies outside the group of financial assets in their statements, which may lead us to conclusion, that these companies do not treat trade agreements as financial instruments. On the other hand they do include them in their explanatory notes presenting financial assets.

According to the authors the explanatory notes on financial instruments should clearly distinguish the sums of pecuniary assets and trade receivables from other financial assets (securities, shares, derivatives, etc.). Pecuniary assets and trade settlements are first of all subject to different type of risk, and furthermore subject to slightly different balance valuation. It seems that these issues should be ordered and elements for the respective categories clearly and expressly assigned, for clarity of reporting information (from the viewpoint of its recipients).

4.2. Valuation of financial instruments

Analyzing the data of investigated companies according to their valuation we must state, that almost all companies value their financial instruments at fair value. The description of accounting practices includes the description of the 3 possible levels for its valuation. None of the analyzed companies holds financial instruments that are valued according to 3rd level. Generally the companies hold financial assets with fair value in form of market price (1st level). These instruments are reported by: Alta, Kopex, Orange Polska, Orlen, Qumak, Rafako. Atende, Gino Rossi, Kopex, Orange Polska and Wojas in turn report holding financial instrument with valuation classified at 2nd level.

In majority of cases the explanatory notes to statement of total income do not indicate income/cost in relation to respective categories, which does not allow us to clearly read the sums of achieved income/incurred costs for financial instruments and the income/cost from balance valuation (with "virtual" character). Nevertheless it seems that the possibility of reading this type of information from the financial statement is of significant value for stakeholders. Thus the choice of tools for balance policy, including e.g. the models for balance valuation should be performed from the perspective of information needs of recipients, as they are to appreciate these information as useful in decision making (Rówińska, 2016).

5. Conclusions

Our review and analysis of financial statements of companies that are listed at WSE in Warsaw allowed us to formulate the following conclusions:

- the use of different modes for presentation of information on categories of financial assets and results of their balance valuation renders the comparison of statement data and detailed data analysis impossible,
- the clear indication of pecuniary assets and trade receivables within financial instruments would facilitate the recipient's analysis of the remaining financial instruments, that are subject to specific rules for balance valuation, frequently resulting in statements of "virtual" result,
- the majority of financial instruments subject to fair value valuations held by the companies were those of 2nd level in the hierarchy of fair value.

In concluding we may state that due to the existing discrepancies in presentation of information on financial instruments that distort the execution of rule of data comparability and authors see the need for development of uniform rules, and most of all for consistent scope of published statement information.

Findings show the lack of uniform presentation of information about financial instruments in financial statements.

Literature:

Frendzel, M. (2010). *Rachunkowość instrumentów finansowych w świetle regulacji krajowych i międzynarodowych*. SKwP, Warszawa, p. 235.

Judkowiak, A. (2014). *Informacja o instrumentach finansowych w sprawozdaniach finansowych sporządzanych zgodnie z MSSF i polskimi zasadami rachunkowości*. Zeszyty Teoretyczne Rachunkowości. Volume 77, SKwP, Warszawa, pp. 100-101.

IFRS 2016, IASB, London.

Remlein, M. (2015). *Finansyzacja i jej skutki w sprawozdaniu finansowym polskich spółek giełdowych branży paliwowej*. Zeszyty Teoretyczne Rachunkowości. Tom 82, SKwP, Warszawa, pp. 134-135.

Rówińska, M. (2016), *Przydatność – podstawowa cecha informacji finansowej?* Finanse, Rynki finansowe, Ubezpieczenia, no. 2(80).

Financial statements of investigated companies, <https://www.money.pl/gielda/wyniki/raporty/>.

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CORPORATE SOCIAL RESPONSIBILITY REPORTING BY POLISH PUBLIC COMPANIES

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Abstract: *Integrated reporting continues to be a relatively new, yet quickly developing discipline. There are multiple benefits of integrated reporting for the reporting entity. This paper discusses the essence of integrated statement which in a holistic way presents the effects of an entity's activity in the area of economy, environment and society.*

The research problem consists of answering the following questions:

- 1. What should be presented in integrated statements and how to present it?*
- 2. What are the benefits and the barriers of preparing integrated statements?*
- 3. What is the practice of Polish public companies as regards integrated statements?*

The purpose of this paper is to present solutions used by Polish public companies preparing integrated statements. Also, an attempt was taken at determining the costs and benefits experienced by entities preparing statements containing both financial and non-financial information.

Keywords: *Corporate social responsibility, integrated reporting, integrated statement.*

JEL classification: *M40, M41, M49*

Grant affiliation:

1. Introduction

Increasingly strong relationships between economic, environmental and social aspects of business activity are reflected in social responsibility accounting. Financial statements, constituting an important source of financial information required for evaluating the performance of a business organization and affecting decisions taken by financial statement users, are the ultimate product of accounting. In its turn, all non-financial information relating to an entity's business activity is presented in separate reports, which means that individual aspects of activity are presented in a

fragmented manner. An attempt at combining financial and non-financial information has been taken as part of a new accounting concept, referred to as integrated reporting.

The research problem consists of answering the following questions:

1. What should be presented in integrated statements and how to present it?
2. What are the benefits and the barriers of preparing integrated statements?
3. What is the practice of Polish capital groups as regards integrated statements?

The purpose of this paper is to present solutions used by Polish capital groups preparing integrated statements. Also, an attempt was taken at determining the costs and benefits experienced by entities preparing statements containing both financial and non-financial information.

To achieve the goal of this paper it was necessary to use adequate research methods including an analysis of literature, comparisons and analogies.

2. Purpose and structure of integrated statements

Integrated statements constitute a concise message on how strategy, governance, performance and prospects of an organization – in the context of its external environment – affect its value in a short, mid and long term perspective (The International Integrated Reporting Council).

By analyzing the above definition one can conclude that integrated statements present both financial and non-financial information, including that related to the relationships between strategy, management and business prospects.

Preparation of integrated statements requires a completely different approach to data analysis and presentation than in the case of financial statements. The differences between the two approaches are presented in Table 1.

TAB. 1: Comparison of approaches to preparing financial statements and integrated statements

Aspect	Financial reporting	Integrated reporting
Thinking	Silos	Integrated
Stewardship	Financial	All capital (human, social, etc.)
Focus	Financial matters from the past	Strategic issues relating to the past and to the future
Timeframe	Short-term	Short, mid and long-term
Trust	Narrow disclosure	Greater transparency
Compliance	Rule bound	Responsive to circumstances

Detail	Long and complex	Concise and material
Presentation	Paper based	Technology based

Source: IIRC.

Important items that should be included in integrated statements include facts relating to:

- the organization itself and its environment – what does the organization do and in what environment does it operate?
- corporate governance – how does the corporate governance structure affect value creation?
- opportunities and risks – what are the opportunities and risks that affect creation of the organization's value and how does the organization manage them?
- strategy and allocation of resources – what is the organization's strategy and how is it implemented?
- the organization's business model – what is the organization's business model and how flexible is it?

the organization's performance – what strategic goals has the organization achieved and what are their effects in the context of capital and efficient governance?

- prospects – what challenges and uncertainties in implementing its strategy has the organization identified and what can be their effect on the organization's business model and future performance?

An analysis of items and areas that should be presented in integrated statements prompts the following question: how should one recognize certain information and where should it be presented?

Answering the above question is by no means easy, because everything depends on the concept assumed by the reporting organization. Integrated statements can be prepared as a separate document, or as part of a business report.

In the first case (integrated statement), where all types of presented information, i.e.:

- non-financial information relating to various operating areas of the organization (ESG report),
- information on resources omitted from the financial statements (e.g. intellectual capital, competences),
- financial information (financial statements),

are considered to be of the same importance, the entire document is complete and cohesive (integrated statements).

In the second approach (business report) financial information is considered the most important, while non-financial information constitutes a kind of a “supplement” to financial statements.

By analyzing the above approaches one should conclude that a higher degree of information integration is observed in the case of integrated statements. Therefore, one can assume that in the initial stage of preparing integrated statements organizations will prefer the business report approach, where financial statements and activity report – prepared already – are accompanied by information on resources omitted from the financial statements.

3. Benefits and challenges of integrated reporting

Even though the history of integrated reporting is relatively short, one can observe a growing number of entities that prepare and publish integrated reports (Corporate Register). The above observation inspires one to investigate the reasons for such growth. What benefits are expected by companies that prepare and present both financial and non-financial information in the form of an integrated report?

Reporting on all key areas of activity makes an organization more transparent to its stakeholders, who not only want the organization to be accountable for its actions and their effect on the environment, but are also interested in information on the scale, type and efficiency of actions taken in this regard. Benefits from presenting an integrated report are perceived also by reporting entities themselves, because more and more often they realize that integrated reporting makes them good corporate citizens. In addition, it drives innovation and promotes learning, which in its turn enhances business growth and strengthens the company’s market value (KPMG 2011, p. 2).

The benefits of integrated reporting have been highlighted by the IIR Council which finds that joint presentation of financial and non-financial information will ensure improved satisfaction of information needs of long-term investors – presentation of integrated information allows one to better assess the company’s capability to generate future cash flows, (Jędrzejka 2012, p. 318).

The very essence of integrated statements requires that financial and non-financial information is presented by means of the same measurement and reporting principles. In the case of non-financial information one can still notice certain imperfections regarding its measurement, due to the lack of uniform metrics of non-financial performance. Consequently, there is a noticeable disproportion in integrated reports between financial and non-financial information, which eventually distorts the overall picture of the organization’s performance.

Preparation of integrated statements is perceived as a task that is laborious and expensive for the reporting entity. From the perspective of the statements’ user, information contained therein is difficult to verify and compare against the performance of other entities. Some say that presentation of selected information only may be counter-productive, thus making the entity untrustworthy to investors and customers and inspiring cynicism among managers and lack of enthusiasm among employees. Furthermore, publishing information about poor performance may weaken the company’s competitive position (Szadzińska 2013, p. 262).

The benefits of and barriers to integrated reporting are presented in Table 2.

TAB. 2: Benefits of and barriers to the implementation of integrated reporting

Benefits	Barriers
improved satisfaction of information needs of long-term investors	integrated reporting must be addressed in the organization's strategy
demonstration of clear connections between factors inside and outside the company	involvement of multiple groups of stakeholders
higher level of trust among key stakeholders	applying the same measurement and reporting principles to financial and non-financial information
better decisions regarding allocation of resources, thus reducing costs	lack of uniform non-financial performance metrics
identification of opportunities and threats, both for the reporting entity and for the report's readers	disproportion between financial and non-financial information
greater involvement on the part of investors and other stakeholders	time-consuming and expensive procedure of preparing integrated statements
lower risk of losing one's reputation	incomparability of non-financial information
easier access to and lower cost of capital	information overload and chaos
efficient allocation of capital and rare resources	missing sense of responsibility for overall performance among managers
higher quality of collected data	
improved decision-making process	

Source: by the author based on: Jędrzejka 2012, pp. 318-319, Sobczyk 2012, pp. 163-165, Szadziewska 2013, 262.

An analysis of the benefits of and barriers to preparing integrated statements allows one to conclude that despite clear benefits for the reporting entity itself and for the entire business environment, the integrated reporting process will be time-consuming, cost-intensive and troublesome to the reporting entity (EC 2011, p.15). In addition it should be remarked that the concept of integrated reporting is relatively new and its principles are still being developed. Therefore it is not impossible that reporting entities will be facing new obstacles and problems in this regard.

4. Data and methodology

The research group consists of selected, largest domestic fuel companies listed on the Warsaw Stock Exchange. The research group was chosen deliberately, based on the type and importance of the company. These companies play a huge role in the national economy, manage assets of considerable value and do not operate in the financial sector.

To evaluate the content and scope of information presented in integrated statements the author analyzed reports prepared by PKN ORLEN, GRUPA LOTOS S.A. and PGNiG S.A.

PKN ORLEN has prepared integrated reports since 2006, and in 2008 it implemented the GRI international reporting standard.

GRUPA LOTOS S.A. published its first GRI-compliant social reports in 2008 and 2009 and the first integrated report was prepared in 2010.

PGNiG S.A. has published its social report called “Odpowiedzialna energia” (Responsible Energy) since 2008.

5. Results and Discussion

PKN ORLEN has been building its position on such values as responsibility, development, people, energy, reliability. It is aware of its influence and cooperates with many different groups of stakeholders. Acting on an assumption that nowadays social and environmental matters are of huge importance, the company believes that in the annual report they should receive as much attention as financial performance. The group's success is measured not only in economic results, but also in ethical aspects of business (Korzyści 2013, p. 137).

GRUPA LOTOS S.A. has conducted its business in accordance with the principles of corporate social responsibility since 2008, when the CSR concept was included in the group's business strategy, long-term development plans and mission. Thus, the group has a coherent business vision, paying equal attention to economic, social and environmental aspects. The group notices a two-fold benefit of integrated reporting. Benefits enjoyed by the reporting group are related to more complete identification of risks related to social responsibility, better recognition of opportunities and influences exerted by the company on its surroundings. Furthermore, integrated reports have contributed to better governance of the company. As regards benefits enjoyed by the group's stakeholders, the most important one is greatest trust in the group achieved through greater reliability and transparency. In addition, integrated reports provide unbiased and measurable information on economic, social and environmental conditions of doing business (Korzyści ...2013, p. 138).

PGNiG S.A. prepares the report in compliance with GRI guidelines and covers the operations of entities belonging to PGNiG Capital Group. In the opinion of the reporting entity, the report is a source of knowledge for all groups of stakeholders about the complex value chain of the company and its social and environmental impacts. It is also a good source of information about new projects and investments initiated by the group. Apart from GRI indicators, the report also presents selected indicators proposed by Global Compact, IPIECA and ISO 26000 (Korzyści ...2013, p. 142).

Table 3 below compares the structure and scope of integrated reports prepared by the analyzed capital groups.

TAB. 3: Comparison of the structure and scope of integrated statements

PKN ORLEN	Grupa LOTOS S.A	PGNiG S.A.
Who we are	Organization and its report	Mission
Society	Opportunities and risks	PGNiG – facts and figures
Market	Value growth strategy	Calendar of events
Employees	Corporate Governance	Letter from the CEO
Environment	Financial data	Board of Directors
Safety	Useful information	Letter from the President of the Supervisory Board
		Supervisory Board
		PGNiG on the stock exchange
		Strategy of PGNiG Capital Group
		Prospecting and extration
		Sale and storage
		Distribution
		Heat and electricity generation
		Corporate governance
		Risks
		Employees
		Environmental protection
		PGNiG group
		2013 consolidated financial statements
		Contact us

Source: by the author based on: Corporate Social Responsibility Report. Annual Report 2016, PKN ORLEN; Integrated Annual Report 2016, Grupa LOTOS S.A.; PGNiG Annual Report 2016.

An analysis of the structure and scope of information presented in integrated statements draws one's attention to differences in the scope and form of presenting integrated information. While the currently observed freedom in determining the scope of social reporting has certain advantages, the lack of uniform rules of preparing integrated reports in Poland may constitute a serious problem for their readers (stakeholders), as it renders comparisons and right choices more difficult.

6. Conclusions

Integrated reporting continues to be a relatively new, yet quickly developing discipline. Each year brings about more and more companies that supplement financial information with non-financial information relating to social and environmental aspects. Therefore it is highly likely that there is no turning back from integrated reporting. Even if the Polish legislator does not introduce an obligation to publish uniform integrated reports, it will still be in the best interest of Polish companies to present both financial and non-financial information. There are multiple benefits of integrated reporting for the reporting entity, and eventually their market position and reputation is improved, which has a positive effect on their value.

Literature:

CorporateRegister.com. For more see: <http://www.corporateregister.com/crra/>.

Corporate Social Responsibility Report. *Annual Report 2016*, PKN ORLEN.

EC (2011). *A renewed eu strategy 2011-14 for corporate social responsibility*, retrieved from http://ec.europa.eu/enterprise/policies/sustainable-business/files/csr/new-csr/act_en.pdf.

Integrated Annual Report 2016, Grupa LOTOS S.A.

Jędrzejka, D., (2012). *Raportowanie zintegrowane jako nowe podejście do współczesnej sprawozdawczości*. Acta Universitatis Lodziensis, Folia Oeconomica 266.

Korzyści z raportowania społecznego w ocenie firm raportujących. (2013). w: *Wspólna odpowiedzialność*. Rola raportu społecznego, red. N. Ćwik, Forum Odpowiedzialnego Biznesu, Warszawa.

KPMG International Survey of Corporate Responsibility Reporting 2011, retrieved from <http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/corporate-responsibility/Documents/2011-survey.pdf>.

PGNiG Annual Report 2016.

Samelak, J. (2013). *Zintegrowane sprawozdanie finansowe przedsiębiorstwa społecznie odpowiedzialnego*. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań.

Sobczyk, M. (2012). *Zintegrowane raportowanie – nowy model raportowania biznesowego*. w : Trippner P (red.), Aktualne wyzwania w zarządzaniu podmiotami gospodarczymi, Przedsiębiorczość i Zarządzanie, t. XIII, z.1, Łódź.

Szadzińska, A. (2013). *Rola rachunkowości w pomiarze efektywności działań CSR*. Prace i Materiały Wydziału Zarządzania Uniwersytetu Gdańskiego.

The International Integrated Reporting Council. For more see: <http://www.theiirc.org>.

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INFORMATION ACQUISITION IN NEW PRODUCT DEVELOPMENT PROJECTS

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Abstract: *Today's companies are launching their products in conditions of highly competitive markets, shortening product development cycles and increasing customer expectations. Limited resources impose development of the most promising new products. Consequently, there is a need to evaluate the potential success of a new product. This evaluation can be based on information obtained from enterprise databases and employees. The paper is concerned with developing a model of information acquisition taking into account product novelty. The proposed approach supports project managers in evaluating new product development projects and selecting a project portfolio.*

Keywords: *New product success, project portfolio, knowledge base, enterprise information system.*

JEL classification: *D81, D83, O32*

Grant affiliation:

1. Introduction

New product development (NPD) is one of the most important processes in a company affecting its profitability and survival. Despite the advantages of using project management methodologies, NPD is still a risky activity due to the high cost and inherent technical and commercial risks. Hence, there is a need to modify existing methods for supporting project managers, e.g. in evaluating the success of a new product. The critical success factors of NPD are often identified through studying successful and unsuccessful new product projects. For example, Cooper and Kleinschmidt (2007) classify factors that drive new product success at the project level into four groups: strategic factors (e.g. product advantages, availability of resources), development process factors (e.g. proficiency of marketing and technological activities, top management support, speed to market), market environment factors (e.g. market potential, external environment), and organizational factors (e.g. internal/external relations in team). Ernst (2002) divides the success factors of new products into the NPD process, organizational aspects, cultural aspects, role and commitment of senior management, and NPD strategy. In turn, Tidd and Bodley (2002) distinguish additional success factors such as market

knowledge (including competitive analysis and identification of customer needs) and risk assessment (market-based, technological, manufacturing and design sources of risk).

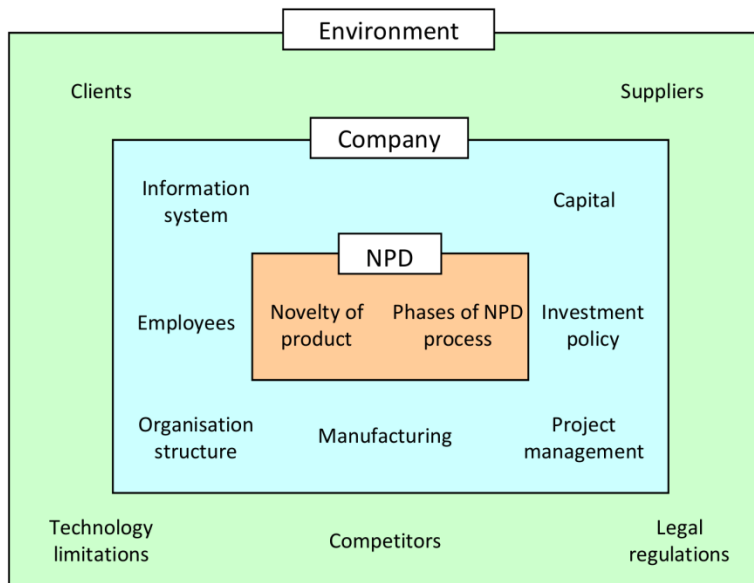
Information acquisition in the context of NPD is considered in literature from both human-related and technology-related perspectives. The first perspective refers to the problem of identifying employee knowledge and transforming linguistics into the specification that can be used to develop an enterprise information system and improve the decision making process (Ramesh & Tiwana, 1999; Hoegl & Schulze, 2005; Kuryłek, 2016). The second perspective refers to task of obtaining information from multidimensional databases with the use of computational intelligence techniques (Zhen et al., 2013; Relich, 2015; Kłosowski & Gola, 2016; Li et al., 2016; Lyu et al., 2017).

NPD is the complex and iterative process that consists of phases such as: market research, idea generation, concept(s) selection, product design, prototype testing, and launch. The extent of executing NPD phases depends on the novelty of a product. High novelty products require techniques that base on market experimentation and industry experts, whereas low novelty products can use trend extrapolation and segmentation (Tidd & Bodley, 2002). Low novelty products can refer to personalised products within mass customisation that occurs more and more often in contemporary companies (Nielsen et al., 2014). The previous experiences acquired during execution of the past similar NPD projects can support project managers in evaluating the success of a new product. The aim of this study is to develop a model of information acquisition for high and low novelty products. The proposed model takes into account the expert evaluations and information acquired from enterprise databases.

2. Model of new product development

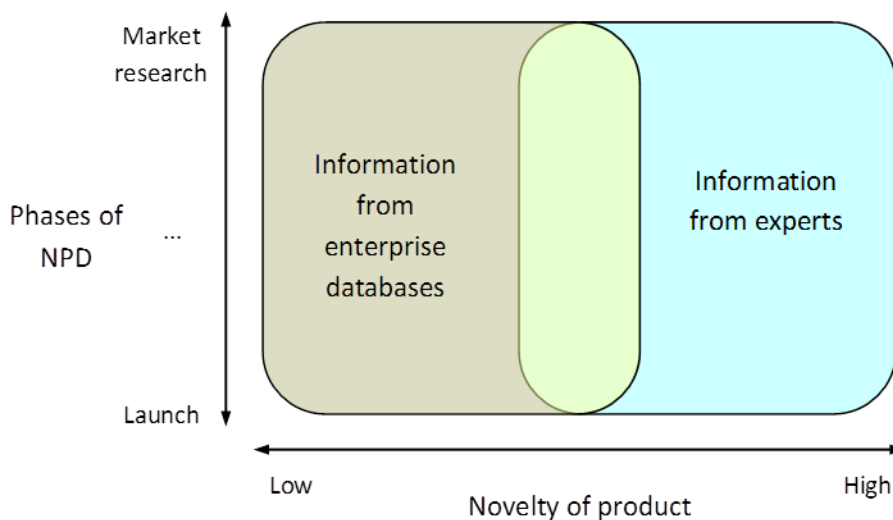
The NPD process depends on many factors derived from both inside and outside the company. Figure 1 presents a model of NPD in the context of the company and its environment. New products are developed with the use of resources (e.g. employees, machines, financial means) and within the limitations (e.g. available technology, environmental and safety regulations, qualification of employees, R&D budget).

FIG. 1: Model of NPD



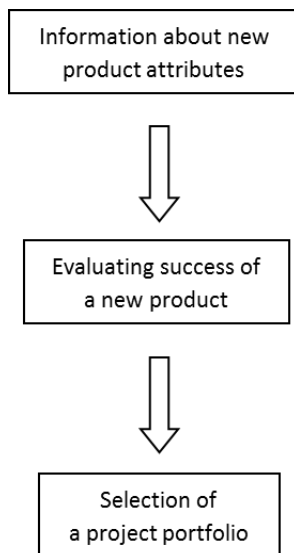
Information acquisition in the context of NPD process is related to enterprise databases, qualification of employees, and methods used to obtain information and develop a knowledge-based system. Figure 2 illustrates information sources in the context of NPD phases and product novelty. If the product is new for the company, then the success of the potential product is evaluated according to expert knowledge. In turn, the success of products related to low novelty can be evaluated with the use of past experiences stored in enterprise databases. Thus, previous product specifications are used to obtain information about attributes of a new product (e.g. cost, time of designing, reliability), and finally, about its potential success.

FIG. 2: Information sources in the NPD process



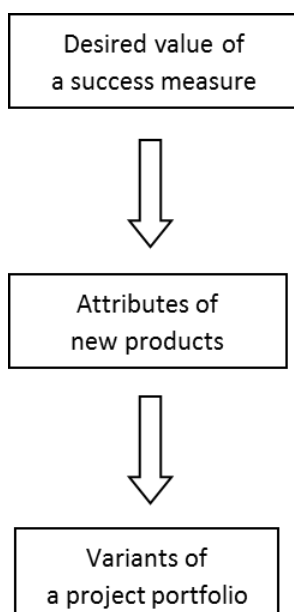
Further considerations refer to the phase of product selection in the NPD process. Figure 3 presents the placement of evaluating success of a new product in the context of supporting decision making in the NPD process. There is sought information about relationships between product attributes and their impact on the success of a new product. Information about the potential success of new products can support the decision maker in selecting the most promising project portfolio or relocating resources between NPD projects.

FIG. 3: Process of selecting a project portfolio



If the potential success of new products is not acceptable for the decision maker, then there are sought values of attributes of new products that ensure the desired value of the selected success measure (e.g. product profitability). This reverse approach refers to generating and verifying possible variants of a project portfolio (see Fig. 4).

FIG. 4: Process of generating project portfolio variants



The number of possible variants depends on domains of decision variables (attributes of new products) and constraints that affect the solution space. Identifying all possible solutions according to a brute-force search is not time-effective. To reduce the solution space, a constraint (declarative) programming paradigm has been developed (Rossi et al., 2006). This paradigm differs from imperative programming languages in that constraints do not specify a step or sequence of steps to execute, but rather the properties of the sought solution. The considered problem of selecting a project portfolio is formulated as a constraint satisfaction problem (CSP):

$$\text{CSP} = ((V, D), C)$$

where:

V - a finite set of variables,

D - a finite set of discrete domains of variables,

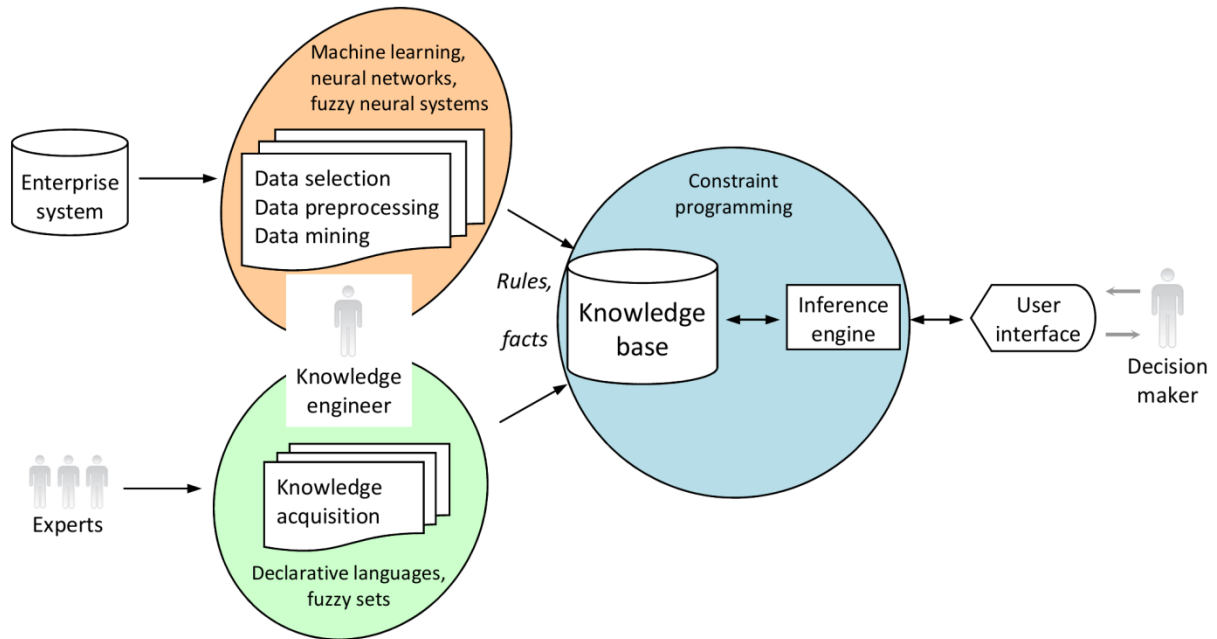
C - a finite set of constraints limiting and linking variables.

In the considered problem, constraints can refer to the R&D budget, unit production cost, product price, etc. In turn, variables can include the time and cost of a NPD project, the number of components in the new product or project team members. The model specification in terms of a CSP integrates technical parameters, available resources, client's desires and identified relationships between variables in the form of the knowledge base, and facilitates the development of a knowledge-based system (Relich, 2016).

3. A knowledge-based system for supporting NPD decisions

Knowledge is the most comprehensive resource that help develop the company's wealth (Grzybowska & Łupicka, 2016). Consequently, there is a need to elaborate an approach for acquiring information from experts and an enterprise system and supporting project managers in making decisions within the NPD process. These decisions can refer to project portfolio selection or relocation of resources between NPD projects. Figure 5 presents a framework of a knowledge-based system for supporting NPD decisions.

FIG. 5: A knowledge-based system for supporting NPD decisions



A central element of the presented knowledge-based system is the knowledge base that contain rules and facts. Rules are specified in the conditional form as “if-then” statements. They are acquired from experts or identified with the use of data mining techniques that cope with seeking relationships in large data sets. Data mining techniques often base on computational intelligence (including artificial neural networks and fuzzy neural systems) that are successfully used to classification and estimation problems (Relich, 2015). The expert statements can be specified in terms of fuzzy set theory that enables the description of imprecise information. Inference engine formulates solutions using the knowledge base and forward or backward chaining. In turn, user interface allows the decision maker to specify the conditions of the considered problem (e.g. the number of NPD projects, their attributes (product line, size, complexity), R&D budget, the number of project team members) and to present the solution (potential profitability of new products and possible project portfolios). The knowledge engineer selects techniques for data mining and translating domain expert statements into the form useful for developing the knowledge-based system.

4. Conclusion

The proposed model of information acquisition in NPD combines two information sources: enterprise databases and experts. The model is specified in terms of CSP that facilitates development of a knowledge-based system and time-effective search of solutions. The acquired information is stored in the knowledge base that is used to identified the potential success of new products and project portfolio variants. The presented approach proposes the model of information acquisition in the context of high and low novelty products, and the framework for developing a knowledge-based system that allows project managers to conduct what-if analysis, evaluate the potential product

profit, and reduce the risk of developing an unsuccessful product. On the other hand, the application of the proposed approach encounters some difficulties, for example, by collecting enough amount of data of the past similar NPD projects and translating information from employees in the form useful for an enterprise information system. Nevertheless, the presented approach seems to have the promising properties for acquiring information from enterprise databases and experts, and improving the decision making in the context of the NPD process.

Literature:

Cooper, R., & Kleinschmidt, E. (2007). Winning businesses in product development: The critical success factors. *Research-Technology Management*, 50(3), 52-66.

Ernst, H. (2002). Success factors of new product development: A review of the empirical literature. *International Journal of Management Reviews*, 4(1), 1-40.

Grzybowska, K., & Łupicka, A. (2016). Knowledge acquisition in complex systems. *Advances in Computer Science Research*, 57, 262-266.

Hoegl, M., & Schulze, A. (2005). How to support knowledge creation in new product development: An investigation of knowledge management methods. *European Management Journal*, 23(3), 263-273.

Kłosowski, G., & Gola, A. (2016). Risk-based estimation of manufacturing order costs with artificial intelligence. In: *Federated Conference on Computer Science and Information Systems*, 729-732.

Kuryłek, Z. (2016). The acquirement and functioning of mezzanine capital on the example of enterprises operating in the Republic of Poland. *Advances in Intelligent Systems and Computing*, 521, 139-150.

Li, Z., Janardhanan, M. N., Tang, Q., & Nielsen, P. (2016). Co-evolutionary particle swarm optimization algorithm for two-sided robotic assembly line balancing problem. *Advances in Mechanical Engineering*, 8(9), 1-14.

Lyu, G., Chu, X., & Xue, D. (2017). Product modeling from knowledge, distributed computing and lifecycle perspectives: A literature review. *Computers in Industry*, 84, 1-13.

Nielsen, I., Dang, Q. V., Nielsen, P., & Pawlewski, P. (2014). Scheduling of mobile robots with preemptive tasks. *Advances in Intelligent Systems and Computing*, 290, 19-27.

Nielsen, P., Michna, Z., & Do, N. A. D. (2014). An empirical investigation of lead time distributions. *IFIP Advances in Information and Communication Technology*, 438, 435-442.

Ramesh, B., & Tiwana, A. (1999). Supporting collaborative process knowledge management in new product development teams. *Decision Support Systems*, 27(1), 213-235.

Relich, M. (2015). Knowledge creation in the context of new product development. In: *Knowledge for Market Use 2015*, 834-847.

Relich, M. (2016). A knowledge-based system for new product portfolio selection. *Intelligent Systems Reference Library*, 98, 169-187.

Rossi, F., van Beek, P., & Walsh, T. (2006). *Handbook of constraint programming*. Elsevier Science.

Tidd, J., & Bodley, K. (2002). The influence of project novelty on the new product development process. *R&D Management*, 32(2), 127-138.

Zhen, L., Wang, L., & Li, J. (2013). A design of knowledge management tool for supporting product development. *Information Processing & Management*, 49(4), 884-894.

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COOPERATIVE WITH COMPETITIVE ENVIRONMENT AS A DETERMINANT OF COMPETITIVE POSITION OF MICROENTERPRISES IN POLAND

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Investments and Real Estates

Abstract: *In contemporary economy it should be noticed the growing importance of different forms and scopes of cooperative between organizations dealing in complex and changeable environment. Using the potential of any kind of relations with other business entities becomes the determinant of improving the competitive position of enterprise. The main aim of the article is to present and analyse the cooperative with competitive environment as a determinant of competitive position of microenterprises in Poland. The inference in the article is based on the results of the questionnaire survey conducted among Polish microenterprises in 2016. The studies resulted in finding statistical dependencies that show the relation between the form and selected aspects of cooperative between microenterprises and their competitive position.*

Keywords: *Cooperative, competitive position, microenterprises.*

JEL classification: L21, L26, M21

Grant affiliation: *Czestochowa University of Technology.*

1. Introduction

Small business play a pivotal role in the national economies of countries all around the world. Small business has an important contribution to employment, growth and stabilization of the economy of the country and its regions (Haviernikova, Okręglicka & Lemańska-Majdzik, 2016).

Nowadays, the increase in the number of microenterprises is noticed. They are engaged in global value chains. In the current belief the comprehensive explanations of SME competitiveness (at both domestic and international level) must include the context of relationships through which small entrepreneurs obtain information, resources and social support (Antoldi, Cerrato, & Depperu, 2011).

A human being, as a social being, can not live and function without interacting with other individuals in its socio-economic environment. Today, modern organizations consist of a large number of units involved in numerous interactions, and complex network cooperation creates opportunities for

actors, enabling them to communicate faster at higher frequencies, thus achieving competitive advantage (Zekan et al., 2011).

The main aim of the article is to present and analyze the cooperative with competitive environment as a determinant of competitive position of microenterprises in Poland.

2. Theoretical background

The term competitiveness does not have a uniform definition in literature. No one generalized definition of this issue what is related to the fact that the theory of competitiveness is constantly being developed (Sipa, Gorzeń-Mitka, & Skibiński, 2015).

According to the definition created by Porter (1992), competitiveness is presented as a concept in the form of competitive advantages or benefits. Porter pointed, that competitiveness results from an enterprise's competitive strategy in the process of achieving and maintaining competitive advantage, which is considered as widely understood ability of the organization to implement a strategy that is unable to be implemented by existing and potential competitors (Barney, 1991).

The essence of competitiveness is described as a multi-level microeconomic category due to relations between elements: the managing entity, its potential and skills, and the market structure along with possibilities appearing on it (Faulkner & Bowman, 1996). In turn, the well-known reputable creator of contemporary management concept, Drucker (2002), described competitiveness as a sign of market success of an enterprise due to entrepreneurship shaped by means of innovation.

When investigating the determinants of enterprise competitiveness, it is worth paying attention to the variable environment, on which the enterprise does not usually have an influence. The business environment is all that is outside of the enterprise and is comprised of processes and phenomena taking place outside it and the various entities acting next to it. Business environment as external forces, elements and institutions (customers, competitors, suppliers, government and the economic, social, political, legal and technological factors etc.) are beyond the control of the organization but affect significantly the business operations and processes (Ajayi, 2016).

Each enterprise is relatively separated from the environment, but there is the fact that without it it could not operate. According to the theory of social exchange, the success of an organization depends on the ability to use the characteristics of the environment. Thanks to the environment, the organization can function by collecting the necessary energy and information (Tomski, 2016).

The reactions of modern businesses to the growing turbulence of the environment are expressed in the search for new sources of competitive advantage and the development of relations (networks). Such networks encompass a firm's set of interactions, both horizontal and vertical, with other organizations – be they competitors, suppliers, customers or other entities – including relationships across industries and countries (Gulati, Nohria & Zaheer, 2000).

Literature defines cooperative as a relationship, in which individuals, groups, and organizations interact with each other by sharing or transferring complementary resources and skills, and their development to achieve mutual benefits (Gnyawali & Madhavan, 2006). The ability to create

collaboration between businesses may lead to the joint problem solving, joint control over processes, and mutual knowledge exchange (Daniluk, 2016). However, a large part of alliances fails to achieve both the goals and the assumed benefits by the cooperating enterprises (Lunnan & Haugland, 2008).

The concept of cooperation and networking applied to the strategic management of SMEs helps to focus on entrepreneurship as a collective, rather than an individualistic phenomenon and permits the addition of some innovatory options regarding the ways small businesses may build their competitive advantage, in both domestic and international markets (Antoldi, Cerrato & Depperu, 2011).

The success of such cooperative organizations hinges crucially on their ability to sustain competitive advantage and achieve superior performance (Othman et al., 2015). All aspects of cooperative created by new business conditions contribute to creating added value. Additionally, firms are more properly viewed as connected to each other in multiple networks of resources and other flows. These linkages bind them in complex relationships that are simultaneously competitive and cooperative (Gulati, Nohria, & Zaheer 2000).

3. Methodological framework

In order to achieve the aim of the paper, analysis of the results of the Author's own research was conducted. The main aim of the article is to present and analyze the cooperative with competitive environment as a determinant of competitive position of microenterprises in Poland.

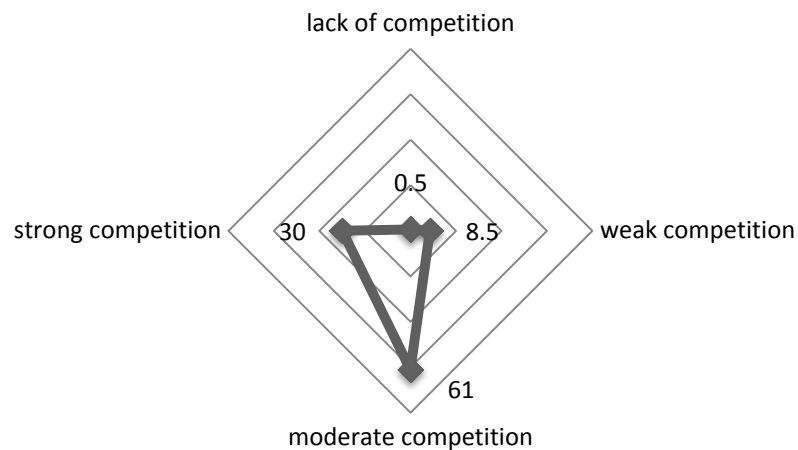
The research used a purposive sampling. It was conducted at the beginning of 2016 on a group of 164 enterprises employing from 0 to 9 employees and was addressed to enterprises' owners or managers. The relationships between the variable were analysed by estimating Chi square coefficient. Test probability $p < 0.05$ was assumed to be relevant.

In view of the main aim of the paper, the following research hypotheses have been formulated: H0 – there is not the dependence between formal and informal cooperative with competitive environment and the microenterprises' competitive position.

4. Results

During the study the micro enterprises specified the level of competitiveness on the main market they operate (FIG. 1). The study shows there is strong competition in the case of 30% enterprises, and for 61% enterprises competition is defined as moderate. Weak or lack of competition was declared only by 9.0% surveyed companies.

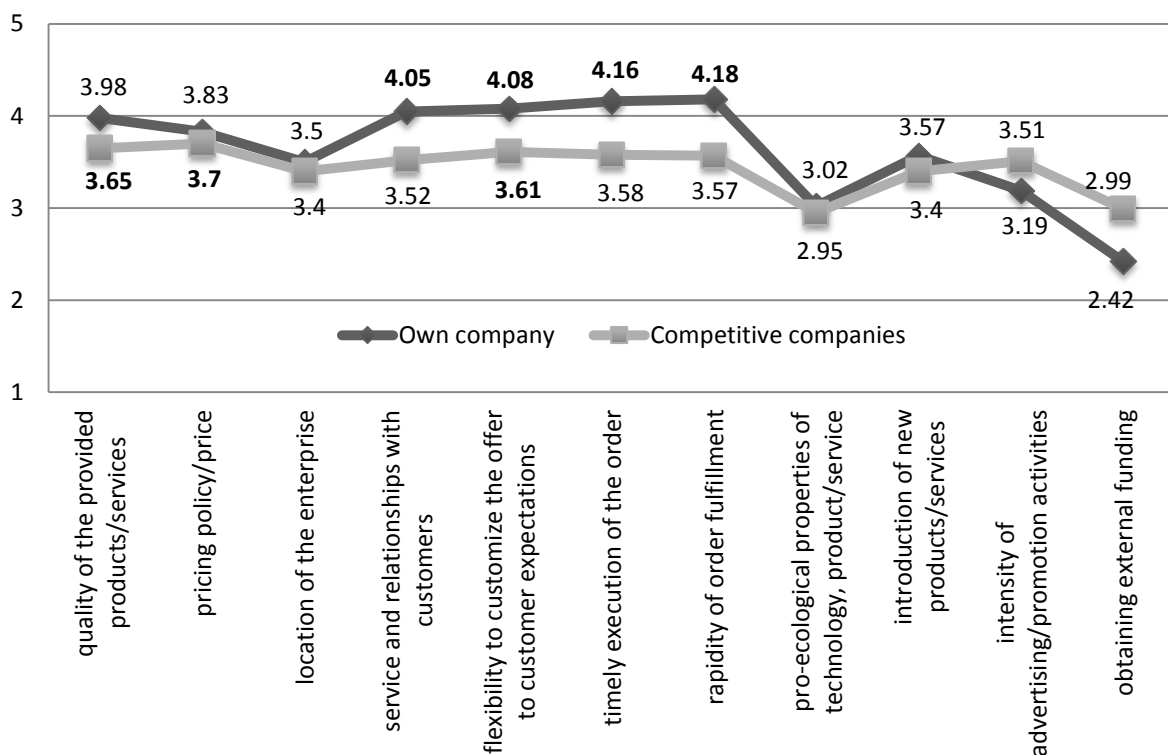
FIG. 1: The level of competitiveness on the main markets micro-enterprises (%)



Source: Own study

The surveyed micro enterprises determined using 5-point scale (from 1 – very low impact to 5-very high impact) the impact of the selected elements on achieving the present level of competitive position of the surveyed company and other companies within industry. For surveyed companies the most important determinants were the quick and on-time order realization, whereas for other companies (competition) the quality and price of goods/services were seen as crucial for competitive position (FIG. 2).

FIG. 2: Influence of selected determinants on the competitive position of micro enterprises (n=164)



Source: Own study

The next step of the analysis was the dependency investigation between variables: formal and informal co-operation of micro enterprises with other business entities from both the same industry and other industries. Many entrepreneurs declare that they do cooperate with other companies, but more of them confirm the formal cooperation. (TAB. 1).

TAB. 1: Formal and informal cooperation with competitive environment of micro-enterprises in Poland (n=164)

	The competitive position of the company			
	<u>better</u>	comparable	<u>worse</u>	difficult to assess /do not know
Formal cooperation				
with a few companies from the same industry	12	28	6	14
with one company from the same industry	3	10	0	4
with companies from other industries	2	14	1	4
no cooperation, but the company is considering it	3	5	2	3
no cooperation, but it is a good idea	2	7	0	5
no cooperation and no plans for it	2	17	4	16
Chi square = 15,13235; df = 23; p = 0,889822				
Informal cooperation				
with a few companies from the same industry	7	17	2	3
with one company from the same industry	3	1	1	5
with companies from other industries	5	10	0	11
no cooperation, but the company is considering it	1	5	2	3
no cooperation, but it is a good idea	1	5	0	1
no cooperation and no plans for it	7	43	8	23
Chi square = 23,09349; df = 23; p = 0,455327				

Source: Own study

Nearly 60% of the micro enterprises are in formal cooperation with other companies, improving in this way their competitive position. Within this group of formally cooperating entities 42% believe that the competitive position of their companies is better or at least comparable to the competition. Informal cooperation is reported by a relatively small group of micro-entrepreneurs, but among informal co-operators the competitive position of the company is comparable or better than other companies on the market. At the same time, there is not confirmed the statistically significant dependence between variables presented in Table 1.

5. Conclusions

The research realized in 2016 among 164 Polish microenterprises showed that the competitive position depends on many factors, determining it in different strength and scope. Authors assumed that one of those factors could be cooperation competitive environment, both formal and informal.

The data analysis showed that enterprises with better or comparable competitive position to other entities within industry cooperate more often in formal than informal way. However, the statistical analysis does not allow confirming the dependence between analyzed variables (confirmation of the research hypotheses H0).

Literature:

Ajayi, A. (2016). Impact of External Business Environment on Organisational Performance of Small and Medium Scale Enterprises in Osun State, Nigeria. *Scholedge International Journal of Business Policy & Governance*, 3(10), 155-166.

Antoldi, F., Cerrato, D., & Depperu, D. (2011). *Strategic Networks, Trust and the Competitive Advantage of SMEs*. In Export Consortia in Developing Countries Successful Management of Cooperation Among SMEs. Berlin: Springer-Verlag, 23-43.

Barney, J. B. (1991). Firm resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.

Daniluk, A. (2016). *Conditions of cooperation between enterprises and business environment institutions using the Podlasie region as an example*. Economics and Management, 8(4), 18-27.

Drucker, P. F. (1992). *Innowacja i przedsiębiorczość*. Praktyka i zasady. Warszawa: PWE.

Faulkner, D., & Bowman C. (1996). *Strategie konkurencji*. Warszawa: Gebethner i S-ka.

Gnyawali, D. R., Madhavan, J., & He, R. (2006). Impact of co-opetition on firm competitive behaviour. An empirical examination. *Journal of Management*, 32(4), 507-509.

Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203-215.

Haviernikova, K., Okręglińska, M., & Lemańska-Majdzik, A. (2016). Cluster Cooperation and Risk Level in Small and Medium-Sized Enterprises. *Polish Journal of Management Studies*, 14(2), 82-92.

Lunnan, R., & Haugland, S. A. (2008). Predicting and Measuring Alliance Performance: a Multidimensional Analysis. *Strategic Management Journal*, 29, 545-556.

Othman, R., Arshad, R., Aris, N. A., & Arif, S. M. M. (2015). *Organizational Resources and Sustained Competitive Advantage of Cooperative Organizations in Malaysia*. Procedia - Social and Behavioral Sciences, 170, 120-127.

Porter, M. E. (1992). *Competitive strategy: methods for the analysis of sectors and competitors*. Warsaw: PWE.

Sipa, M., Gorzeń-Mitka, I., & Skibiński A. (2015). *Determinants of Competitiveness of Small Enterprises: Polish Perspective*. Procedia Economics and Finance, 27, 445-453.

Tomski, P. (2016). New Venture Creation and the Social Networks of the Entrepreneur. *Proceedings from CITPM 2016: 1st International Conference Contemporary Issues in Theory and Practice of Management*. Czestochowa, POLAND, APR 21-22: Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej, 438-444.

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DESTINATION VISITOR MONITORING LIMITS

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Abstract: *In Tourism it is appeared recently a phenomenon tourists are protecting their privacy much more. This is mainly due to an increase in different forms of information's abuse. At the present, the trend is to get as much information as possible about tourists to effectively manage the destination whether a natural or cultural-historical site. Thus conflict between tourist's organizations trying to get information and tourists who keep their privacy. The article discusses about possible of solutions for obtaining information from tourists without the negative feelings which could reduce visiting of the destination ultimately. We also tried to identify what information tourists are willing to provide and which information is strictly private. The article brings an up-to-date view for the scientists dealing with the acquisition and processing of data in tourism.*

Keywords: *Tourists Information, threats in tourism, behavior, questionnaire survey.*

JEL classification: *L83, M31*

Grant affiliation: *None.*

1. Introduction

The basics of good management in tourism it is to have relevant data primarily. It is advisable to have statistical data from the service providers in the tourism industry (Kaurova et al., 2014; Blanke & Chiesa, 2013), but it is also very interesting to know the data from tourists as well (Pantanoa et al., 2017). Besides numerical data, it is also very important to know the non-numeric data that is obtained, using questionnaires for example (Smith, 2014). From questionnaires, it is possible to obtain information such as tourist motivation (Mckercher & Chan, 2013; Muchová & Pavolová, 2011), tourist segmentation (Kamata et al., 2016; Berta et al., 2016), or tourist satisfaction (Bernini & Cagnone, 2014). Recently, the trend of reluctance to provide information is highlighted. This trend is based on the socio-political situation, where tourists try to restrict the provision of information for fear of their abuse, or threats of themselves (Baker, 2014; Tarlow, 2014; Molokáč & Hvizdák, 2016).

2. Research methodology

Target marketing involves division of the large market into smaller customer subsets called segments. Each segment has its own distinctive needs, its own responses to various marketing mix

strategies. According to its sources, the organization focuses on the most attractive segments. An attractive target market is the one that brings the most profit, for example market segments located closer to the organization or loyal customer groups.

One of the key objectives of marketing is the identification and characterization of the customer groups which have common needs and similar wishes - market segmentation (KOTLER, P.: Marketing management, Praha Grada Publishing, 2001, pp. 255.) Market segmentation is the basic starting point for developing a successful marketing strategy. The major variables used in segmentation of the consumer markets are: geographic, demographic, psychographic, or behavioral segmentation criteria.

On the basis of these variables, a primary survey using the inquiry method was created, by means of questionnaire, that allows to gather wide range of information. The questions were prepared to capture all 4 segmentation criteria and each criterion received the appropriate attention.

Geographical criterion - In this category, we discuss issues that identify tourists, their physical location, e.g. Where do they come from? Where they are staying during their holiday? Which places they are visiting in the destination? Which means of transport they have used to get to the destination? Through which countries they have crossed? From which airport did they departure? etc. The information obtained in this way serves mainly to answer the question: Where to focus our marketing strategy?

Demographic criterion - this category includes questions that are more personal as in the previous geographical criterion, and because of that there is a precondition that tourists would be more unwilling to respond to them. Questions that fall into this category include age, gender, marital status, family members, etc.

Psychographic criterion - allows the division of tourists into groups according to their lifestyle, personal qualities or belonging to the social class. It is more about dividing the demographic group into smaller subgroups with different psychographic profiles. For this criterion, following questions were asked: For what kind of products and services are visitors willing to spend the most? With who they like to spend holidays the most? What kind of holiday activities do they prefer? How much money are visitors willing to spend on holiday? or What is the ratio of invested money on holiday to their income?

Behavioral criterion - Questions were geared towards the behavior of tourists, their views and opinions on the destination, on the tourism offer, not only during, but also after a visit of the destination. The questions were oriented to the possibilities where they evaluate the destination, e.g. Where do you post the rating? With who do you talk about the experience in the destination, etc.

The personal criterion - this criterion is not directly about the statistical identification of the client, the questions in this category are more personal and knowledge could be useful in client-oriented marketing. There are information that directly identify the client from different kind of perspectives, such as professional, economic, electronic, etc. Such questions include, for example, income level, email account, facebook account, account number.

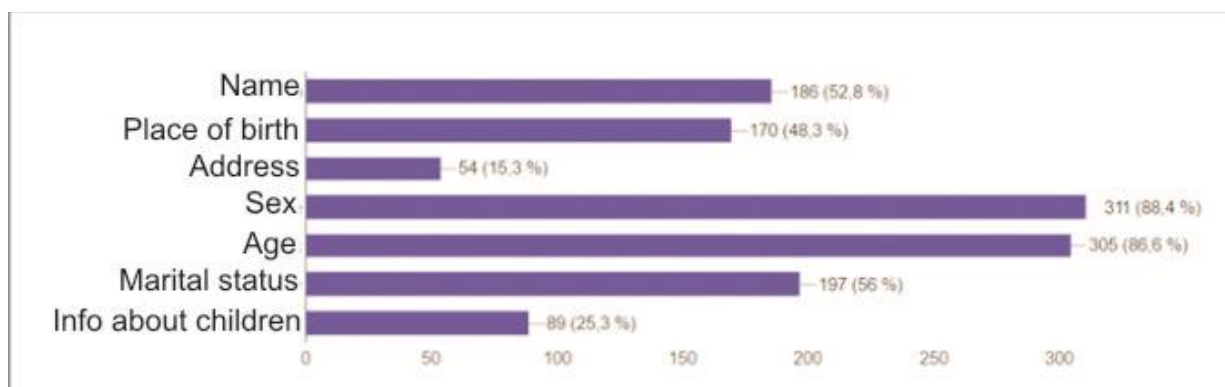
Hypothesis: The more personal are questions that could identify a visitor to the destination, the less are visitors willing to provide these kind of information or they are refusing to provide them.

3. Results of the research

The survey was attended by 352 respondents. The most interesting results of the questionnaire survey are processed and presented in the following part.

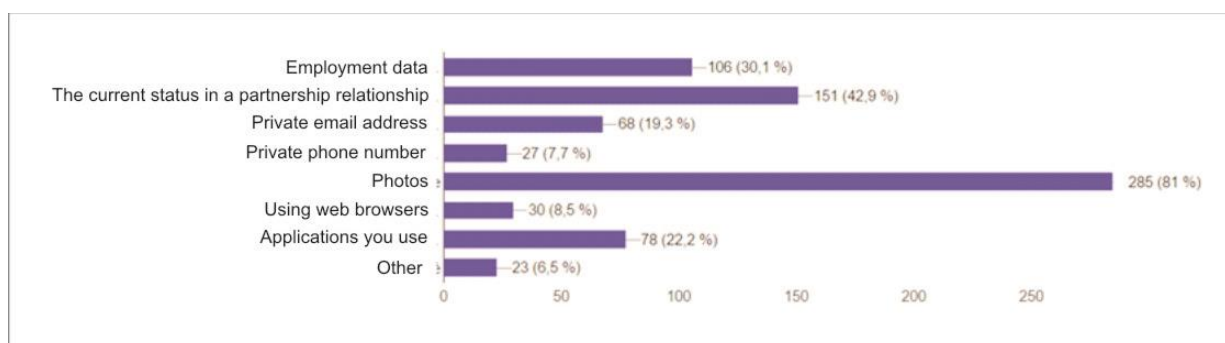
Which of the following would you be willing to provide to inquiring people for research?

FIG. 1: Providing information for research



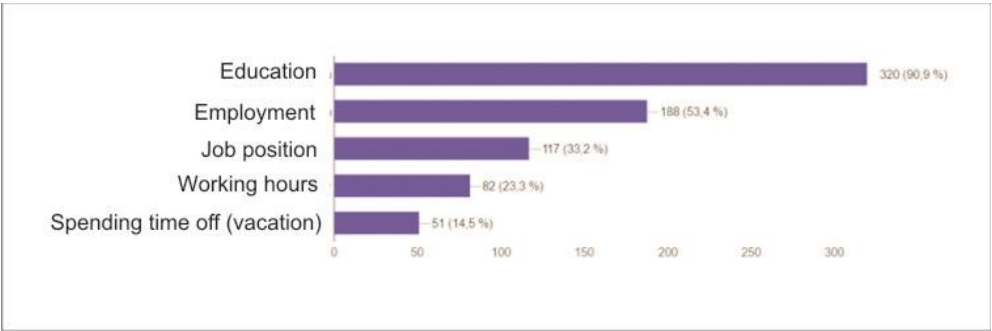
Which of these data do you share publicly on social networks?

FIG. 2: Publicly shared data on social networks



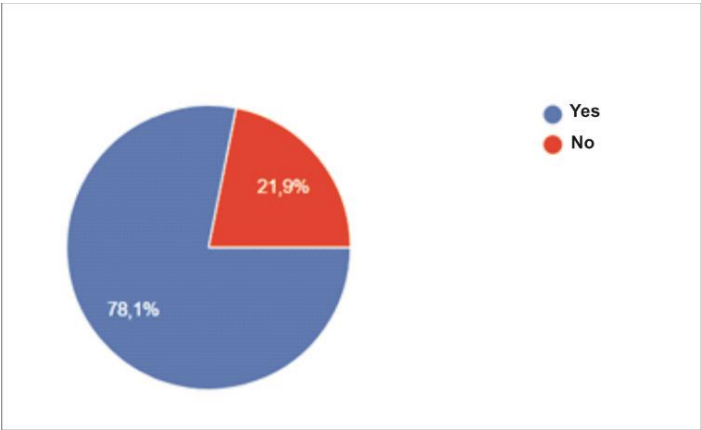
You would be willing to provide information regarding?

FIG. 3: Providing career information



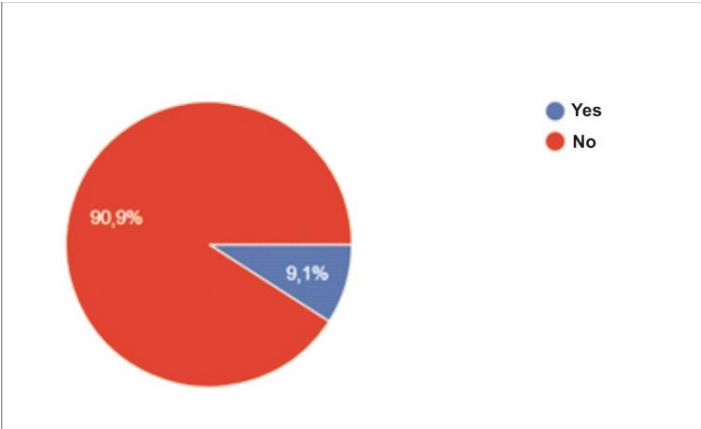
When does your phone number get into the hands of an unknown person, is it an interference with your privacy?

FIG. 4: Interference to personal privacy



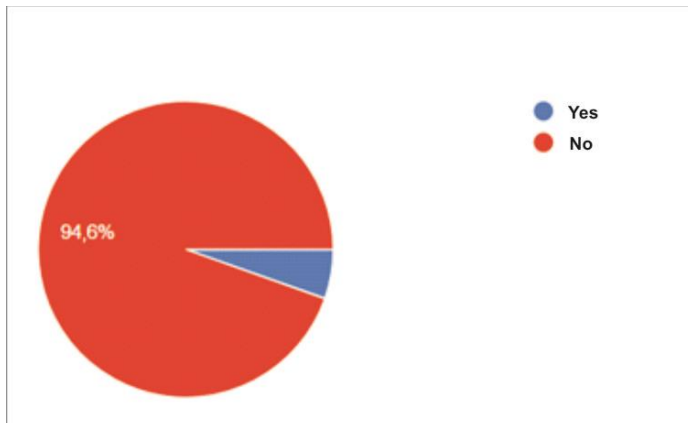
Would you publish the amount of your income?

FIG. 5: Providing information about income



Would you publish your personal account number?

FIG. 6: Publishing personal account number



4. Conclusion

Hypothesis "The more personal are questions that could identify a visitor to the destination, the less are visitors willing to provide these kind of information or they are refusing to provide them" was confirmed. The research shows that the greatest "will" to provide information was in the case of geographic questions - they were not so personal and based on them a visitor cannot be identified. The second group of questions were demographic questions that were little bit more personal but still quite general to identify a visitor. However, there were questions in this set of questions that had a low percentage of positive responses. These questions were mainly related to family members, especially children. Questions related to the behaviour and opinions of tourists were ranked third, it is due to the fact that opinions and their release can identify tourists (e.g. through social networks). Although in most cases it is not an accurate identification - we can find out (from a social media) the nick or the name of a visitor, but another 5 users are using same name as well. Even so, it is still a personal information. The psychographic group of questions is already sensitive enough because tourists are providing information about their priorities, social or financial security. The most uncomfortable questions for visitors were related to financial security- the limits of the tourists. As it was assumed, the most reluctant were visitors to answer the questions from the personal group. Some questions have been chosen as "extreme" to compare how far people's willingness to transfer their personal information goes. Such questions were for example related to personal account number or ownership of movable and immovable property. Despite the extreme character of such a questions, about 5% of the respondents answered positively.

The research pointed out different categories of questions that are comfortable and uncomfortable for visitors of a tourist destination to answer. Based on this research, it is possible to prepare that kind of data collecting strategies which would open up the possibility to get the most information without bothering the tourists. The last thing that the data collection process wants to cause is to negatively affect the vacation experience in the destination or the destination itself.

Literature:

Smith, SLJ. (2014). *Tourism Analysis: A Handbook*. New York, Routledge.

Mckercher, B. & Chan, A. (2005). How Special Is Special Interest Tourism? In *Journal of travel research*, 44 (1), 21-31.

Kamata, H. & Misui, Y. (2016). *Tourist segmentation by the motivation – A Case of Japanese tourists*. In Tourism Travel and Research Association: Advancing Tourism Research Globally. 8.

Ferrer-Rosell, B., Coenders, G., Martínez-García, E. (2016). *Segmentation by Tourist Expenditure Composition: An Approach with Compositional Data Analysis and Latent Classes*. In *Tourism Analysis*, 21(6), 589-602.

Bernini, C. & Cagnone, S. (2014). *Analysing tourist satisfaction at a mature and multi-product destination*. In *Current Issues in Tourism*, 17(1), 1-20.

Kaurova O. V., Kryukova, E. M., Maloletko, A. N., Deryabina, A. V., Yumanova O. S. (2014). Modern trends in development of tourism statistics in the world and in Russia. In *Life Science Journal*, 11(4), 451-454.

Molokáč, M., Hvizdák, L. (2016). *Limity monitoringu návštevníkov destinácie*. In DiDM. Paper presented at Data in destination management conference, Kulturpark, Košice, 25 November (pp. 13).

Blanke, J., Chiesa, T. (2013). The travel & tourism competitiveness report 2013. The World Economic Forum, retrieved from http://www3.weforum.org/docs/WEF_TT_Competitiveness_Report_2013.pdf.

Pantanoa E., Priporasa, C-V., Stylosb, N. (2017). 'You will like it!' using open data to predict tourists' response to a tourist attraction. In *Tourism Management*, 60, 430-438.

Muchová, M., Pavolová H. (2011). *Analýza vybraných ukazovateľov vývoja cestovného ruchu v podmienkach SR*. In *Studia Turistica*, No. červenec (2011), 39-48.

Baker, D. (2014). The Effects of Terrorism on the Travel and Tourism Industry. In *International Journal of Religious Tourism and Pilgrimage*, 2(1), 58-67.

Tarlow, P. (2014). *Tourism Security: Strategies for Effectively Managing Travel Risk and Safety*. Waltham, MA: Elsevier.

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CREATING EDUCATIONAL CONTENT AND APPLICATIONS BASED ON HTML5 TECHNOLOGY

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Abstract: *Currently, small and medium-sized companies face a lack of workers in the labor market. The free labor force, which is not only unemployed, but also graduates often fails to meet the qualifications required by employer. The object of our article is to present some innovative modules for web content management systems. These modules based on HTML5 and CSS3 can be useful for creating educational content and applications that use game-based learning. The result of putting on such applications should be higher efficiency in acquiring the necessary skills (in the subject of accounting) not only for retraining workers but also for learning in the university environment.*

Keywords: *Game-based learning, HTML5, accounting, CMS.*

JEL classification: A20, J24, M41

Grant affiliation:

1. Introduction

In the context of our membership of the European Union, the education system at universities should contribute to the objectives of the Europe 2020 strategy. One of the documents defining the current priorities for European cooperation in education and training is Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2015) 408 final, from 26. august 2015, Draft 2015 joint report of the council and the commission on the implementation of the Strategic framework for European cooperation in education and training je (European Commission, 2015). Recommendations to meet the key challenges and future priorities for the university education systems in the individual countries of the European Union are primarily aimed at supporting a knowledge-based economy. Equally important is the growth of employment and the development of social and intellectual capital (Spirkova, Caganova & Bawa, 2015). These recommendations should be met by university education systems in such a way that: “Higher education needs to respond effectively to the demands of a changing society and labour market, by ensuring that modernisation focuses on

synergies between teaching, research and innovation, linking Higher education institutions and local communities and regions, and innovative approaches to improve the relevance of curricula, including using information and communication technologies (ICT).” (European Commission, 2015, p. 4).

2. Priorities of cooperation between higher education and the labor market

Currently, small and medium-sized companies face a lack of workers in the labor market. Such small and medium-sized companies have the highest share in the jobs creation in the economy of Slovakia, because they employ the crucial part of the work capable force. The aging process of the Slovak population is also beginning to have a major impact on the labor shortage in the labor market (Radvansky & Lichner 2013).

Employers' demands for workforce are dominated by expertise, experience and a requirement for their practice in the field and general outlook. The free labor force, which is not only unemployed, but also graduates often fails to meet the qualifications required by employer (Pálenik, Pálenik, & Oravcová, 2013).

And this document (European Commission, 2015) also defines the priorities of cooperation in the field of promoting the interconnection of higher education with the labor market. These priorities of cooperation between higher education and the labor market can be achieved mainly through (European Commission, 2015):

- better information on labor market needs
- better anticipation of these needs
- new types of curriculum,
- larger share of learning by doing
- more intensive cooperation between educational institutions and employers

In the light of the above, it is important to promote an increase in synergies between learning, research and innovation activities. Present time is characterized by the rapid development of new digital technologies and concepts such as Industry4.0, Smart infrastructure and Smart cities (Golej, Panik & Adamuscin, 2016).

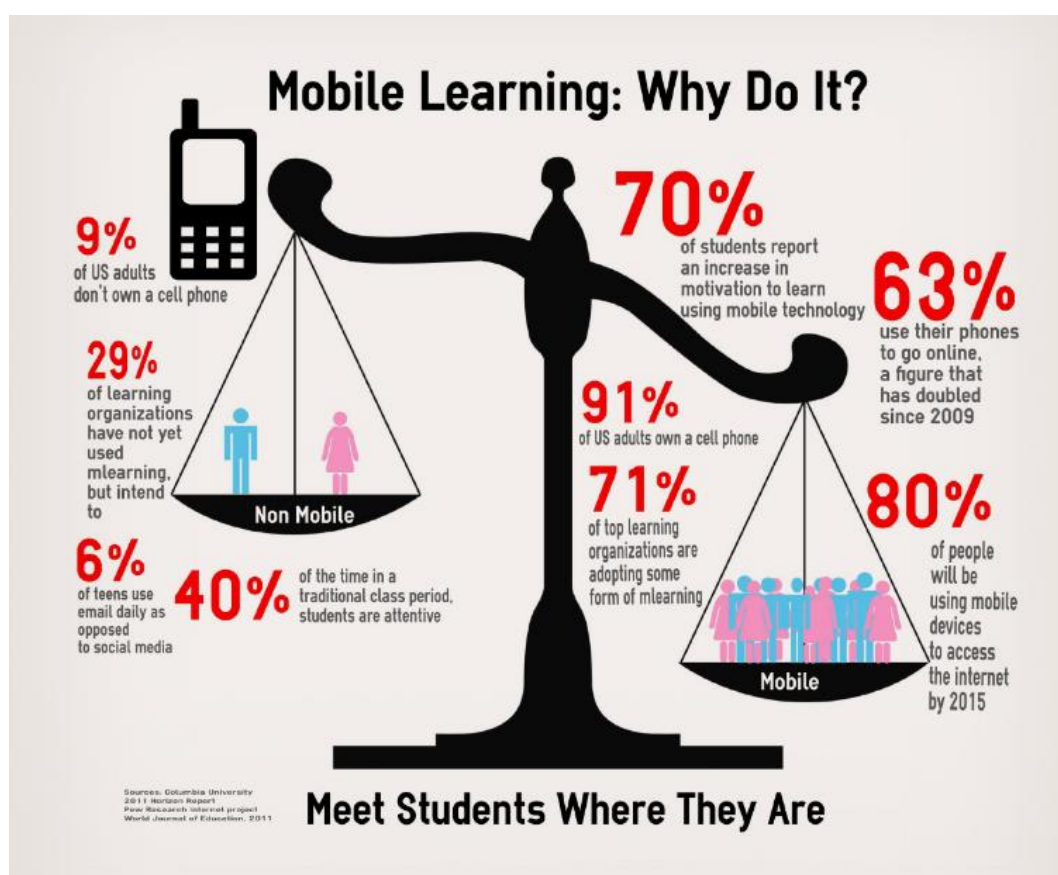
The requirements of the labour market response to the new digital technologies and working methods. The current development of innovative technologies and their implementation for use in practical applications requires the training of technically educated specialists. Graduate training should continuously reflect the business environment in which graduates come to college, so it is necessary to develop the idea of interdisciplinary technical and economic study programs in higher education (Bondareva, & Tomlain, 2016). Because the knowledge of graduates from technical universities now not only serves the development of new hardware and software equipment of innovative technologies, it is also important to gradually develop their economical and managerial skills in parallel with their training. From the results of the statistical survey on academic performance, it is worth noting that the level of success of some students of technical study

programs at Slovak universities is very low (Fabová & Janáková, 2016). With the using of the new technologies in the teaching process, the subjects such as business economics and accounting have become very interesting also for the students of technical university. Therefore, it is necessary to promote innovative and active pedagogical practices in teaching.

3. Innovation of subject accounting based on mobile game-based learning

Mobile learning (or M-learning) means learning through mobile devices (Ally, 2009). All types of available mobile devices can be used for educational purposes. Young people currently grow up under the pressure of constantly emerging and digital technologies (such as Smartphones, wearable technology, fashionable technology, wearable devices, tech togs, or fashion electronics, etc). The current generation of students, referred to as digital natives (Prensky, 2001), differs significantly from those who studied at the university in previous years. Mobile devices and wearable technology will play a big role not only in their everyday study or work lives, but also in leisure activities and entertainment.

FIG. 1: Benefits of mobile learning



Source: Fishtreeblog.tumblr.com, 2014

The young generation already cannot imagine mutual communication without them. For them it is an essential information source when searching for necessary information when making payments in

shops, relax etc (Prensky, 2001). Among students at universities it is now widespread play games on mobile devices. It is therefore appropriate to use mobile devices as a new tool in education. With advanced web technologies (such as HTML5 and CSS3, it is also possible to use game-based learning (Prensky, 2003) in the training of economic subjects such as accounting.

In this section of our contribution, we will deploy a HTML5 solution on the basis of a module for web content management system (CMS), as one of the several options for the use of mobile game-based learning in the educational process. We create a web application for game-based learning on the CMS Drupal. CMS Drupal allows the user to add features to the user through add-on modules. We decided to use H5P modules based on HTML5.

FIG. 2: Add-on H5P modules based on HTML5

NÁZOV	VERZIA	POPIS
H5P	7.x-1.31	Upload interactive HTML5 Packages to your Drupal site. Požadované modulmi: H5P Editor (povolený)
H5P Editor	7.x-1.31	Create and modify interactive HTML5 Packages on your Drupal site. Požaduje: H5P (povolený)

Source: own processing

H5P-based solutions can be useful for creating educational content and applications through customized attribute settings and also the development mode that will allow creators to add specific educational content. Developers of educational content can use wide portfolio of options with the H5P's technology for creating, sharing and reusing of the content and applications in HTML5 format.

FIG. 3: Customized H5P modules configuration

Přidat obsah

Nájsť obsah

Upraviť skratky

☒ Save content files for each revision

Disable this feature to save disk space. This value can't be changed if there are existing h5p nodes.

White list of accepted files.

List accepted content file extensions for uploaded H5Ps. List extensions separated by space, eg. 'png jpg jpeg gif webm mp4 ogg mp3'. Changing this list has security implications. Do not change it if you don't know what you're doing. Adding php to the list is for instance a security risk.

White list of extra accepted files in libraries.

Libraries might need to accept more files that should be allowed in normal contents. Add extra files here. Changing this list has security implications. Do not change it if you don't know what you're doing. Adding php to the list is for instance a security risk.

☒ Enable H5P development mode

Always update uploaded H5P libraries regardless of patch version. Read library data from file (semantics.json).

☐ Enable library development directory (For programmers only)

Check to enable development of libraries in the `sites/default/files/h5p/development` folder. ONLY ENABLE THIS OPTION IF YOU KNOW WHAT YOU ARE DOING! YOUR SITES H5P DATA WILL BE RUINED BY ENABLING THIS OPTION

☐ Save content state

Automatically save the current state of interactive content for each user. This means that the user may pick up where he left off.

Save content state frequency

In seconds, how often do you wish the user to auto save their progress. Increase this number if you're having issues with many ajax request.

☐ Enable LRS dependent content types

Makes it possible to use content types that rely upon a Learning Record Store to function properly, like the Questionnaire content type.

☒ Use H5P Hub

It's strongly encouraged to keep this option **enabled**. The H5P Hub provides an easy interface for getting new content types and keeping existing content types up to date. In the future, it will also make it easier to share and reuse content. If this option is disabled you'll have to install and update content types through file upload forms.

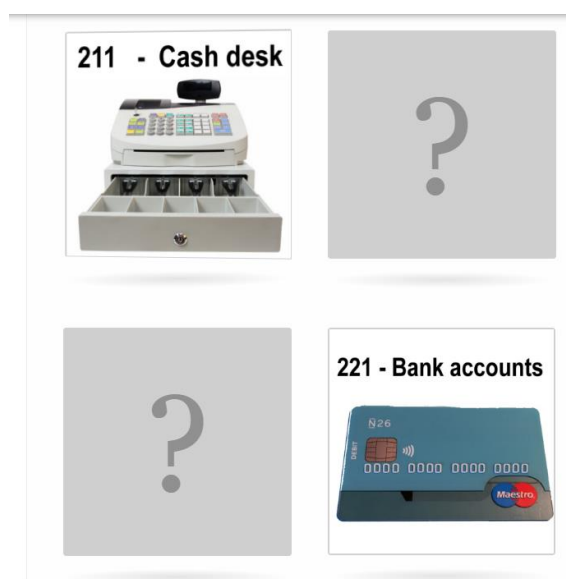
☒ Automatically contribute usage statistics

Usage statistics numbers will automatically be reported to help the developers better understand how H5P is used and to determine potential areas of improvement.

Source: own processing

That is why H5P will make it easier for us to create HTML5 educational content and application intended for use in the subject of accounting. In the subject of accounting, it is also necessary to memorize the things. Remembering is not a favorite way to learn important information, but mobile game-based learning can make it more fun. The current generation of young people prefers visual interactive activities performed through mobile devices. We have chosen to use mobile game-based learning as a tool to help students memorize account numbers.

FIG. 4: Customized H5P memory game



Source: own processing

We used the digital literacy, but also another of the characteristics of our students. We have supported their natural desire after a fun discovery of new knowledge, which they prefer to the passive learning. As a fun way for students to learn the facts, we can use the popular memory game Pexeso. Memory game Pexeso (also known as Pairs or Pelmanism) is a system of memory training (Morizane, et al. 2009). For purposes of the test version of the application, we selected the following names and account numbers.

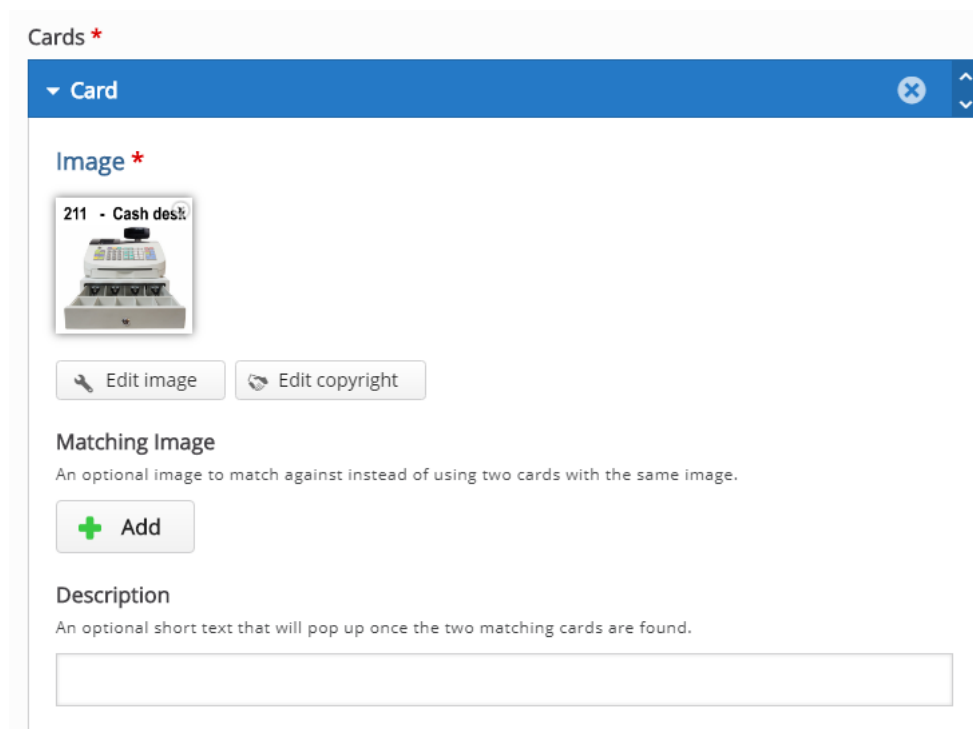
FIG. 5: Selected names and numbers of accounts

0 Non-current assets		429 - Unliquidated loss of last years
013 - Software		431 - Retained earnings from current period
1 Inventory		461 - Bank loans
112 - Material inventory		472 - Liabilities from social fund
2 Financial accounts		5 Expenses
211 - Cash desk		501 - Consumption of materials
221 - Bank accounts		502 - Consumption of energy
3 Debtors and creditors, other assets and short-term liabilities		521 - Labour costs
311 - Accounts receivable		524 - Lawful social security
321 - Accounts payable		531 - Road tax
325 - Other liabilities		532 - Real estate tax
331 - Employees		538 - Other taxes and fees
336 - Accounting with institutions of social security and of health insurance		543 - Donations
341 - Income tax		544 - Penalties, penalty fees set by agreement
342 - Other direct taxes		562 - Interests
343 - Value added tax		591 - Matured income tax from the current activity
345 - Other taxes and fees		592 - Deferred income tax from the current activity
346 - Government subsidies from budget		6 Revenues
347 - Other subsidies		601 - Revenues from own products
366 - Liabilities towards partners and members from dependent activity		602 - Revenues from sale of service
4 Capital accounts and non-current liabilities		604 - Revenues from goods
411 - Basic capital		642 - Revenues from sale of material
421 - Legal reserve funds		644 - Contractual fines, penalties and interests for delayed payment
428 - Undistributed profit of last years		7 Closing and off-balance sheet accounts
		701 - Opening balance sheet account
		702 - Final balance sheet account
		710 - Profit and loss account

Source: own processing

In our app, we select the most commonly used accounts and place their names and numbers on the playing cards. We decided to create two alternative versions of the game. In alternative 1, the account number and account name are both written on both cards. In alternative 2, the account number is entered on the first card that forms the pair. On the second card that is a pair, the account name is written. In our practice in the educational process in the subject of accounting, we have achieved better results with an alternative one web application for mobile games based learning.

FIG. 6: Alternative 1, the account number and name are written on card



The screenshot shows a web application interface for creating cards. At the top, there's a header 'Cards *' and a sub-header 'Card' with a close button and a dropdown arrow. Below the header, there's a section 'Image *' featuring a thumbnail of a cash register with the text '211 - Cash des.' above it. Under the thumbnail are two buttons: 'Edit image' and 'Edit copyright'. Below these is a section 'Matching Image' with the text 'An optional image to match against instead of using two cards with the same image.' and a green '+ Add' button. At the bottom is a section 'Description' with the text 'An optional short text that will pop up once the two matching cards are found.' and a text input field.

Source: own processing

4. Conclusion

The higher education system should focus more intensively on vocational education, training and a lifelong learning system to reflect current labor market developments. With the application of mobile game-based learning, some of the traditional economic subjects, which were taught at the universities in the past, got a new dynamic. Mobile game-based learning combines all the tools of modern technology in an appropriate manner and can be equally well applied in the teaching of accounting. Students can use mobile learning to combine learning from traditional study materials and mobile devices. For the technically oriented students the new procedures used in the classroom become so much suggestive, that they themselves began to look for the possibility of their further use. After the change of the approach, they stopped to feel the burden of often repetitive learning, which is required for the successful completion of the subject as the accounting.

Literature:

Ally, M. (Ed.). (2009). *Mobile learning: Transforming the delivery of education and training*. Athabasca University Press.

Bondareva, I., & Tomlain, J. (2016). Ideas of technical and economic study programs in higher education. In *SHS Web of Conferences* (Vol. 26). EDP Sciences.

European Commission. (2015). *New priorities for European cooperation in education and training COM/2015/0408 final*. Retrieved October 16, 2015, from <http://eur-lex.europa.eu/legal-content/EN-SK/ALL/?uri=CELEX:52015DC0408&from=SK>.

Fabová, Ľ., Janáková, H. (2016). *What are the causes of dropout first year students at technical universities in Slovakia*, ICERI2016 pp. 8292-8299.

Fishtreeblog.tumblr.com. (2014). *A beginners guide to mobile learning*. Retrieved October 13, 2014, from <http://fishtreeblog.tumblr.com/post/99898227735/a-beginners-guide-to-mobile-learning-as-we>.

Golej, J., Panik, M., & Adamuscin, A. (2016). *Smart Infrastructure in Bratislava*. In Internet of Things. IoT Infrastructures: Second International Summit, IoT 360° 2015, Rome, Italy, October 27-29, 2015, Revised Selected Papers, Part II (pp. 142-149). Springer International Publishing.

Morizane, M., et al. (2009). *Personalized adaptive strategies in human-PC learning game*. In ICCAS-SICE, 2009 (pp. 2728-2731). IEEE.

Páleník, V., Páleník, M., & Oravcová, I. (2013). *Inkluzívne zamestnávanie*. Inštitút zamestnanosti.

Prensky, M. (2003). *Digital game-based learning*. Computers in Entertainment (CIE), 1(1), 21-21.

Prensky, M. (2001). *Digital natives, digital immigrants part 1*. On the horizon, 9(5), 1-6.

Radvansky, M. & Lichner, I. (2013). Impacts of Ageing on Public Finances and Labour Markets in EU Regions. Theoretical Models and Empirical Analyses. *International Conference Proceedings Smolenice*, 28.–30. 10. 2013. 2013, 280 p.

Spirkova, D., Caganova, D., & Bawa, M. (2015). The Social Capital Influence on Enterprise Competitiveness in V4 Countries. In *Proceedings of the 7th European Conference on Intellectual Capital ECIC*.

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CURRENT APPROACHES OF THE SEGMENTATION IN THE MARKET OF SENIORS

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Abstract: *The share of seniors in the population is steadily increasing and seniors are gradually becoming an important market segment. However, seniors cannot be seen solely on the basis of classical socio-demographic indicators such as the age or the gender. Since this segment is highly heterogeneous, it needs to be understood in a wider range. In this context will be in the article specified the approaches of selected authors, institutes and societies to the segmentation of the senior market. The article will be focused on the most commonly used segmentation criteria by age, life cycle, and lifestyle. At the same time, based on conducted marketing research is detailed the typology of Slovak seniors created by the cluster analysis.*

Keywords: Population's ageing, segmentation of the senior's market, typology of Slovak seniors.

JEL classification: M31

Grant affiliation: *This paper is a part of the research project VEGA No. 1/0380/17 "Economic efficiency of electromobility in logistics".*

1. Introduction

One of the most important demographical trends in today's society in terms of developed countries is population's ageing. This process is associated with higher share of older people across the population. Geographically can be this process observed in all developed countries around the globe. In the oldest country in the world, Japan, is more than one quarter of the population already retired. Other continents, Europe and USA, are also approaching this share fast. Similar situation will soon emerge also in Slovakia, that will be according to Eurostat's prognosis in the year 2060 one of the oldest countries in the EU on the basis of today's ratio of seniors and working-age people (Eurostat, 2012).

Statistic offices report every year higher amount of seniors compared to overall population. This trend is making more companies every year analyzing this segment and accustoming their products. Marketing specialists are well aware that the target group of seniors is too wide and consist of different types of people. Therefore it is important to divide the senior's market on unique market segments. Concept of the segmentation is the appropriate tool to differ individual needs of seniors and also to invent new entrepreneur opportunities.

2. Methodology

Given that the ageing of the population represents a whole new reality for society, preparing and applying the necessary adaptation theories in practice will not be easy. The aim of this paper is to characterise selected theoretical and practical approaches to segmentation of the senior's market. At the same time, we aim to present the segmentation of Slovak seniors based on the results of our own quantitative research.

In order to achieve the stated goal, classical scientific methods such as analysis, synthesis, description and comparison are used. As a theoretical background, we used both foreign and domestic literary sources as well as the opinions of experts from international consulting firms. When identifying individual types of seniors, the K-Means method of cluster analysis was used in the research.

3. Segmentation of the market of seniors

Older people, on the one hand, are more susceptible to various illnesses and may have weaker hearing, vision and memory. On the other hand, they have their needs, aspirations, goals, habits, expectations and opinions. For this reason, it is practically impossible to define one large target group of seniors, as the seniors' market is not homogeneous but has distinctive characteristics.

According to Vicen, seniors form a heterogeneous macro group with a varied differentiation of requirements, needs and demand (Vicen, 2006). Based on socio-demographic factors, this group can be divided into several smaller and more homogenous groups based on different criteria:

- By age: pre-retirement (50-62 years), younger retirement age (63-75 years) and older retirement age (over 75 years);
- By gender: men and women;
- By marital status: spouses and lonely people (divorced, free, widowed);
- According to family relationships: living in a wider family (children and grandchildren) or living alone;
- By place of housing: in the village or in the city;
- By type of income: economically active, receiving pension and economically active, receiving a pension;
- According to the economic situation: well-situated, average, under-average, in material need;
- By mobility: mobile, limited, immobile.

Approaches to the segmentation of the seniors' market are several, the most well-known are segmentation criteria by age, life cycle, and lifestyle.

Christine Krieb and Andreas Reidl (Matušovičová, 2016) segment the seniors' market on the basis of age into two segments:

- Young seniors: People under the age of 75, who are characterised by being still mobile, relatively healthy, active and entrepreneurial.
- Old seniors: People aged 75 and over, who spend most of their time at home and have considerable mobility problems.

Schiffman and Kanuk (2004) show a simple method of segmentation of seniors by dividing them into three chronological age categories: young - old (65 - 74 years), old (75 - 84 years) and old - old (85 and over).

Older people feel about 10 to 15 years younger on average today than they really are. Research shows that three quarters of people over 50 are not feeling aged more than 75 percent of their actual age (Reidl, 2012). Nowadays they want not only to look younger, but they also try to have younger opinions and interests. With a higher age and a higher degree of education, the chronological and subjectively perceived age differ more and more from one another. Therefore, we can say that in the seniors market today, the individual's life situation and the current lifestyle of the target group are more decisive than the exact age.

Such an approach is presented by the company A.GE, which specialises in strategic marketing focused on the generic market and the seniors' market. The study of the life style of A.GE defines four different types of seniors' lifestyle: seniors focusing on trends, mavericks, caregivers, practical seniors (Reidl, 2012).

4. Typology of Slovak seniors

In domestic marketing theory and practice, the market segment of older age groups is still a problem at the edge of the interest of practitioners and researchers.

By realising our own marketing research, we wanted to verify the merits of examining the segment of seniors as a heterogeneous consumer group even in our conditions. The aim of the study was to identify similarities and differences in the segment of seniors from the point of view of social and demographic characteristics, lifestyle and consumer behaviour, and then use the method of cluster analysis of respondents' answers to create typology of Slovak seniors.

Marketing research was conducted on a sample of 204 respondents. Target group was composed of seniors living in eight regional capitals of the Slovak Republic. Since many approaches to this topic and their authors (Dichter, 2000; Neunzig, 2000) who research target group of seniors state that beginning of senior's age is 50 years and more we also targeted sample 50+ years in our research. Targeted sample of respondents was therefore consisting also of younger groups of seniors in literature mostly referred to as pre-seniors or younger seniors. Research sample was selected with contingent selection according to gender, age and place of residence.

The basis for the research study was primary data personally collected by consulting using structured questionnaires which were simply and clearly formulated so also older generation would understand

them. Different types of questions were used including scale questions, closed questions and one open question. Acquired data were processed with statistical application SPSS. With use of mentioned application were calculated the Chi-squared tests for independence of variables. Statistical significance was measured on $p \leq 0,05$ for all tests.

Using the statistical method of the cluster analysis of respondents' answers, we identified four types of seniors, supplemented by our own marketing names reflecting seniors' preferences in terms of selected factors and sociodemographic characteristics.

1. Active ones with children – 65 respondents (31,9%)
2. Independent ones without children – 37 respondents (18,1%)
3. Vital retirees – 47 respondents (23,0%)
4. Traditional retirees – 55 respondents (27,0%)

Since the basis of the presented typology is the study of socio-demographic variables, leisure activities, purchasing preferences and value orientation of seniors, we also define the most important characteristics of identified types of seniors, which can be the basis for adapting marketing activities oriented to a significantly fragmented segment of seniors.

4.1. Active ones with children (31,9 %)

Sociodemography: the youngest of defined types of seniors. Economically active, financially secure seniors with the highest level of education.

Free time activities: active, mobile, daily use of the internet and the most intense travel.

Shopping preferences: they are not looking specifically for cheap products and are favourably prone to new products. For shopping they prefer hyper- and supermarkets before small local stores.

Value orientation: live an active and experience-oriented life. They are characterised by a strong family orientation.

4.2. Independent ones without children (18,1 %)

Sociodemography: economically active, living in a home without children and family.

Free time activities: dynamic, most devoted to different kinds of sports. They regularly use the internet.

Shopping preferences: they often visit shopping centers.

Value orientation: strong social orientation.

4.3. Vital retirees (23,0 %)

Sociodemography: they are retired, including older seniors aged 65 and over.

Free time activities: active leisure activities and a wide range of interests. They are interested in reading books, newspapers and magazines, they like to work in the garden.

Shopping preferences: they prefer bargain sales but do not trust cheap products. Significant for them is the greatest brand loyalty and loyalty.

Value orientation: they love new experiences and are family oriented.

4.4. Traditional retirees (27,0 %)

Sociodemography: they are retired, have inadequate income, health problems, and there is a high proportion of women.

Free time activities: passive, most consistent with the traditional concept of seniors. The most intense watching of the television.

Shopping preferences: the most sensitive perception of the price of products. They prefer special offers and shopping at small outlets close to home.

Value orientation: strong connection with traditions.

5. Conclusion

The share of seniors in the population is steadily rising and gradually becoming an important market segment. As this segment is highly heterogeneous, it needs to be understood in a broader spectrum, and therefore we have specified selected current approaches to age-specific typology - according to age and consumer preferences and lifestyle.

In the older people's segment, different types of seniors have been developed, to be addressed specifically. Four segments of Slovak seniors were created on the basis of the findings of the research. Created segmentation groups confirm how this population is heterogeneous. It includes active, young-sentient people who like to spend, want to travel, educate and use modern technology, as well as old people who have low incomes and show relatively low consumption. The difference in attitudes and expectations can be seen in people who are still working and those who are already retired and have a regular daily regime. Therefore, individual seniors should target marketing communications, offer tailored products, customise prices, and distribution channels.

Literature:

Dichter, E. (2000). *Senioren 2000*. Bericht zu einer Befragung von 50-80 jährigen SeniorInnen zum Thema „Älterwerden in der heutigen Gesellschaft“, retrieved from <<http://www.dichter.ch/publikationen.html>>.

Eurostat. (2012). *Figures for the future*. 20 years of sustainable development in Europe? A guide for citizens. Luxembourg: Publications Office of the European Union, 126 pp.

Matušovičová, M. (2016). *Marketing orientovaný na seniorov*. Bratislava: Vydavateľstvo EKONÓM.

Neunzig, W. (2000). Marketing für gebildete und lebenserfahrene Zielgruppen. In *Meyer-Hentschel Management-Consulting: Handbuch Senioren-Marketing*, Frankfurt am Main.

Reidl, A. (2012). *Senior – zákazník budoucnosti*. Brno: BizBooks.

Schiffman, L.G., Kanuk, L. L. (2004). *Nákupní chování*. Brno: Computer Press.

Vicen, M. (2006). Osobitosti marketingovej komunikácie zameranej na seniorov. In *Marketing & komunikace*, Nr. 1, pp. 25 – 27.

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UNEMPLOYMENT OF GRADUATES AND YOUNG PEOPLE IN SLOVAKIA

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Abstract: *A skilled workforce is one of the main assumptions of economic growth and economic development of the country. Secondary and college education opportunities are expanding in the Slovak Republic. Significantly has increased the number of secondary schools and universities. Unemployment rate in the Slovak Republic is falling and in April 2017 reached 8.6%. However, the problem remains relatively high unemployment of young people. Currently represents 19.1% of the total number of unemployed. The aim of this article is to evaluate the causes of relatively high unemployment of graduates and young people in Slovakia and to propose possible solutions to this problem. Knowledge and skills of graduates largely do not correspond with the requirements of the labour market. There are too many graduates of the social sciences disciplines, who do not find appropriate job. On the other hand, it is not possible often to find qualified workers to fill vacancies.*

Keywords: *Unemployment, graduates, education, skilled workforce.*

JEL classification: *J60, I20*

Grant affiliation: *This article has been prepared with support of the grant agency VEGA 1/0014/16 – „International migration of high - skilled workers in the context of globalisation process and creation of knowledge economy”.*

1. Development of youth unemployment in the years 2008 - 2016

The application on the labour market depends on education, skills, age, health status, ethnicity. These factors contribute to diversification people into groups with greater risk of loss a job. A special group of people, to which we will pay attention in this article, are young people under 25 years of age (respectively under 29). For the young people is employment and work a certain form of entry into the adult world. The young, who leave school often have the problem of getting job in field, in which have studied at the secondary school or university.

Jobseeker- young person, it is a citizen from the date of entry into the labour competence until reaches 18 years of age, who is included in the register of unemployed at the employment office. Jobseeker – school graduate, is an unemployed citizen over the age of 18 years, who ended up

continuing training in the daily form of study for less than two years ago and has not won the first regular paid employment.

TAB. 1: Jobseekers – young persons and graduates together (in september)

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number	19 404	33 370	35 246	34 025	-	-	30 804	25 870	20 568

Source: processing on the basis www.upsvar.sk

In the table we can see development in the number of jobseekers – young persons and graduates with completed education together, who are entered in the register of the employment agency. Data for the years 2012 and 2013 are not available on the website. In the year 2009 there has been a high increase in the number of unemployed in the observed group, as well as in total number of unemployed people in Slovakia. The cause of this negative phenomenon was emergence of the global financial and economic crisis and its manifestation in Slovakia even with the effects of the rise in unemployment. (Kostolná, Z., 2010). The highest number of unemployed in the group of young people under 25 years of age was reached in the year 2010 and amounted to 35 246 persons. Since 2011 the number of unemployed in the group of young persons and graduates started to decline gradually. In september 2016, the number of jobseekers fell almost to the value that was before the crisis. During the six years we can see a decrease in the number of unemployed (14 678 persons) in the observed group.

There are also significant regional differences in the number of unemployed young people. The highest number of jobseekers by self-governing regions was during the period 2008 – 2016 in the Prešov region. Based on the data of table 2, we can see that most of them were in the year 2010, 6 742 persons. They were mostly graduates and young persons from the field of social sciences. As the total number of unemployed has reduced gradually, also has decreased the number of jobseekers in observed group in the Prešov region.

TAB. 2: Jobseekers per region

Year	Region	Graduates	Young persons
2008	Prešovský	3845	959
2009	Prešovský	6209	1282
2010	Prešovský	6742	1261
2011	Prešovský	6706	1254
2014	Prešovský	5519	631
2015	Prešovský	4194	X
2016	Prešovský	3488	X

Source: processing on the basis www.upsvar.sk

TAB. 3: Unemployed graduates and young persons

	Graduates – social sciences	Young persons – without further vocational education	Jobseekers together
September 2008	10 030	2 998	19 404
September 2009	17 051	1 633	33 370
September 2010	19 095	3 583	35 246
September 2011	18 506	3 481	34 025
December 2014	10 374	1 655	26 417
December 2015	7 292	X	19 380
December 2016	5 199	X	14 596

Source: processing on the basis www.upsvar.sk

The highest number of unemployed graduates was in 2010 and amounted to 19 095 persons. They were especially graduates in the field of social sciences. The most of unemployed young persons without further vocational education was also in 2010, a total of 3 583 persons. It is youth without completed primary education and with completed primary education, that is, people with the lowest qualifications. Data of unemployed young persons for the years 2015 and 2016 are not available.

TAB. 4: Unemployed graduates of universities

University	Bachelor's degree	Master's degree	Together
Technická univerzita Košice	20	341	361
Prešovská univerzita	88	264	352
Univerzita Komenského	63	268	331
Univerzita Konštantína Filozofa	51	212	263
Slovenská poľnohosp. univerzita	15	244	259
Univerzita Mateja Bela	47	210	257

Source: processing on the basis www.upsvar.sk

Most of the unemployed graduates in 2016 (361 persons) were from University of Technology in Košice. This university had also in two previous years the most of the unemployed graduates. The next in order is the Prešovská university with 352 unemployed graduates. Total number of jobseekers from the group of university graduates was 4 100 persons.

On the basis of the above, it can be noted that graduates of secondary schools and universities and youth constitute a risk or disadvantaged group in the labour market, because they do not have often any practical experience, the practice of previous employment and also do not have experience as to move on the labour market.

A growing number of jobseekers in this group in years 2009 – 2011 was caused in particular by the global financial and economic crisis, which occurred in Slovakia in 2008 and has negatively affected macroeconomic aspects, including unemployment. (Dinga, J. & Ďurana, R., 2015). In years 2014 – 2016 the number of registered jobseekers declined, mainly due to the growth of Slovak economy. Most jobseekers are located in the Prešov region. This is influenced mainly by the fact that in the Prešov region, respectively in eastern Slovakia, is very high unemployment, what constitutes a long term problem.

2. Solution to the problem of youth unemployment in Slovakia

Solutions, with which the state seeks to reduce the rate of unemployment in general, but also with a focus on the graduates and young persons are a few. They are carried out by means of legislation, financial contributions and various initiatives. Government aims to increase employment and employability through active labour market measures.

In order to reduce unemployment are focused the national projects for the period 2014 – 2020:

- Operational programme human resources,
- Employment and social inclusion,
- Together we are looking for a job,
- Successfully on the labour market,
- Practice of graduates is starting the job,
- With practice to employment.

The main objective of the national project „Practice of graduates is starting the job“ is the promotion of employability and employment of graduates through the acquisition and upgrading of skills. The target group are young people under 29 years of age, who are graduates and are registered in employment agency. These jobseekers can exercise practice for at least three months and not more than six months.

The project is intended to help adapt skills of the labour force to the needs of the labour market, to help graduate students gain work experience and to verify theoretical knowledge in practice. The aim of this project is to provide a financial contribution to support the job creation for employers, who

will employ jobseekers a full time. Employee must be hired for a period not less than nine months and not later than 30 calendar days from the end of the practice of graduate, which he carried out for relevant employer. The target group are young people under 29 years of age (15 – 29 years; graduates), who have appropriate formal education, but no practical experience. They can get these experiences through the practice. The maximum amount of financial contribution corresponds to the amount of the premiums for mandatory health insurance, premiums for social insurance and contributions for mandatory pension insurance.

The aim of the national project „With practice to employment“ is to provide funds in support of training new workers and practice for the employer, who for this purpose will create a full-time or half-time job for a period of at least six months or for indefinite period. The target group are young persons aged under 25 years, who are registered in labour offices for at least three months and jobseekers aged under 29 years, who are registered for at least six months. The length of the employee training is at least three months and not more than six months. This is followed by practice, during which employees will deepen acquired practical skills, knowledges and procedures necessary for the performance of a particular profession. Practice always takes three months. And the employee must be employed for at least six months.

3. Conclusion

Graduates are disadvantaged on the labour market because they do not have work experience and practice in the field, which have studied. Many of them have studied profession, after which is not demand on the labour market. Deepening disparity between labour supply and labour demand, persistence of regional disparities in unemployment rate in the Slovak Republic (still high unemployment in the regions of eastern and southern Slovakia), school system that does not respond adequately to the demands of the labour market, reduces the chance of graduates to get a job. In regions where is high unemployment, and are not job vacancies, becomes a man often long-term unemployed. Labour migration abroad or accepting a job that required a lower qualification are often solution for this situation. Young people are also more often unemployed, are more frequently employed in temporary jobs, in jobs with lower wages and lower rate of social security. Adopted measures can help to solve in part this negative situation, but they are not sufficient.

Literature:

Dinga, J., & Ďurana, R. (2015). *Nezamestnanosť - systémový problém slovenského hospodárstva*. Bratislava: INESS.

EURES (2016). *Informácie o trhu práce. Prešovský kraj*. Brusel: Európska komisia. Retrieved July 24, 2017, from <http://ec.europa.eu/eures/main.jsp?countryId=SK&acro=Imi&showRegion=true&lang=sk>.

Kostolná, Z. (2010). *Nezamestnanosť absolventov škôl a prístupy k jej riešeniu v členských štátoch EÚ v období globálnej ekonomickej krízy*. Bratislava: Inštitút pre výskum práce a rodiny.

UPSVR (2017). *Národný projekt Absolventská prax*. Bratislava: Ústredie PSVR. Retrieved July 20, 2017, from https://www.upsvar.sk/tn/narodne-projekty/np-absolventska-prax/?page_id=546096.

UPSVR (2017). *Národný projekt Praxou k zamestnaniu*. Bratislava: Ústredie PSVR. Retrieved July 20, 2017, from https://www.upsvar.sk/tn/narodne-projekty/np-praxou-k-zamestnaniu/?page_id=460.

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EVALUATION OF USE OF MANAGEMENT ACCOUNTING METHODS TO OPTIMIZE THE PROFITABILITY OF CUSTOMERS IN COMMERCIAL COMPANIES

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Abstract: *In order to make an accurate estimate of customer profitability, the company must determine the revenue it receives thanks to the customer and the costs of acquiring and maintaining the customer. It is relatively easy to determine the sales revenue generated by the customer, but the cost of that customer is not. In order to determine the costs of acquiring and maintaining customer relationships, companies can use different management accounting methods. The purpose of this article is to briefly analyze the suitability of different management accounting methods to optimize the profitability of customers in companies, with particular emphasis on commercial companies. This analysis was made on the basis of surveys conducted among 71 companies from south-eastern Poland. Applying the right method to optimize customer profitability plays an important role in new customer acquisition decisions and retention of the current customers.*

Keywords: *Cost accounting, customer, cost optimization, costs.*

JEL classification: *M41, O16*

Grant affiliation:

1. Introduction

Thanks to the customer, every business generates the necessary profits to run and continue its business and development. P. F. Drucker argues that the only correct definition of a business goal is the creation of customers (Drucker, 2005, p. 71). This results in the need to establish and maintain economically optimal relationships. The primary risk of conducting a business activity is the risk associated with the profitable sales of the effects of activity of a particular commercial company. The risk is related, on the one hand, to the possibility of making a sale. On the other hand, with the possibility of profitable sales. The risk, however, can be reduced, and the relationship between costs and revenue can be optimized, but to be able to do so one must have the right tools. Modern sales management and customer relationship management tools should therefore minimize this risk and provide new opportunities for action. In that case, the particularly high requirements for management support tools will be related to the sales area.

Consequently, customer profitability (Stoner, Wankel, 1986) is considered as the key issue, both in the operational (current) and strategic (long-term) perspective and customer value creation.

Profitability management is the ability to control profitability on a given economic entity, and therefore it is about optimizing the revenue and cost of generating that profit. First and foremost, the main importance (resulting from the direct ability to influence cost carriers) in shaping profit is attributable to the ability of commercial companies to influence revenue costs in the broad sense of the word. It is therefore necessary to pay special attention to management accounting methods supporting the appropriate value of the financial result of the examined economic value and consequently its cumulative value - the financial result of a company.

If the key to business continuity and business development are long-term, cost-effective customer relationships, it becomes evident that the customer cost accounting and its connection to the various phases of the customer lifecycle becomes the most important method of management accounting in a company.

The company management system, in order for it to function properly, to meet its objectives it must be fed with information of a diverse, tailored to its needs character. An information system should generate information for all management functions in a given company, namely planning, organizing, leading (motivating), and controlling. Management accounting is a commonly used management information system that provides information for business managers.

The aim of the article is to briefly analyze the suitability of various management accounting methods to optimize the profitability of customers in companies, with particular emphasis on commercial companies.

2. Survey results

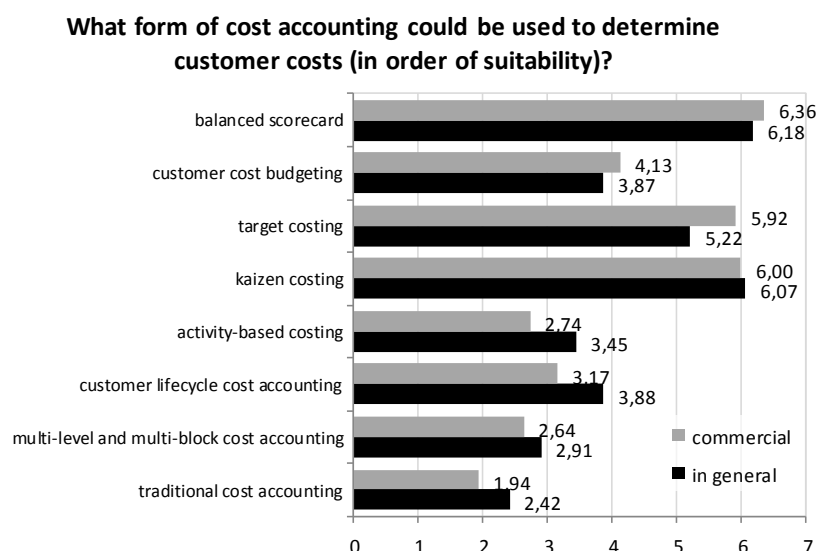
At the turn of 2014/2015, empirical survey was carried out on companies operating in South-Eastern Poland. The purpose of the survey was to determine the need to create a customer cost accounting concept that would help optimize the profitability of customer relationships. The primary criterion for the selection of survey subjects was the need for these companies to keep accounting records based on the Accounting Act. Survey questionnaires were addressed to the persons in charge of management accounting in the surveyed companies and, in the absence of such persons, the questionnaire was filled in by the managing or financial directors or accounting officers. Survey forms were distributed in 2014 to 208 companies. Voluntary associations of companies operating in South-Eastern Poland were supporting the delivery of questionnaires: Podkarpackie Business Club and the Rzeszów Chamber of Commerce. The return of the questionnaires was made via email, traditional mail or personal visits.

The survey was attended by 78 companies, unfortunately significant errors in the completed questionnaires have caused the need to eliminate from the analysis of 7 questionnaires. Survey return rate is 37, 5%. However, 34.13% of questionnaires sent out to companies were analyzed.

The questionnaire comprised of 21 questions aimed at verification of the condition and the need to use a cost accounting whose object is the customer. One of the questions asked in the questionnaire

was the question of respondents' preferred methods of management accounting, which could be used to determine the customer costs (results of the whole study are presented in: Lew, 2015). Responses were hierarchical because the respondents were asked to indicate the suitability of individual management accounting methods to determine the costs of customers from the list indicated in the question. The answer to this question is shown in figure (FIG. 1).

FIG. 1: Distribution of answers to question about the use of management accounting methods to optimize customer costs



In FIG. 1, the alignment is the same as in the question. Respondents responded in such a way that they selected 1 if they considered the method to be the most appropriate (proper), and subsequent numbers meant less usefulness. Ranking of different management accounting methods to assess the profitability of relations with customers according to the order of suitability according to respondents is presented in table (TAB. 1).

TAB. 1: Ranking of usefulness of management accounting methods

COST ACCOUNTING METHOD	USEFULNESS - RANKING
Traditional cost accounting	1
Multi-level and multi-block cost accounting	2
Activity-based costing	3
Customer costs budgeting	4
Customer lifecycle cost accounting	5
Target costing	6

Kaizen costing	7
Balanced scorecard	8

The research shows that in Polish companies the traditional cost accounting continues to dominate, which is widely used for reporting purposes. However, business managers are relatively rarely expanding this cost accounting for cost optimization purposes. The answer to this question suggests that if the cost accounting would focus on the selected cost object, the managers would try to use the traditional cost accounting for this purpose first. Secondly, there was a multi-level and multi-block cost accounting, which is probably due to the fact that it is relatively often used as a cost managing method maintained in the context of management accounting. Companies are less interested in other cost accounting methods. This may be due to the lack of knowledge of these cost accounts, the need to incur additional expenditure on their implementation and maintenance, or lack of substantive justifications for introducing more advanced cost accounting at the current stage of development of the company.

3. Proposals for cost optimization solutions for customer relations

In sales companies, sales departments should not focus on maximizing the profitability of individual transactions, but as a key issue consider customer profitability, and therefore profitability in the long run.

To be able to properly assess customer profitability, a company must be able to determine the expenditures (costs) that it will incur for acquiring and retaining the customer and the revenue it receives through the duration of the relationship with the customer. However, in order to determine the cumulative profitability of the customer, it is also necessary to estimate the time of cooperation with him, which introduces a certain subjectivity in the assessment of the entire life value of the customer.

The customer lifecycle value concept is a response to the limitations of the approach based on measurement of the customer profitability. For this reason, the promoters of this concept emphasize primarily the advantage over the traditional approach based on the study of profit changes (Stahl, Matzler, Hinterhuber, 2003; Kumar 2008).

Based on the concept of customer life value, one can create a concept of customer lifecycle cost accounting. This accounting consists of three phases, which through the actions carried out in them will result in the formation of costs characteristic for each phase separately.

Another proposal to support optimization of customer relationships is the integration of different management accounting approaches with customer cost accounting (Lew, 2015). Given the increase in significance and quality of acquired customer cost information, the following reasons for integrating the different management accounting methods into the customer expense account should be mentioned:

- integration of different management accounting methods can lead to synergy effect,

- possibility to reinforce the most effective elements of the integrated methods,
- marginalization of the negative effects of the implementation and maintenance of the integrated methods,
- ability to optimize methods, when integrating them, in terms of the individual needs of a particular commercial company.

Integration of customer cost accounting with the most recognizable methods of management accounting has the biggest management potential. They include the integration of customer cost accounting:

- with activity-based management (ABM),
- with the budgeting system,
- with the target cost accounting, which works with the concept of kaizen continuous improvement,
- with a balanced scorecard.

This proposal does not exhaust all possibilities for integration, but it can be considered as the most prospective and achievable for companies.

4. Conclusion

Cost accounting is one of the most widely used accounting tools and is an indispensable part of the information system for companies operating in global markets. The traditional cost accounting focused on identifying and measuring product costs to the extent required by law. It is becoming increasingly important to run cost accounting in the context of management accounting. Today's development of cost accounts is determined by the managerial needs of the managers whose decisions it is to support. Also changing the strategy of commercial companies, which increasingly orient it to the customer causes the need to adapt internal information systems to meet the requirements of the implementation of the strategy. Optimizing the implementation of customer strategy in commercial companies is possible through, inter alia, properly maintained and tailored to internal needs cost accounting.

Literature:

Drucker, P. F. (2005). *Praktyka zarządzania*. Warszawa, MT Biznes.

Stoner, J. A.F., Wankel, Ch. (1986). *Management*. New Jersey, Prentice-Hall International.

Lew, G. (2015). *Rachunek kosztów klienta w zarządzaniu przedsiębiorstwem handlowym*. Rzeszów, Oficyna Wydawnicza Politechniki Rzeszowskiej.

Stahl, H.K., Matzler, K., Hinterhuber, H.H. (2003). *Linking Customer Lifetime Value with Shareholder Value*. Industrial Marketing Management, No 32.

Kumar, V. (2008). *Managing Customers for Profit: strategies to increase profits and build loyalty*. New Jersey, Wharton School Publishing, Upper Saddle River.

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THE POSITION OF CLUSTERS IN A NATIONAL ECONOMY AND THEIR FINANCING

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Abstract: *Clusters are becoming an important part of economic growth. They provide small and medium sized enterprises with better chances to compete with bigger corporations, they improve the effectiveness of public institutions, and they allow universities to take part in various projects, thus becoming more practical and attractive for students. Since cluster creation is a relatively new phenomenon, most companies and institutions remain unfamiliar with this concept and with the possible advantages of such cooperation. The goal of this article is improve the awareness about this topic, especially when it comes to subjects for which such form of cooperation could be beneficial. We analyze the position of clusters within the national economy and various methods of financing them. We also compare the ways of financing of clusters in the most developed countries and in Slovakia.*

Keywords: *Clusters, cluster policy, cluster financing, clusters in a national economy.*

JEL classification: D2, O17, R11

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1. Introduction

Clusters have a potential to become an important part of economic development and thus foster country's GDP growth. To name just a few advantages clusters bring - they enable small and middle-sized enterprises to compete with large corporations, they improve the effectiveness of public institutions, and they give universities a change to take part in various projects, thus making them more attractive and practice based. Cooperation increases innovative potential and fosters regional and national economy. These corporations on one hand create new jobs and lower prices of goods and services because of lower costs; however, they also pose existential danger for small and middle-sized enterprises. That is why the fact whether or not these smaller companies cooperate can be a decisive factor in their economic survival and their ability to compete. A process of cluster creation is a relatively new phenomenon, especially in the post-Soviet countries such as Slovakia, and most of

the companies and institutions are not aware of it and of the potential advantages stemming from such a cooperation. Therefore, the goal of this article is to increase an awareness about this topic, especially when it comes to the subjects that would benefit from such a cooperation.

2. Methodology and Data

Alfred Marschall, one of the first researchers to focus on the topic of clusters, stated in his “Principles of economics” that industries are often concentrated in one place. This concentration brings various advantages, lower costs being among them. Marschall did not use the word “cluster”, he used “industrial districts” instead. He characterized three main sources of lower costs: most: use of common resources in the specialized infrastructure, high specialization of labor on the local labor market, and lower costs connected with transactions between companies, since the contracts were made between geographically close companies (Marschall, 1890).

The term “clusters” was first used by American economist Michael Porter in his book “The Competitive Advantage of Nations”. He defined it as “a geographic concentration of mutually connected companies, specialized suppliers and providers of services, companies in the related fields and institutions (for example universities, business associations), which both compete and cooperate with each other” (Porter, 1990). Almost a decade later, Porter introduced a new definition of clusters: „Clusters are local concentrations of mutually connected companies and institutions in a specific field. They include connected industries and other subjects relevant for economic competition” (Porter, 1998).

Other theories approach the topic of clusters while considering the competitiveness. French researchers Tolenado and Soulie used the term “filieres” to describe groups of technological sectors (Tolenado, 1978; Soulie, 1989). According to Swedish researcher Dahmen, the basis for competitive advantage is the existence of the connection between the ability of one sector to develop and its ability to ensure the development in other sector as well. In order to ensure competitive advantage, the growth must happen gradually, following the vertical links within one industry connected with other industries (Dahmen, 1950).

V. Feldman studied clusters and their impact on competitiveness. The main advantage of his approach to this topic is the fact that it is based on broad empirical studies in different countries (Feldman, 1999). According to Feldman, the diversification often follows the “cost-production” pattern or contacts between industry branches. The mechanisms that lead to the forming of clusters follow the same logic.

Various authors study the influence clusters can have on regional development (Stejskal 2011; Strunz et al, 2014; Vojtovič, 2015; Kordoš, 2016, Navickas et al, 2016). Similarly, research has been done on the topic of measuring clusters’ effectiveness and their significance for employment and for small and middle-sized enterprises (Havierníková et al, 2016).

Other authors focused on the different approaches to cluster financing (Pavelková, 2009; Sölvell et al, 2003). Sölvell, Ketels, and Lindqvist conducted a survey of cluster initiatives worldwide, and cluster financing was one of the aspects they looked into. They have collected and analyzed 238 questionnaires, and came up with following conclusions: 36 % of clusters originated from the

combination of public and private initiative. The private sector by itself initiated forming of 27 % clusters, and public sector was solely responsible for initiating 32 %. Only 5 % of clusters were formed because of an initiative from universities. When it comes to the financing of the primary phase of cluster initiatives, in 54 % of cases, a public sector was the main source of financial support, 25 % were supported by private and public sector equally, 18 % were financed mostly by the private sector and only 1 % by universities. Only 4 out of 238 clusters were initiated by international organizations and only 1 received a financial support from an international organization when it was formed.

Currently, 35 cluster initiatives in Slovakia are financially supported mainly by regional municipalities and by the private sector. Clusters use available financial means to provide services for their members and for operational purposes. Considering that data on the financing of Slovak clusters are either incomplete or unavailable, we can provide only their basic characteristic.

3. Financing of cluster initiatives

According to “Cluster Management Guide” created as a part of the CLOE project (Cluster Linked over Europe), financing of clusters can be divided into three groups:

1. Financing through private capital. Some groups are of an opinion that a permanent public financing can lead to the inefficiency of cluster management and cluster initiatives in general. This opinion has its supporters among the representatives from both public and private sector. Private financing is usually practiced by one or multiple dominant companies within the cluster; a typical example are automobile clusters.
2. Temporary public financing. Another approach is that cluster initiatives should be publically financed only temporarily in order to avoid the “trap” of dependence on the continuing government support. Instead of a continuous financial support, clusters should be given an opportunity of industrial cooperation.
3. Public – private financing. The financing of cluster initiatives can also combined – both private and public. Public co-financing is often limited for the period of 18 months, with the option of prolonging this period by another 18 months. The cluster should be viable and financed exclusively through private means after three years (Cloe, 2006).

OECD also distinguishes between three methods of financing cluster initiative:

1. Partnership forming. Cluster initiatives belonging to this group are characterized by relatively small amounts of financial means being invested over the period of several years. The yearly amount is under 100.000 €, however, oftentimes it is less than 50.000 € per year. We can name following examples: “SPL programme” in France, “Visane programme” in Sweden or “Klastry: mapovanie” in Czech republic.
2. “Soft” investments into research & development and into common projects. The financing in the clusters belonging to this category is mostly focused on the common projects, sometimes accompanies by investments into R&D. The value of the investments is usually around 100.000 -

1.000.000 € / year. Examples are “The Basque Country’s Competitiveness Program”, Czech program “Klastry: fáza 2”, and German “InnoRegio”.

3. “Hard” investments into research and development. Projects belonging to this group get approximately 1 million € or more for a specific time period. As examples can serve “Finnish National Cluster Programme”, which allocates several million € for each selected cluster, but only for the first 2-3 years, and “BioRegio” or “VINNVAXT”, which yearly receive 2 mil. € and 800.000 € respectively (OECD, 2007; Pavelková, 2009).

National cluster initiatives can be financed through a national budget, EU budget, through budgets of regional municipalities or from other sources. Though programs are often financed through a varying combination of mentioned sources, state remains the main source of financial support for 63 %. EU funds play a primary role only in 1 in 5 programs, 3 % are supported mainly by regional municipalities, and 7 % by the private sector (EU, 2008).

4. Conclusion

The developed countries do not have a unified approach to clusters. Firstly, the levels of national and regional development, culture, and institutions differ from state to state. Secondly, different countries have different approaches to clusters. For example in Denmark, France, Netherlands, Scotland, and in Sweden, the policy of supporting clusters is a state policy. In countries like Finland, Germany, Italy, Austria and Norway, the measures implemented in order to support cluster are seen as a part of innovative regional policy. The different approaches mean that the financing of cluster initiatives differs as well.

Literature:

CLOE Clusters Linked over Europe: Cluster Management Guide – Guidelines for the Development and Management of Cluster Initiatives. 2006.

Dahmen, E. (1950). *Entrepreneurial Activity and the Development of Swedish Industry 1919-1939.* Stockholm.

EU (2008). *The Concept of Clusters and Cluster Policies and their Role for Competitiveness and Innovation: Main Statistical Results and Lessons Learned.* Luxembourg.

Feldman, V.P., Audretsch, D.B. (1999). Innovation in Cities: Science based Diversity, Specialization and Localized Competition. In: *European Economic Review.* № 43, p. 409-429.

Haviernikova, K., Jašková, D., Krajňáková, E. (2016). The evaluation of regional competitiveness in the context of cluster potential. In: *Proceedings of the 3rd international conference on European integration.* ICEI. Ostrava, s. 326-334.

Kordoš, M. (2016). *Creative industry within the European regional policy - effects and benefits.* In: Knowledge for Market use 2016. Olomouc, s.199-207.

Marshall, A. (1890). *Principles of Economics*. London, MacMillan.

Navickas, V., Vojtovič, S., Svazas, M. (2016). Clusterization processes influence to competitiveness: biomass cluster case. In: *Proceedings of the 1 st international conference contemporary issues in theory and practice of management: CITPM*. Czestochowa, s.302-308.

OECD (2007). *Competitive Regional Clusters National Policy Approaches*.

Pavelková, D. a kol. (2009). *Klastry a jejich vliv na výkonnost firem*. Praha, Grada Publishing.

Porter, M. (1990). *The Competitive Advantage of Nations* The Free Press. New York.

Porter, M. (1998). Clusters and the New Economics of Competition. In: *Harward Business Review*, Nov-Dec 1998, p. 25 -26.

Soulie, D. (1989). *Filieres de Production et Integration Vertical*. In: *Annales des Mnes*. Janvier p. 21-28.

Sölvell, Ö., Ketels, C., Lindqvist, G. (2003). *The Cluster Initiative Greenbook*. Stockholm: Ivory Tower AB.

Stejskal, J. (2011). *Prumyslové klastry a jejich vznik v regionech*. Praha, Linde.

Strunz, H., Vojtovič, S. (2014). Vocational training and employment in the creative industry. In: *SGEM conference on political sciences law, finance economics & tourism*. Sofia : STEF92 Technology, s.787-794.

Tolenado, J. A. (1978). Propis des Filires Industrielles. In: *Revue d'Economie Industrielle*. Vol. 6., N 4., p. 149-158.

Vojtovič, S. (2015). Perspektívy rozvoja kreatívneho priemyslu v regióne. In: *Znalosti pro tržní praxi 2015: Sborník z mezinárodní vědecké konference*. Olomouc, s. 1093-1099.

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ANALYSIS OF WORK-LIFE BALANCE IN AN ORGANIZATION

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Abstract: *The article deals with the topic of work-life balance, which is fairly relevant today. Creating harmony between one's personal and professional life is an individual process dependent on each person's needs and preferences; yet it is the employer, who plays the biggest role in the process. The article consists of the work-life balance analysis in a specific organization and describes various improvement proposals.*

Keywords: *Human resources management, work-life balance, possibilities to synchronize work and personal life.*

JEL classification: M12

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1. Introduction

The topic of balance between work and personal life, also known as work-life balance (hereinafter as WLB) is constantly developing. In a simplified way, it is achieving one's own balance in life. It is a subjective term, since every single one of us feels in balance under different circumstances. While for some balance between work and personal life means to be on time for family dinner, for others they are career achievements, since they like their job and it is also their hobby. According to Sokáčová and Kolářová (2010, p. 75) into WLB "belongs a whole range of measures, tools and activities, which allow employees to combine work with other activities (studies, care for relatives, hobbies, sports and culture activities, work for community, etc.)." Employer understands that an employee also has other roles in his life next to the professional ones. They are for instance roles of brother, friend, etc.

According to Armstrong, WLB "expresses an effort of employees to reach satisfying balance between the activities at work and off work." (Armstrong 2015, p. 509) As an example serves dealing with parental responsibilities, but also other family obligations, or enjoying other activities and interests. People, who are able to satisfy their off-work needs, are more successful at satisfying also their professional tasks and have higher performance. It is always an individual approach, since everybody

is satisfied under different circumstances. Further, ratio of work and leisure time suits differently to different people. As Barbara Hobson (2014) points out, achieving WLB allows participating in such actions, which are valuable for most of us, involving many aspects of our life. It is a possibility to manage job and simultaneously have enough time to develop our relationships with friends and create social bonds.

If a company introduces WLB measures for their employees, it brings many advantages. Kašparová and Kunz (2013, p 77) mentions, for instance, decrease of employees fluctuation, increase of employees motivation, improvement of employer's reputation or lowering the expenses for recruitment of new workers.

2. Organization characteristics

Here, in this contribution, I shortly describe the organization I deal with. The given organization does not wish to be named and therefore it will be generally labelled as the organization X. In my contribution I drew information from the company's intern documents and website, which will not be specifically named.

The organization X is an engineering company, which was founded in 1900. Since 1950 it has produced coil, leaf and parabolic springs for railway and automotive industry. It is an economically strong and dynamically developing Czech company.

Currently, the company employs approximately 280 workers. We can divide them into two groups; technical and economic workers and workshop workers (operators and team leaders). These two groups have different job descriptions. Also work-life balance slightly differs from one another.

3. Analysis of the work-life balance area

Using the company's internal documents and its analysis and after discussion with a member of the human resources department I was able to create a list of opportunities for work-life balance, which are currently at disposal for the employees. These opportunities have changed in March this year due to changes in Collective Agreement and due to cancelling the Cafeteria system. Employees have lost some of their benefits, which might have helped them to combine work and personal life.

I divided the opportunities to combine personal and work life into three categories. First category focuses on flexible work forms and is categorized into two subgroups. In first subgroup it is described what benefits may use technical-economic workers and in second subgroup what benefits may use workshop workers. Second category mentions opportunities to care about children or family members. Last category deals with tools to combine work and personal life focused on an individual (his/her leisure time, education, etc.).

3.1. Flexible work forms

Hereinafter you may find specific forms of flexible work at the company. They are divided into two groups according to the company workers.

3.1.1 Technical – economic workers

Technical – economic workers may use flexible working hours, or, in this case flexible start of working day. The company's director set the time when all the workers are obliged to be present, which is from 8 a.m. to 2 p.m. Since technical – economic workers have seven and a half hours long work shift, 80% of their working times is permanently set, which they do not consider flexible working hours.

Employees may also use home office, if the nature of their job allows it. In this case, an employee is obliged to submit a written request to the company's director, who approves this request. Often, a whole day of home office is an issue; a half of a day is more likely to be approved.

3.1.2 Workshop workers

Since workshop workers work in three-shift operation, or non-stop operation, the possibility of flexible working hours does not apply for them. However, they may use the hour bank of working hours.

This bank allows using work force flexibly according to number of orders. This tool may be useful for employees to combine work and personal life (Sokáčová and Kolářová 2010).

3.2. Possibilities when taking care of children or infirm family member

Employees have four weeks of vacation and beside that, work leave with salary compensation, which is set by law in case of decease, wedding or child birth of five days of extraordinary leave with any use according to one's needs.

At the turn of July and August there is planned plant shutdown (partially covered by the four weeks of vacation). The production is stopped and various repairs and innovations take place. This shutdown is planned in the middle of summer holidays so the employees have time to spend with their children.

The company also organizes several events for its employees and their families. They are The Family Day, The Open Day with a possibility of company tour or Saint Nicolas Day. The employees are also entitled for wellness stay along with one of their family members.

The workers are also entitled for a financial allowance for children's camp, which is organized by Trade Union.

3.3. Possibilities for personal development, education and leisure time

Part of WLB should not only be work and taking care of a child or any other family member. Armstrong (2015) points out that every employee should have time for rest, self-realization and self-education.

The events, which are held by the company exclusively for its employees and where they can have a rest, are Christmas Party and Hog Slaughter. Both of the events are held in December. The rest of the year is therefore empty. Employees may use the discount card Sphercard, which offers a range variety of discounts into different types of shops. It is possible to use them for their own needs or for the needs of their families.

The organization offers financial contribution to assist with commuting. There is also a designated parking lot only for those employees, who commute by car. To save time and money, employees may also regularly visit the contractual doctor residing in the premises of the company. In the premises there is also a company canteen, which regularly serves meals during the shifts for all the employees. The catering is covered by meal vouchers.

As far as personal development and education is concerned, candidates have the opportunity to use language learning (so far only English, since there has not been interest in any other languages). In the context of systematic education, employees can design their own areas of development.

4. Improvements for the work-life balance area of the organization's employees

Again, this part is divided into three categories, in which are described the possibilities that the company could offer to its employees to facilitate a better work-life balance. Individual ideas were drawn from the literature (Sokáčová and Kolářová 2010, Kociánová 2012, Hobson 2014), and from examples of other companies operating on the Czech market. These companies are actively involved in the work-life balance (e.g. Česká spořitelna, ČEZ or Atlas Copco). Various possibilities of flexible forms of work in the Czech Republic I found on the website of the Ministry of Labour and Social Affairs. I have analyzed the individual proposals and selected only those that were suitable for the organization X. I mainly took into account the size of the company, its financial possibilities and the workload of the employees.

4.1. Flexible forms of work

Further, there are some specific forms of flexible work that the company could offer to support the WLB of its employees.

4.1.1 Technical – economic workers

To achieve better WLB, flexible working hours would be much of a help for technical – economic workers. This means shortening the mandatory length of time, when everyone has to be present at the workplace; for example from 10.30 a.m. to 1.00 p.m. Also, the management should change attitude regarding the home office system and approve more days to work from home.

4.1.2 Workshop workers

In addition to the hourly bank, it would be advisable to offer the workshop workers so called jobsharing. In such case, there would be two employees sharing one position. When introducing this system, it is more demanding for a manager, but this option could help employees who would like to work only half the shift, but are unable to do so due to the continuous operation.

4.2. Possibilities when taking care of children or infirm family member

Employees with children of pre-school age could appreciate a company kindergarten. Since this is a small-scale company, it would be financially demanding to start one. However, the company is in the same area along with other companies of similar focus. Together, they could start one larger company kindergarten in the area.

The organization does not offer any assistance or support for those employees who take care of an infirm family member. Nevertheless, population aging is still more and more discussed issue. The

company could cooperate with local retirement homes or offer employees vouchers for professional care or information service.

4.3. Possibilities for personal development, education and leisure time

Time management training might be a helpful way for the workers how to find balance between their work and personal lives, since it is mainly the employees themselves, who have to try to reach the optimal balance. For some personal development and satisfaction is connected with the possibility to help. The company might participate in Give and Gain Day and pay employees one day of work for local community or non-profit sector during their working hours.

Approximately 20 of technical – economic workers regularly play badminton. I believe that this number would increase if this activity were partially covered by their employers. Or if they were offered a discount to any of the local sports centres. Nevertheless, not everyone is interested in sports, therefore a voucher to a wellness centre is also an option.

5. Conclusion

WLB falls within the social field of the concept of CSR, i.e. the corporate social responsibility concept. Sokačová and Kolářová (2010, p. 87) define it as “a way of entrepreneurship, where companies focus not only on the economic, but also on the environmental, ethical and social aspects of their business.” In practice, CSR has three basic cornerstones – economical, social and environmental (the so called “triple bottom line”). Equal opportunities belong to both economic and social categories. In economic terms, it is about adhering to the principle of equal opportunities in consumer or customer-supplier relationships. An example may be a manufacturer who ensures that suppliers comply with the principle of equal opportunities for women and men. On the social level, it is about promoting equal opportunities of work-life balance towards employees, but also image of society.

The organization X, in which the analysis was conducted, tries to engage in the concept of CSR to which work life balance also falls. This contribution presents an analysis and suggestions for improving the area. It can be seen that there are some hints to help employees combine work and personal life in the company, but there is still considerable room for improvement. The organization will still have a questionnaire survey that focuses on the views of employees on individual measures. It will also take into account generational difference or gender, as the balance between work and personal life is different for everyone. Individual situations should be addressed individually. Proper communication in the organization is important.

Literature:

Armstrong, M., Taylor, S. (2015). *Řízení lidských zdrojů: moderní pojetí a postupy: 13. vydání*. Praha: Grada.

Hobson, B. (2014). *Worklife Balance: The Agency and Capabilities Gap*. Oxford: Oxford University Press.

Kašparová, K., Kunz, V. (2013). *Moderní přístupy ke společenské odpovědnosti firem a CSR reportování*. 1. vyd. Praha: Grada.

Kocianová, R. (2012). *Personální řízení: východiska a vývoj*. 2., přeprac. a rozš. vyd. Praha: Grada.

Sokačová, L., Kolářová, J. (2010). *Slabikář inovativních nástrojů pro sladování osobního a pracovního života: Work-Life Balance*. Ústí nad Labem: Centrum komunitní práce.

Vnitřní dokumenty organizace: kolektivní smlouva, směrnice a brožura pro zaměstnance.

MPSV, (2008). *Jaké jsou flexibilní formy zaměstnávání?* Retrieved May 25, 2017, from <http://www.mpsv.cz/cs/5793>.

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SMES AS THE KEY OF ECONOMIC DEVELOPMENT

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Abstract: *SMEs play an important role in every developed economy, so research conducted in this field is still a relevant issue. Considering the size of these enterprises, all of them directly contribute to the development of various economic sectors and the business environment. The main objective of primary research was to prove a significant relation between the level of development of various sectors and the development potential of region. The questionnaire survey to verify the research question was conducted on a sample of 496 small and medium-sized enterprises. On the basis of analyzed data of primary research, conclusions and recommendations for the future development of enterprises were formulated.*

Keywords: *SMEs, development, economic sector, Nitra Region, Slovakia.*

JEL classification: *M 21, M 29, R 11*

Grant affiliation:

1. Introduction

The regions of Slovakia show many differences. These differences are caused by several factors, e.g. geographical location, distance from the capital, infrastructure, proximity to the state border, and others. One of the priority tasks of the government is to minimize the differences of the business environment in different regions of Slovakia. Despite constant efforts by the government to mitigate the differences between the regions it can be concluded, while the market of certain products is shrinking and unified due to standardization, differences regarding the quality of the business environment are increasing despite the various measures taken by the government and the European Union. The differences between the regions are reflected by the main macroeconomic indicators.

2. Theoretical background of the research

The theoretical definition of the research will be first addressed to the importance of SMEs and their role in the economic development from the perspectives of benefits, resp. barriers to their existence. This will be followed by the basic economic characteristic of Nitra region.

2.1. The importance of SMEs for economic development

SMEs are the catalysts of each developed economy. Among the benefits these enterprises represent is usually ranked their ability to adapt quickly to changing market conditions, which can be implemented due to simple organizational structure and the resulting personal relationship with the employees and customers. Among the socio-economic benefits of SMEs is classified their ability to generate workplaces. It is generally known that the benefits of SMEs are reflected in the region, as entrepreneurs invest their own capital and earn profit, largely contributing to the recovery of the region, as well as shaping the business environment. Considering the facts mentioned above, the state has a role to support and create conditions for the business activities.

Considering their equity options SMEs are more affected by market fluctuations. Their response to changes must be made more flexible, which is often regarded as a competitive advantage of SMEs. (Korcsmáros, E. – Majdúchová, H., 2016)

Summarizing the facts, the benefits of the SME can be listed as the following: (Srpová, J. – Řehoř, V. a kol., 2010)

- flexibility;
- simple organizational structure;
- the ability to generate employment opportunities with low capital costs;
- close relationship with customers;
- less extensive administration (outsourced activity);
- operating activities less dependent on energy and raw materials.

It is generally known that the advantages of SMEs are reflected in the region, as entrepreneurs invest their own capital and earn profit, as well as contribute to the recovery of the region in large extent. (Vlacseková, D. – Mura L., 2017)

Barriers to business development of SMEs can be distinguished from different perspectives. In terms of time we can distinguish long- and short-term barriers to business development. Long-term barriers are the following: improper fund contributions, lack of infrastructure and others. A typical short-term barrier example is the conversion of euro into other currencies. In terms of origin we can distinguish objective (e.g. financial crisis) and subjective (poor sales strategy) barriers to business development. (Machová, R. – Mura, L. – Korcsmáros, E. – Seres Huszárik, E. – Buleca, J. – Havierníková, K., 2015)

According to E. Šubertová barriers to the development of SMEs in terms of their impact on the businesses can be divided into external and internal factors. External factors act as barriers from outside the company, e.g. legislation. Internal factors of barriers are based on the nature of the business and form the internal environment of the company. The most common internal barrier is

the relationship between the owner and the company management. (Russev, S. – Šúbertová, E., 2013)

Despite the considerable economic benefit of SMEs, we can also recognize some restrictions that apply to them. The barriers SMEs face J. Srpová summarized as the following: (Srpová, J. – Řehoř, V. a kol., 2010)

- negative social perception of the entrepreneur;
- less access to capital;
- entrepreneurship training;
- limited innovative capacities and low spending on research and development;
- administrative burden.

Barriers to the development of SMEs M. Sobeková-Majková divided into two groups based on whether the disadvantages are resulting from the nature of the business or specific business conditions in the Slovak Republic. (Sobeková-Majková, M. ,2011)

Barriers may affect businesses to extend, that may cause the disappearance of enterprise. Failure of the business can also be caused by insufficient analysis of the market, poor quality products, inefficient handling of funds, underestimation of the competition, even the lack of managerial skills. (Král, J. ,2012)

2.2. Basic economic characteristics of Nitra region

Slovakia has been one of the fastest growing economies in the EU in the past few years. There are discrepancies in the improvement of living standard in different regions of Slovakia, the regional differences have deepened as it is concluded in the UniCredit Bank survey, which specializes in SMEs. The fastest economic growth was realized in Bratislava region, where GDP per capita in purchasing power has increased in average of 7,7% annually over the period of 2000-2011 (average growth in Slovakia was 6,4% per annum). Above-average growth was recorded in Trnava (7,0% per annum) and in Žilina region (6,9%), Nitra region is characterized by growth of 6,4% of GDP per capita in purchasing power parity, which corresponds to the Slovak average. Nitra region has largely contributed to the economic development of Slovakia, which is proved by the high GDP ratio of the region. According to Statistical Office data, it can be said that the region's share on GDP recorded at current price in EUR around 11%. (Doležal, F. ,2014)

In terms of Nitra region characteristics and its position in the national economy we will devote to selected macroeconomic indicators of the region, introduce the structure of economic sectors, the most significant foreign investments and briefly describe the mission of educational institutions in the region.

27,82% added value was created in Bratislava region in 2013 as a contribution of 20% of the total number of employed residents. Nitra region formed 11,13% of the total value added, which is a lower value than the national average. (12 385 mil. EUR). Business development in the regions of Slovakia is very imbalanced, which is reflected in the main macroeconomic indicators of the regions. (Table 1). Based on the data collected, it can be said that the unemployment rate in Nitra region

(9,86%) is below the Slovak average (10,77%), which is considered to be a positive indicator and points to certain hidden opportunities of the region. Positive evaluation can gain a fact, that the value of basic macroeconomic indicators in Nitra region is closer to the Slovak average.

Nitra region in terms of national economy can be characterized based on the structure of economic sectors. Due to different statutory criteria for the establishment of various types of enterprises and their characteristic features defined by the Commercial Code and the Small Business Act in Slovakia we decided to introduce the structure of individual economic sectors in Nitra region separately for legal entities and natural persons.

Based on available data from the National Bank of Slovakia, it can be said, that Nitra region is a target region for 4% of FDI.

Thanks to foreign direct investment, industry parks were built resp. expanded in the region. Based on data from the Slovak Agency for Investment and Trade, 6 industry parks are registered in Nitra region. In the second half of 2015 the Slovak Government announced a new investment made by a car company. The car manufacturer from the UK, Jaguar Land Rover is going to build a new plant in Nitra. It is expected, that the first cars will roll off the production line in 2018. (Krajanová, D. – Folentová, V., 2015) With the new investment, worth more than 1,3 billion EUR about 6000 workplaces (also subcontractors) will be created. (Odkladal, M., 2015)

3. Research objectives and methodology

The main objective of primary research is to verify the research question i.e. whether there is a significant correlation between the levels of development of individual economic sectors and the development potential of Nitra region.

Nitra region with its favourable geographical position as a border area and its proximity from the capital creates opportunities to develop the business environment of the region, as it is also confirmed by the study „Strategies for rural development in Nitra region“. The main objective of the questionnaire survey is to show the development potential of the business environment in individual sectors of Nitra region.

The questionnaire survey to verify the research question was conducted on a sample of 496 SMEs in Nitra region. Processing the data obtained were used basic, as well as specific research methods.

To verify the research question the following statistical methods were used:

- Pearson's Chi-Square Test of Independence
- Cramer's contingency coefficient V
- The Goodman and Kruskal's lambda (Rimarčík, M., 2007)

4. The results of primary research

Focusing on the research question we will examine the relationship between the opinion of entrepreneurs and ranking businesses into different economic sectors, where the opinion of entrepreneurs regarding the development potential on Likert scale will be the dependent variable and ranking of businesses into various economic sectors will be the independent variable.

While examining the opinion entrepreneurs had about the business environment in Nitra region H0 and H1 hypotheses were formulated.

H0: There is no significant correlation between the development level of individual economic sectors and the development potential of Nitra region.

H1: There is significant correlation between the development level of individual economic sectors and the development potential of Nitra region.

Considering the character of variables, contingency table will be applied for analysis.

Correlation between the two variables is characterized with the help of Chi-Square Test.

TAB. 1: The results of Chi-Square Test

Indicator	Value	Degree of independence	Sig. (duplex) – (p-value)
Pearson's Chi-Square	49,135a	35	0,057
Ratio of probability	54,247	35	0,020
Correlation between linear variables	0,869	1	0,351

a.) at 35,4% the value is lower than 5.

Source: Based on own research data

The value of Pearson's Chi Square is 49,135, which is characterized by a measure of significance $\text{sig}=0,057$, it is higher value than the pre-set level of significance e.g. $\text{sig.} > 0,05$ and it means, that H0 hypothesis is confirmed by the Pearson's Chi-Square, so any differences between the businesses of individual economic sectors regarding the development potential of Nitra region might be random. The analysis of relevant data shows that the pivot table is not a reliable source to verify the hypothesis, since one of the conditions has been compromised, applying Pearson's Chi-Square is not appropriate. Based on these facts, we cannot make a clear contribution to the research question.

The Goodman-Kruskal lambda, in case where the dependent variable stands for the perception of entrepreneurs on Likert scale about the development potential of the district, reaches a value of 0,088, i. e. knowledge of the perception of the development potential of the district means 8,8% reduction in errors in economic sector, where the economic unit is ranked. There is significant correlation between the variables (approx. Sig value is lower than 0,05), but this correlation is extremely weak.

The value of Cramer V stands at 0,148, which is not enough for significant correlation between the variables. The value of contingent index is 0,313, i.e. correlation between the variables is small, considering the level of significance it is impossible to show a significant correlation between the enterprises ranked into different economic sectors and the opinion of entrepreneurs regarding the perception of development potential of the district.

TAB. 2: Test results using indicator Phi, Cramer V and contingency coefficient

Indicator		Value	Estimated value Sig.
Nominal based on nominal	Phi	0,330	0,057
	Cramer V	0,148	0,057
	Contingency coefficient	0,313	0,057

Source: Based on research results

Hypothesis H0 is confirmed, i.e. there is no significant correlation between the level of development of individual economic sectors and the development potential of Nitra region.

When evaluating the development potential of districts, respondents had rather sceptical opinion. Only businesses in agricultural and construction sector expressed optimism and admitted that the industry will develop rather quickly.

5. Conclusion

Following the formulated research question we examined the correlation between the development levels of economic sectors and the development potential of Nitra region. Based on the Pearson's Chi-Square we concluded that any differences between the enterprises of different economic sectors regarding the development potential of Nitra region can be random (sig=0,057, which represents a higher value than the pre-set level of significance, i.e. sig. > 0,05, but the difference is minimal). Considering this fact, we cannot clearly comment the research question No 4. As another indicator we chose Cramer V, the reached value of 0,148, is not enough to show a significant correlation between the variables. This means, that by ranking enterprises into different economic sectors, we cannot predict or estimate the level of development even if the representatives of the sector can see potential in Nitra region.

Literature:

Doležal, F. (2014) *Podmienky pre firmy v regiónoch sú rozdielne*. Retrieved January 24, 2017, from <<http://www.unicreditbank.sk/app/tlacove-spravy/Podmienky-pre-firmy-v-regionoch-su-rozdielne.html>>.

Korcsmáros, E., Majdúchová, H. (2016). *Tvorba partnerských väzieb malých a stredných podnikov s regionálnymi inštitúciami: Poznatky na základe primárneho výskumu uskutočneného v Nitrianskom kraji*. 1. vyd. Brno: Tribun EU, 2016. 116 p. ISBN 978-80-263-1053-2.

Krajanová, D., Folentová, V. (2015). *Jaguar Land Rover sa chystá stavať fabriku v Nitre*. Retrieved February 19, 2016, from <https://dennikn.sk/210456/jaguar-and-land-rover-sa-chysta-stavat-fabriku-v-nitre/>.

Kráľ, J. (2012) Hlavné príčiny neúspechu malých podnikov. In *Aktuálne problémy podnikovej sféry: zborník vedeckých prác z medzinárodnej vedeckej konferencie, Bratislava 17. 5. 2012*. – Bratislava: Vydavateľstvo EKONÓM, 2012. ISBN 978-80-8122-044-9. p. 242-244.

Machová, R., Mura, L., Korcsmáros, E., Seres Huszárik, E., Buleca, J., Havierníková, K. (2015). *Inovačné podnikanie a hodnotenie inovačného potenciálu podnikateľských sietí*. 1. vyd. Brno: Tribun EU, 2015. 219 p. ISBN 978-80-263-0598-9.

Odkladal, M. (2015). *Slovensko má veľkú šancu získať mega investíciu Jaguar Land Rover*. Retrieved February 19, 2016, from <http://www.aktuality.sk/clanok/301676/slovensko-ma-velku-sancu-ziskat-mega-investiciu-jaguar-land-rover/>.

Rimarčík, M. (2007). *Štatistika pre prax*. 2007. Vydané nákladom vlastným. 200 p. ISBN 978-80-969813-1-1.

Russev, S., Šúbertová, E. (2013). *Manažment projektov v podnikaní a informatizácií (pri prechode k znalostnému manažmentu)*. Bratislava: Kartprint, 2013. 446 p. ISBN 978-80-89553-13-6.

Sobeková-Majková, M. (2011). *Ako financovať malé a stredné podniky*. Bratislava: Iura Edition, 2011. 228 p. ISBN 978-80-8078-413-3.

Srpová, J., Řehoř, V. a kol. (2010). *Základy podnikání* (Teoretické poznatky, příklady a zkušenosti českých podnikatelů) Praha: Publisher GRADA, 2010. 427 p. ISBN 978-80-247-3339-5.

Vlacseková, D., Mura, L. (2017). *Effect of motivational tools on employee satisfaction in small and medium enterprises*. In: *Oeconomia Copernicana* 8(1). pp. 111-130. p-ISSN 2083-1277, e-ISSN 2353-1827.

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SHARING AND DOING BUSINESS

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Abstract: *The intention of the article is to contribute to the creation of a descriptive microeconomic model of sharing, that reflects the current state of the preferred social exchange relations in the economy; which will be also benefit for theoretical knowledge as a concept which, sufficiently, after selecting exactly, will determine the characteristics of sharing and will be usable for to business and non-business entities in developing their knowledge and skills in the market; for the professional, academic public will be like subject to investigation as a set of phenomenon and processes, that are constantly changing under the influence of the introduction of electronization too. For defining the characteristics of sharing, it has been examining in detail, whether these are common or different to business characteristics. Information sources are expert publications, secondary surveys are compared with own research aimed at identifying the spectrum of experiences of business entities and other market participants.*

Keywords: *Doing business, market, platform, resource, sharing.*

JEL classification: D23, L26, M21, O34

Grant affiliation:

1. Introduction

The internet becomes a part of all processes in our working and private lives, changing social habits and the lifestyle of the whole society. Through the internet, people are activating on social networks, creating and using new applications, increasing the level of their competence in the use of technical electronic means. By using intelligent electronic systems, they educate themselves, exchange vast amounts of information, but also goods and services, resulting in high added value effects. These yet unusual ways of learning and acquiring skills affect the whole market. Households, businesses and the state - naturally engage and adapt to these processes, seeking for themselves the benefit of improving, streamlining and competing. All goods are the object of exchanging results of activities and resources. Gradually, the gap between employment, business and leisure activities is diminishing. Their performance takes place in a real environment, and is also reflected in a virtual environment. For some entities is the present-day of electronized world unknown and discriminates their against those, who all at once acquire and exploit their knowledge and skills in the market. This situation is a challenge for the whole society. The community of people will have to ensure their own

reasonable, harmonized activation in the virtual environment. One option is to stimulate doing business (as well as entrepreneurship) in specialized activities. This will mean a gradual transformation of approaches, stereotypes of all sectors and department of the economy. It will require redefining doing business in the digital economy and implementing smart sharing platforms. The intention is to explore preferred social exchange relationships, to identify their specifics, to create a concept of a microeconomic model of sharing and doing business, which points to the benefits for economic bodies by developing their knowledge and skills for the market.

2. The current state of knowledge issues

Business and sharing can be explored as two separate phenomena, may have common and different features and assumptions.

Exploring the mutual relationships between the phenomena of sharing and doing businesses (entrepreneurship) is linked to Schumpeter's theory. According to the theory, business is based on an innovative, dynamic, active and proactive approach to business. The entrepreneurship activities are constantly improving. Profit isn't a reward for the risk or the main motive of doing business. The entrepreneur is the entity, that practically implements innovation in production processes. (Janičková, 2015)

The content of doing business is entrepreneurial ability, that is the ability of natural persons (individuals) or groups of persons (businesses) to use their subjective and external environment opportunities, in order to satisfy diverse own and strange needs and goals. According the law, business is a systematic continuously activity carried out independently by the entrepreneur in his own name and on his own responsibility for the purpose of achieving profit. All attributes must be met at the same time. The law requires, that persons who are to be described as entrepreneurs, hold an official authorization to do business and have been fulfilling the involved obligations.

The fact, that internet and sharing are an integral part of everyday life, is registered and regulated by governments of states and union. They track what's happening on the market, and they adapt later their activities for this. The national government's initiative in the Slovak Republic is currently supporting the development of the Business Service Center (BSC). In 2015 there were more than 40 centers in Slovakia, employing more than 30 thousand people. The BSC provides intra-company services or offers it to other individuals and businesses. Accordingly, we distinguish between centers that provide services such as Shared Service Centers (SSC) or Business Process Outsourcing (BPO). Typical services include specialized services in IT, finance, etc.

The European Commission's Economic Policy Commission has negotiated a proposal for a shared economy in 2015, that it has identified as a kind of business that is built on sharing resources. (Brighenti, 2015)

One of the latest community initiatives is a „collaborative economy“, based on the preference of temporary availability of the belongings before its ownership. From the 2016 Eurobarometer results, it was found that almost half of Europeans know sharing, with every sixth person joining as a user. There are three categories of actors: providers, users and intermediaries. They have been providing "collaborative platforms". (Filus, 2017)

Sharing economy „started off with sharing unused resources between individuals, and then extended to consumer to consumer (C2C/P2P) and supplier to consumer (B2C) collaboration. At the same time the shared resources extended from tangibles to intangibles (Choi et al. 2014), and the list of products and services that can be shared is potentially endless (Posen, 2015)“ (Kosintceva, 2016)

3. Objective and methodology

The objective of the article is to identify common and different features of sharing and entrepreneurship, to create a microeconomic model of sharing, that enriches theoretical scientific knowledge, to describe the current state of the issue in society and will be a benefit both the perspective for developing people's awareness and skills on the market. For identifying common and different characteristics for sharing and doing business, serves the results of our own qualitative survey of the opinions of potential sharing actors (stakeholders). A single structured questionnaire was created, distributed as personalized formally and unformatted by e-mail, addressed to entrepreneurs and non-entrepreneurs, beginning in February in 2016, in the Slovak Republic. Returned 81 questionnaires (68 %) filled in correctly, were divided in to two groups (22 entrepreneurs with an authorization (27 %), 59 non-entrepreneurs (73 %)). It was taken over (Lakhani, 2010) and was used the DPT profiling method according to d_demographic, p_psychological and t_technological factors. Demographics survey includes aspects: entrepreneur or non-entrepreneur, age, field of business / employment and level of education. Psychological factors include personality-motivating features: is entreprising vs. isn't entreprising, speculation vs. justice etc. Technological factors express the engagement of people in sharing: active vs. inactive; physically vs. electronically: users, intermediaries, providers.

4. Results and discussion

We remind, that out of the total of 81 questionnaires, there were 22 business entrepreneurs and 59 unlicensed entrepreneurs. We found, that only 42 respondents (52 %, of which 9 were entrepreneurs and 33 non-entrepreneurs) knew the essence of sharing (as was defined). The result is comparable to the Eurobarometer survey. We asked, if sharing is the same as doing business. Up to 33 respondents (41 %) think, that those, who offer and receive something, should have the obligation to have an authorization for doing business and pay taxes. 48 respondents agree (59 %), that entrepreneurs could share without state control, when they earn low income from this activity. 56 respondents think (69 %), that sharing is a big change and represents a whole new system, isn't a traditional doing business. In the group of entrepreneurs has this opinion 15 of them (68 %). In the group of questionnaires from the non-entrepreneurs, we found, that they for the sharing don't need and don't want a business license, they consider this activity like a "service" for family, friends, followers (32; 54 %). The objects of the actors' sharing were mainly: money (39 respondents, 48 %), machines and tools (28; 35 %), buildings, premises (8; 10 %), services (3; 4 %). According to the present price of the sharing object, 58 respondents are willing to share in tangible resources with a value of up to 300 euros. The expected additional net monthly income was set at a minimum of 30 euros, or 10 % of the value of the shared object. For comparison, according to a survey by US banks JP Morgan (Kušnírová, 2016), over the course of three years, it analyzed 260 thousand accounts and found, that the income

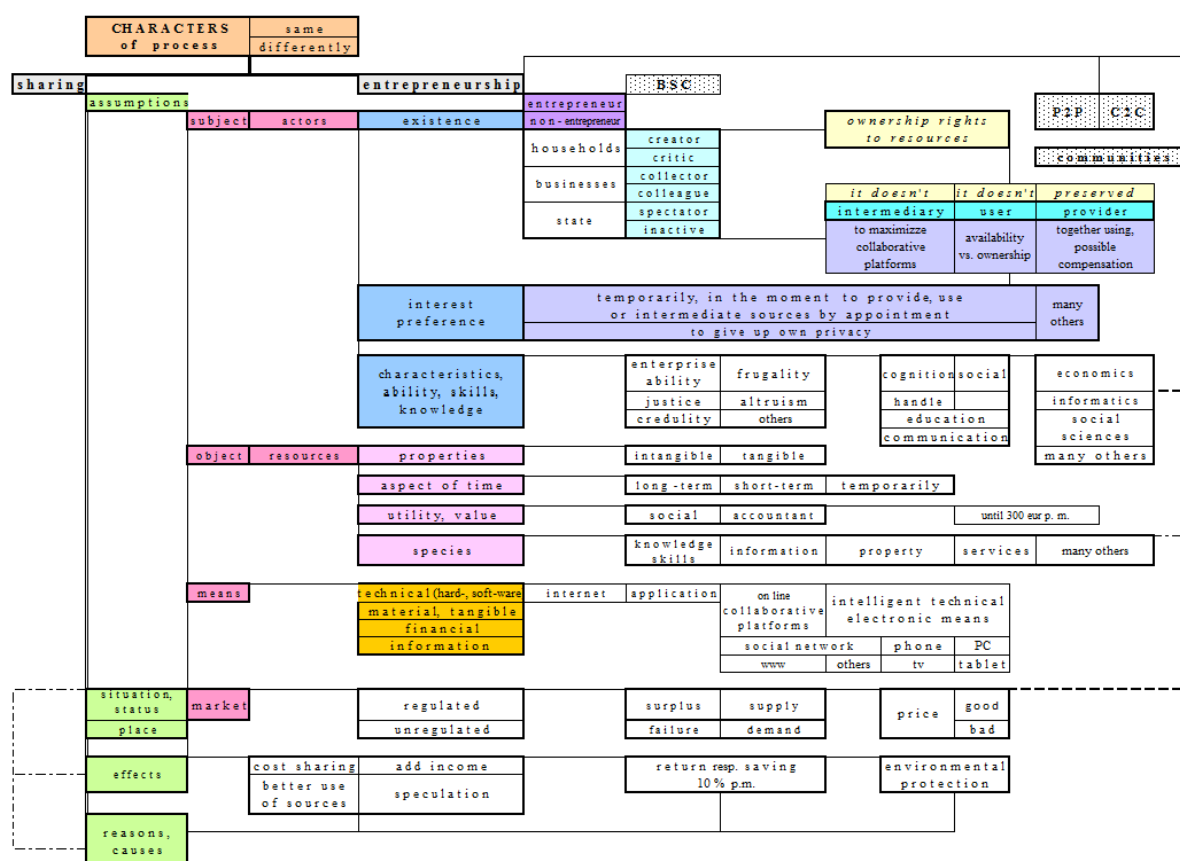
of people's from sharing is increased of 15 %. The reason for sharing is the three answers: extra income, better use of property, income is untaxed. It has been confirmed, that actors by sharing are communicate especially in their community, perhaps because of trust and personal contact.

We asked all respondents for the answer, how education is related to the ability to work with the Internet and applications. 71 respondents (88 %) think, that education helps to increase their ability to use electronic devices and the internet, almost half of them have also said they have improved financial literacy. When asked whether the internet helped them to keep themselves in the labor market or in the business environment, 79 respondents (98 %) responded positively. None of the features, apply to business, isn't absolutely valid for the sharing process and its actors. Approach of actors' is irregularly, isn't regulate by law, control by the public authorities is still limited. This activity may not be done on their own behalf, it is possible to conceal its identity on the internet and it's often unnecessary to know the identification data of stakeholders.

5. Conclusion

The results have been synthesized and are the starting point for creating a concept of a microeconomic model, that will involve the mutual relationship between sharing and doing business. Sharing isn't a business according the law and doesn't represent a traditional business concept, actors of sharing aren't interested in official authorization; It will help to improve the definition of sharing in theory and to seek new benefits for stakeholders but also to adapt the whole process to preferences, to society's requirements. On the demand and supply side, the behavior of economic subjects will change in future in the different markets, while the current state of the market will not suit, for example, for public control authorities. As a result of the research, the theoretical concept of the shared business model is created based on the concretization of its features, graphically illustrated in FIG. 1.

FIG. 1: The concept of sharing model is graphically illustrated in the diagram



Literature:

Brighenti, B. (2015). *Brusel riešil Uber a nové pravidlá pre takzvanú zdieľanú ekonomiku*. Retrieved May 9, 2017, from <https://europskenoviny.sk/2015/10/14/brusel-riesil-uber-a-nove-pravidla-pre-takzvanu-zdielanu-ekonomiku/>.

Filus, I. (2017). *3 nové iniciatívy EÚ na podporu podnikania... Kolaboratívne hospodárstvo*. Retrieved May 9, 2017, from <https://innonews.blog/2017/03/28/3-nove-dolezite-iniciativy-eu-na-podporu-podnikania-o-kotorych-by-ste-mali-vediet-cast-1-kolaborativne-hospodarstvo/>.

Janičková, J. (2015). *Štvrtstoročie príležitostí a výziev pre podnikateľsky orientované správanie manažérov a personálnu prácu v podnikoch*. Verbum, Ružomberok.

Kosintceva, A. (2016). *Business models of sharing economy companies*. Retrieved May 10, 2017, from <https://brage.bibsys.no/xmlui/bitstream/handle/11250/2403861/masterthesis.pdf?sequence=1>.

Kušnírová, M. (2016). *Prečo Airbnb u nás nefunguje a prečo by mal*. Retrieved May 11, 2017, from <https://ekonomika.sme.sk/c/20202392/preco-airbnb-u-nas-nefunguje-a-preco-by-mal.html?ref=av-center#axzz4gfjm5AF2>.

Lakhani, D. (2010). *Jak prodávat, když nikdo nekupuje*. Grada Publishing, Praha.

Koncepcia podpory centier podnikových služieb na Slovensku. Retrieved May 10, 2017, from file:///C:/Users/HP/Downloads/Koncepcia%20podpory%20centier%20podnikových%20služieb%20(2).pdf.

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CZECH PRODUCT CERTIFICATION

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Abstract: *There are many certifications connected with labeling of Czech product in the Czech Republic. The main and common aim all of the certifications is to support Czech products not only in the domestic market but also in the foreign market. Some of the characteristics of certifications are common but there are a lot of differences between them. The main aim of this paper is to find those characteristics and help consumers to be well informed about them. In this paper are studied four selected certifications called Klasa, Český výrobek (Genuine czech), Český výrobek – garantováno Potravinářskou komorou ČR (Czech Product, guaranteed by Federation of the Food and Drink Industries of the Czech Republic) and another certification called Český výrobek. (Czech Product).*

Keywords: *Certification, Czech product, labelling, mark.*

JEL classification: *M31*

Grant affiliation: *IGA_FF_2017_011 Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

Certification is a formal procedure where authorized person or company assesses and verifies different attributes of products, people, organizations, etc. (Business dictionary, 2017) Based on certification, companies have right to use certain label or mark so stakeholders are oriented in the market and company is recognizable. There are a lot of types of labels and marks which are results of certification procedure.

Certification comprises marketing advantage of product and helps certified product create specific target group as it is also marketing advantage for companies. Customers can choose more suitable product with special certification. (Závodná, 2015) Is it true that overcrowding of the market with many labels leads to confusion among costumers. Certification itself does not raises revenues and the price of certification can raise the price of product itself. (Závodná, 2016).

This paper is an analysis of four Czech certifications connected with label Czech product. The main aim of this paper is to bring basic information about chosen certifications and compare their attributes. All four certifications were chosen randomly because it is not possible to include all certifications in the Czech market due to required length of the thesis. Those four certifications belong to most used in Czech market and are called Klasa, Český výrobek (Genuine Czech), Český výrobek – garantováno Potravinářskou komorou ČR (Czech Product, guaranteed by Federation of the Food and Drink Industries of the Czech Republic, further as Czech Product FFDI) and another certification called Český výrobek (Czech Product).

2. Certification of Czech product

As it was mentioned in previous paragraph, this paper analyses four Czech certifications. Only one of the certifications is granted only to food products (Klasa) and next three certifications are granted not only to food products (Genuine Czech, Czech Product and Czech Product FFDI).

TAB. 1: Labels of studied certifications

KLASA



CZECH PRODUCT FFDI



GENUINE CZECH



CZECH PRODUCT



2.1. Klasa

Klasa certification is one of the best-known quality mark in the Czech Republic. This certification is granted by Ministry of Agriculture of the Czech Republic since 2003. This mark is granted to food product (packed or selected unpacked) with unique qualitative characteristics. There are 10 separate groups of food with specific characteristics which are necessary to observe to gain the mark: Delicatessen, Milky products, Fruit and vegetable, Meat products, Non-alcoholic drinks, Fish products, Alcohol drinks, Ice cream, Patisserie and Other products. There is a document dedicated to

minimal requirements of unique qualitative characteristics on the website of the brand. For example, meat products require high percent of meat, only technologically necessary amount of added water and additives, without enzymes, aroma, substitutes (e.g. soya) and mechanically separated meat (MSO). More than 1000 products are certified with Klasa from 215 Czech and Moravian producers.(Klasa, 2014)

2.2. Czech Product FFDI

The mark Czech Product FFDI is a mark in exclusive property of Federation of the Food and Drink Industries of the Czech Republic. This mark has been granted since 2011 and apart from food, other products such as tobacco products and matches can gain this mark. All companies with Czech Product FFDI mark are listed on the official website of FFDI and consumers have easy access to the information about companies. There are several questions asked to all companies such as: Can you introduce your company? Why have you chosen our mark Czech Product FFDI? What do you expect from this mark? How many products and which products are granted with our mark? or Where can customers buy these products? On the website of the FFDI are listed fees for using Czech Product FFDI mark. (Čaklová, 2014) The fee starts on 1500 CZK for one product in the company with less than 10 employees and can reach 100 000 CZK for unlimited number of products in the company with more than 250 employees. Members of FFDI have 20% discount from the fee.

2.3. Genuine Czech

Endowment fund of Genuine Czech has been supporting Czech products since 1994 so it is the oldest mark from all four listed in this paper. Main target of this mark is to support the sale of Czech products not only in domestic market but also in foreign market and to increase the interest of Czech products among consumers. Genuine Czech is the non-profit organization and all incomes are used to promote Czech products. More than 231 producers have been using mark Genuine Czech and a lot of companies are not from food industry such as company Vasa which produces furniture for built-in cupboards and kitchen units. All applicants of this mark must be 100 % owned by Czech juridical person and proceeds of the business are not transferred outside the Czech Republic. (Nadační fond Český výrobek, 2011)

2.4. Czech product

This certification is intended for both, food and non-food products. All certified products must be produced in the Czech Republic and this mark helps all producers because the interest of Czech products is rising. All products are controlled by Czech Product Ltd. and with this certification consumers are sure that products are safe and harmless. The survey in 2016 by Ipsos agency found out that 64% of consumers give priority to the domestic products. Representatives of Czech Product company have been randomly controlling all companies registered with mark to be sure all products are best quality, safe and harmless. At least 50% of components must come from the Czech Republic or if this condition is not possible, all import components must be reused in the process. Czech Product Ltd. offers to all producers marketing support such as advertising on the Internet, competitions for customers, survey Czech product of the year or press conferences e.g. (Český výrobek, 2010)

3. Comparison of marks

The following table displays basic information about all four marks in one place. There are 7 criteria to compare all 4 marks: when was the mark established, who is guarantor of this mark, what is the field of products, what is the number of granted producers, fees, if all process of processing must be in the Czech Republic and if the registered company must be 100 % Czech.

TAB. 2: Comparison of marks

Criterion	Klasa	Czech Product FFDi	Genuine Czech	Czech Product
Established	2003	2011	1994	2006
Granted by	Ministry of Agriculture	Federation of the Food and Drink Industries of the Czech Republic	Endowment fund of Genuine Czech	Czech Product Ltd.
Field of products	Food products	Not only food products	All products	All products
Number of granted certifications	215 producers	60 producers	231 producers	44 producers
Fees	None	Depends on number of certified products and company size. From 1.500 CZK, up to 100.000 CZK per year	5.000 CZK per year or 7.500 CZK per year (+marketing promotion)	Depends on annual turnover of the company and number of certified products. From 1.000 CZK up to 60.000 CZK per year + 3.000 registration fee for all new companies
All process of processing in Czech Republic	Yes	Yes (not all ingredients must be from Czech rep., depends on type of product)	Yes	Yes (at least 50% of components or ingredients come from Czech Republic)
Only Czech companies	No (but nowadays all companies are Czech)	No	Yes	Yes

4. Summary

Based on the comparison of four marks it was found several conclusions. The oldest mark from four studied marks is Genuine Czech established in 1994. Only one of these marks is owned by private profitable company – Czech Product Ltd. Three marks are for food and non-food products. Fees are most important for companies as it is seen that number of certified companies with Klasa and Genuine Czech labelling is higher than with Czech Product FFDI and Czech product labelling. Only Klasa mark is for all producers for free. All marks guarantee that all process of processing of certified products is fulfilled in the Czech Republic but not all ingredients or components must come from Czech Republic. In that case there are specific conditions to obtain. Although this paper was about Czech product certification only two from four examined marks has the condition that registered company must be 100 % Czech so all taxes are paid in the Czech Republic.

Literature:

Business Dictionary (2017). Retrieved June 29, 2017, from <http://www.businessdictionary.com/definition/certification.html>.

Caklová, I. (2014). *Dokumentace značky. Roční poplatky*. Retrieved July 10, 2017, from <http://www.foodnet.cz/polozka/?jmeno=Dokumentace+zna%C4%8Dky&id=36941>.

Český výrobek (2010) Retrieved July 13, 2017, from <http://www.ceskyvyrobek.eu/>.

Klasa (2014) *Národní značka kvality Klasa*. Retrieved June 29, 2017, from <http://www.eklasa.cz/spotrebitele/kategorie-vyrobku/>.

Nadační fond Český výrobek (2011) Retrieved July 11, 2017, from <http://www.ceskyvyrobek.cz/o-nas>.

Závodná, L. S. (2015) *Udžitelný cestovní ruch. Principy, certifikace a měření*. Olomouc: Univerzita Palackého v Olomouci, s. 57.

Závodná, L.S. (2016). *Czech quality labels in tourism*. In Slavičková, P. Knowledge for Market Use 2016: Our Interconnected and Divided World. Olomouc: Societas Scientiarum Olomucensis II, 2016, s. 600-607.

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THE PRESENT CONDITION OF TOURIST COMFORT IN MINING TOURISM IN SLOVAKIA

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Abstract: *The comfort in tourism is just as important as the detection of ideal combination of individual forms of promotion of turistic objects and destinations. Tourist's satisfaction with services in their final destination has direct influence to its positive presentation in worth of mount propagation. We have used several methods and procedures to investigate the existing state of development in mining tourism in Slovakia. The article contains the analysis of tourists and results of field surveys, which formed the basis for the creation of the evaluating matrix of the individual factors of tourist comfort. In the matrix were defined the weights of the explicitly defined factors by using the Saaty's method, which also pointed out their prioritization in the proposed model of evaluation of the various factors of tourist comfort. The paper's output is an assessment of the current state of tourist comfort of selected mines in Slovakia. In the conclusion of the paper are defined types of support for development of tourist comfort in mining tourism.*

Keywords: *Geotourism, mining tourism, tourist comfort.*

JEL classification: *L83, M31*

Grant affiliation: *None.*

1. Introduction

How does visiting museums and galleries differ from visiting mining sites? In museums and galleries, people are confronted with history as such, but in the mining area, visitors experience authentic life of miners in extreme underground conditions. While in the past visits to the underground were impossible, today, thanks to the availability of mining works for museum purposes, they are becoming an attractive tourist product. The development of mining tourism and geotourism is also addressed by other authors, for example: Molokáč, Végsőová (2015), Rybár et al. (2010), Kršák et al. (2015) and Štrba et al. (2014). The aim of our survey was to get an overview of their current state and preparedness for the requirements and expectations of visitors to this form of tourism in Slovakia. Mining Open Air Museum of Upper Nitra (MOAM-UN), Slovak Opal Mines in Slanské Hills (SOM) and Old All Saints mine in Hodruša (OASM-HH) were included in the research.

2. Research methodology

The identification of current state of tourist comfort in the analyzed mining sites was based on a questionnaire survey with previously explicitly defined 6 closed questions focusing on visitors' satisfaction of the mentioned mining sites in interaction with the support of mining tourism development in Slovak Republic, carried out in March - April 2017. The questionnaire was filled in by 140 visitors to the mentioned mining sites, which we considered to be mountain tourism objects in the Slovak Republic. For the above reasons, we focused on assessing visitors' preferences in the primary and secondary sphere of tourist comfort in the described mining sites with the use of so called Likert's scale:

very unsatisfactory
not satisfactory
average
satisfactory
very satisfactory.

In order to define prioritization of tourism comfort factors in relation to support of mountain tourism development, a tabulated overview was created, explicitly quantifying the factors by accepting generally valid condition $\sum \alpha_i = 1$. We have quantified the value of weights in terms of principles of Saaty matrix, whose dimensions are $m \times n$, where $m = 1 \dots i$ and $n = 1 \dots j$, and are given by the number of lines and columns, while respecting the condition $m = n$. The symmetric shape of matrix also corresponds with the fact that the method lies in interactive comparison of all defined factors of the same order with the following ratings:

1 – compared factors i and j are equivalent,
3 – compared factor i is slightly preferred to factor j ,
5 – compared factor i is strongly preferred to factor j ,
7 – compared factor i is very strongly preferred to factor j ,
9 – compared factor i is absolutely preferred to factor j .

Consequently, values of 1 were inserted on the diagonal of the matrix, since we accepted the principle of comparison of the same factors, i.e. their equivalence, and identified pairwise comparisons of the individual factors. If factor in the line is preferred to factor in the column, we attributed it reciprocal value. After such an assessment of individual factors, partial products of lines were created according to:

$$S_i = \prod_{j=1}^f S_{ij} \quad j = 1, 2, 3, \dots, f \quad (1),$$

where:

f – number of factors,

S_{ij} – individual factors.

Next, Ri value was quantified for each criterion, i.e. a line of matrix created according to the formula:

$$R_i = (S_i)^{\frac{1}{f}} \quad (2).$$

Based on these calculations, sum of Ri was created, on the basis of which the final value of individual weights reflecting interactions between the two factors was quantified. Each factor was further assigned points of cardinal rate <1,5> according to the following rating:

- 1 - fulfills considerably below average,
- 2 - fulfills sub - average,
- 3 - meets average,
- 4 - fulfills above average,
- 5 - fulfills considerably above average.

In order to determine the most suitable mining site from the viewpoint of assessed factors of tourist comfort, the analytical method of so called weighted sum was used and realized as maximizing one, where the total usefulness of the analyzed mining site was quantified according to the following relationship (Balog, M., Straka, M. (2006)):

$$U_m(x) = \sum_{i=1}^n \alpha_i u_i(x_i), \quad (3)$$

where (Pavolová, Tobisová, 2013):

α_i - weight of ith factor quantified according to Saaty matrix,

$u_i(x_i)$ - usefulness of ith assessment factor for x_i ,

x_i - result value according to ith factor,

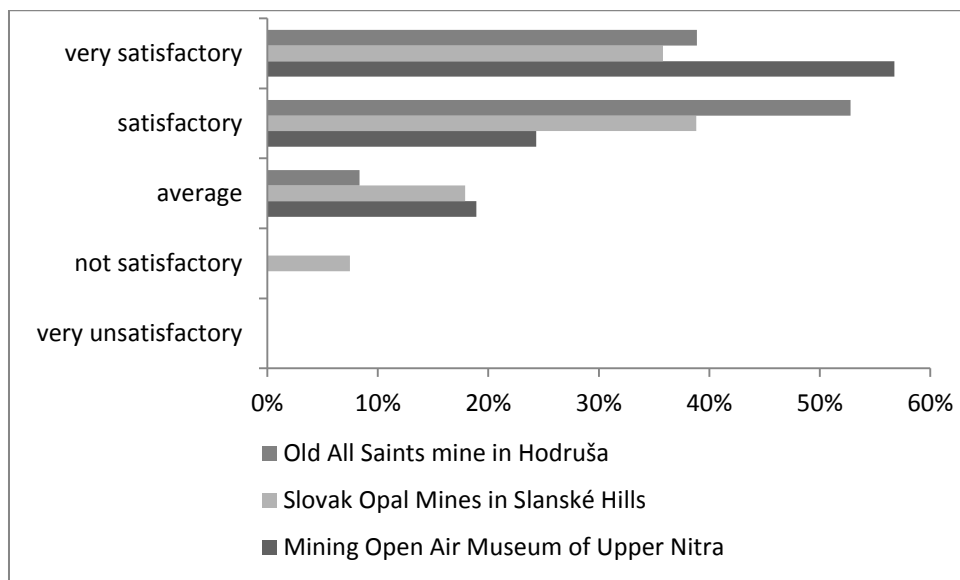
$U_m(x)$ - overall usefulness of assessed mining site in the sense of above described cardinal rate <1,5>.

3. Research results

In the primary sphere of tourist comfort focused on the attractiveness of mining locality, tourist guide quality and the quality of marking of the access roads, the Open Air Museum of Uper Nitra dominates clearly, i.e. Cígeľ Mine.

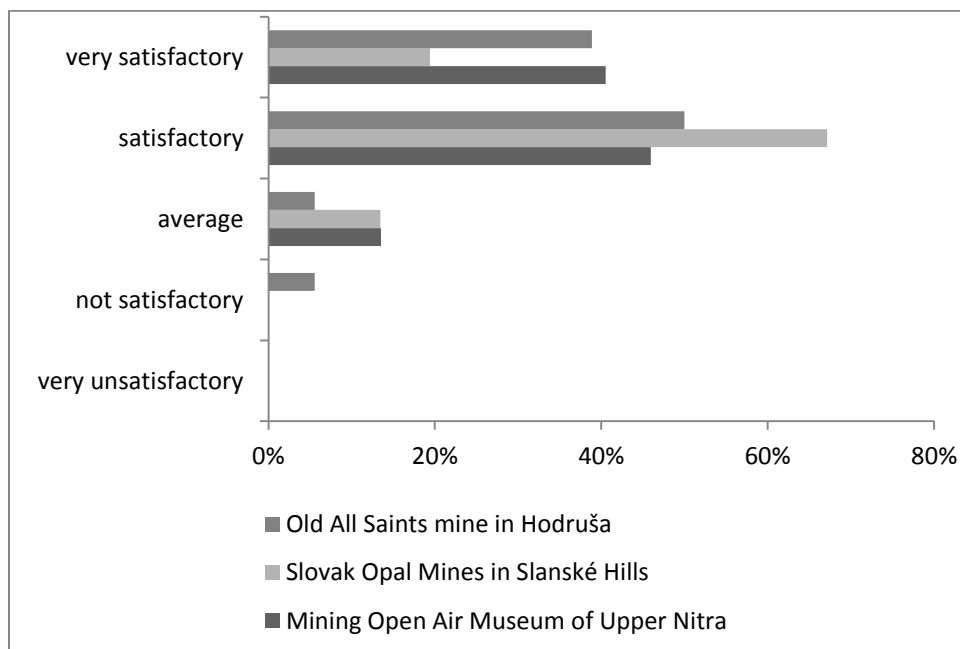
The most interesting results of the research are presented in the following part, FIG. 1 - FIG. 3.

FIG. 1: Attractiveness of the mining site



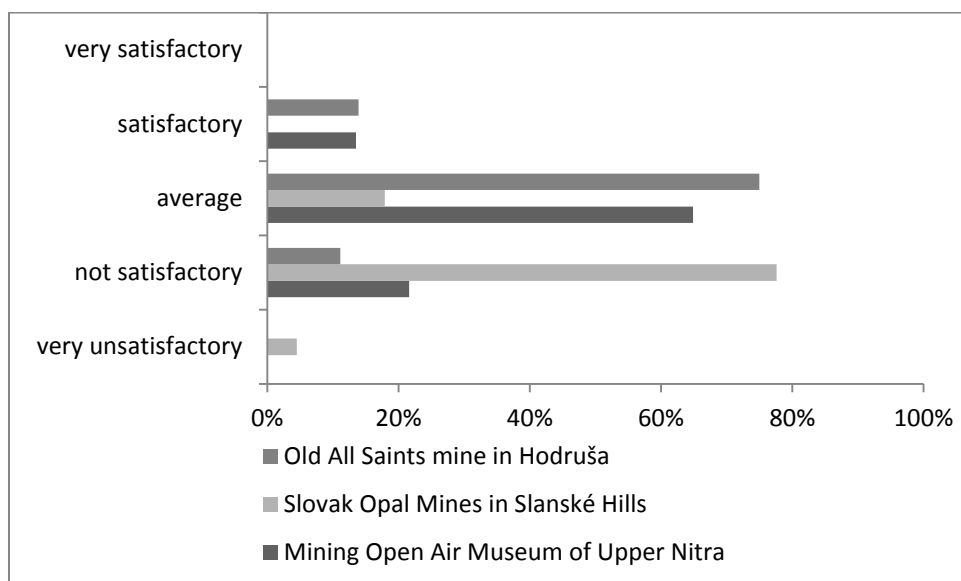
Source: authors

FIG. 2: Quality of tourist guides



Source: authors

FIG. 3: Access roads



Source: authors

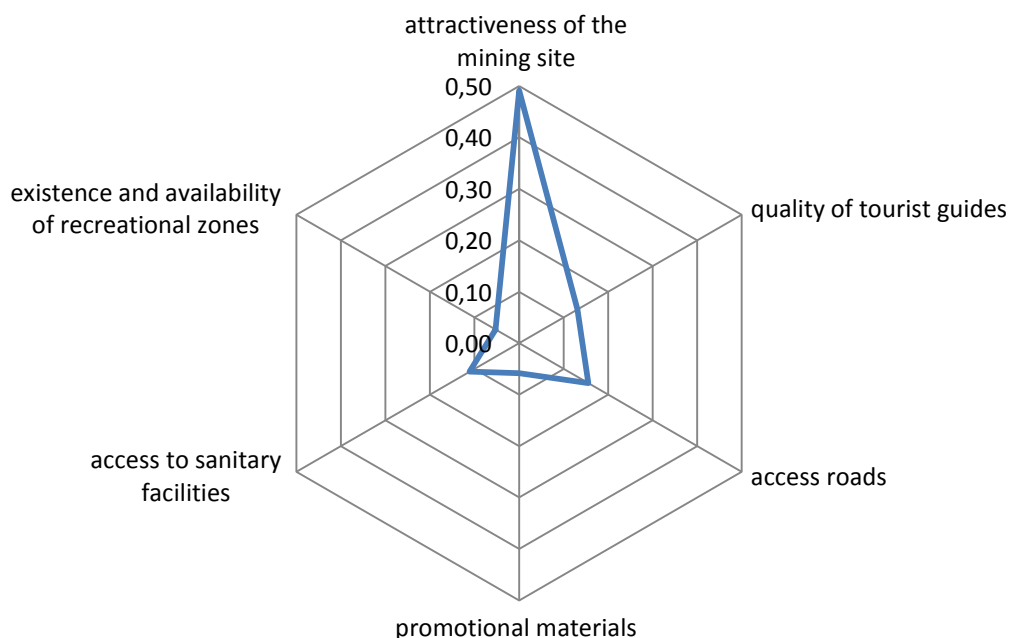
Having globalized the above factors and accepted the results of the survey, explicit prioritization of factors of primary and secondary spheres of tourism comfort was done in accordance with the principles of Saaty matrix, according to which it can be claimed that the highest priority is in the attractiveness of the mining site itself while the lowest priority is given to existence and accessibility of recreational zones (**Chyba! Nenalezen zdroj odkazů.**).

TAB. 1: Scales of tourist comfort factors in selected mining sites

Factors interaction		f1	f2	f3	f4	f5	f6	Si	Ri	αi
Attractiveness of the mining site	f1	1	7	5	3	3	3	945,0	3,94	0,49
Quality of tourist guides	f2	1/7	1	3	3	1/3	3	1,3	1,05	0,13
Access roads	f3	1/5	1/3	1	5	3	3	3,0	1,25	0,16
Quality of promotional materials	f4	1/3	1/3	1/5	1	3	1/3	0,0	0,47	0,06
Access to sanitary facilities	f5	1/3	3	1/3	1/3	1	5	0,6	0,89	0,11
Recreational zones	f6	1/3	1/3	1/3	3	1/8	1	0,0	0,43	0,05

From the graphical representation of the assessed factors of tourist comfort, we concluded that primary sphere factors of this area are, in terms of their prioritization, in the first three places, with all the factors of secondary sphere show a significantly lower priority, and a downward prioritization order of the assessed factors could have been prepared (**Chyba! Nenalezen zdroj odkazů.**):

FIG. 4: Prioritization of tourist comfort factors in selected mining sites



Having accepted the prioritization of the above factors of tourist comfort in terms of support of mountain tourism and partial results of the questionnaire survey along with real state of the assessed factor of tourist comfort in the sense of so called weighted sum, a conclusion can be made that MOAM-UN has the highest tourist comfort. The opposite is true for SOM with the lowest tourist comfort (TAB. 2).

TAB. 2: Evaluation of tourist comfort in analyzed mining sites

Factor of tourist comfort	α	MOAM - UN		SOM		OASM - HH	
		points	product	points	product	points	product
Attractiveness of the mining sites	0,49	4	1,96	2	0,98	3	1,47
Quality of tourist guides	0,13	3	0,39	1	0,13	2	0,26
Access roads	0,16	3	0,47	1	0,16	3	0,47
Promotional materials	0,06	1	0,06	3	0,17	2	0,12
Access to sanitary facilities	0,11	2	0,22	1	0,11	3	0,33
Existence and availability of recreational zones	0,05	2	0,11	2	0,11	3	0,16
Total usefulness		3,21		1,66		2,81	

4. Conclusion

By assessing all factors of tourist comfort analyzed in selected mountain tourism objects, i.e. mining sited Mining Open Air Museum of Upper Nitra, Slovak Opal Mines and Old All Saints Mine - Hodruša Hámre, including partial factors participating in the overall assessment, it can be concluded that the highest potential for mountain tourism is in Mining Open Air Museum of Upper Nitra (total usefulness level 3.21). On the contrary, the lowest potential is in Slovak Opal Mines (total usefulness level 1.66.) In the light of all analyzes results it can be concluded that particular attention is to be paid to the existence and accessibility of recreational zones, promotional materials and accessibility of hygienic zones. Such a basic profiling can be extended to the tertiary sphere of tourist comfort in analyzed mountain tourism objects, which would contribute to the global definition of the model of mountain tourism management development as an integral part of geotourism in the sense of the examined partial facts which it is necessary to address in further surveys. This basic survey of primary and secondary spheres of tourism comfort has highlighted significant disparities in the global assessment of mining sites as an integral part of the offer of mountain tourism, which require increased attention with interaction to support of increasing the development of mountain tourism it self in supraregional understanding of tourism in the Slovak Republic.

Literature:

Balog, M., Straka, M. (2006). *Optimálne rozmiestnenie komponentov mýtnych systémov*. Bratislava from http://www.telematika.cz/tp/etoll/contributions/ID22_Straka.pdf.

Kršák, B., et al. (2015). Impact of geopark establishment on regional development: case study from Slovak part of the Novohrad-Nógrád Geopark. *GeoJournal of uTourism and Geosites*, 6(2),30-38.

Molokáč, M., Végsőová O. (2015) Gemstones in geotourism. *GeoJournal of Tourism and Geosites*, 15(1), 7-13.

Rybár, P. et al. (2010). *Information technologies in montaneous tourism*. Acta Geoturistica, 1(2), 41-49.

Štrba, Ľ. et al. (2014). Geosite assessments: comparison of methods and results. *Current Issues in Tourism*, 18(5), 496-510.

Pavolová H., Tobisová, A. (2013). The model of supplier quality management in a transport company. *Naše more*, 60(5-6), 123-126.

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ASSESSMENT OF RATIONAL THINKING AMONG CZECH POPULATION

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Abstract: *The level of an individual's cognitive functions such as memory, attention, concentration, speed and ability of information processing, emotional self-regulation determines, among other things, individual's ability to achieve the desired goal in corporate, non-profit or government management. Recently mostly IQ tests are used to measure individuals' cognitive abilities. However, high scores in IQ tests do not mean the ability of rational decision making. Even highly intelligent individuals (successful in IQ tests) can make very irrational decisions. Intelligence measured in IQ tests and rationality are two different concepts, since important components of rationality like adaptive responding, good judgment, and decision making are not assessed on actual tests of intelligence. From this reason it was constructed a Comprehensive Assessment of Rational Thinking (CART) by Keith Stanovich, whose research group has found systematic differences among individuals in the tendency to make errors of judgment and decision making and therefore their efficiency of achieving their goals. This article briefly summarizes the development of CART test, terminology like epistemic rationality and instrumental rationality and introduces the first results of the CART testing in the Czech Republic with the goal to compare rationality of the Czech population by gender, education and net earnings.*

Keywords: *Decision-making, rationality, rational thinking, thinking dispositions, intelligence.*

JEL classification: D80, G32

Grant affiliation: IG206017 Economic, security and system changes in international tourism.

1. Introduction

The level of an individual's cognitive functions such as memory, attention, concentration, speed and ability of information processing, emotional self-regulation determines, among other things, individual's ability to achieve the desired goal in corporate, non-profit or government management. Recently mostly IQ tests are used to measure individuals' cognitive abilities. However, high scores in IQ tests do not mean the ability of rational decision making. Even highly intelligent individuals (successful in IQ tests) can make very irrational decisions. (Stanovich, West, Toplak, 2011)

There are many definitions of rationality and they differ across scholarly domains. Different disciplines use "rationality" in different senses; some focus on rational behaviour and others on

rational processes depending on their different assumptions and purposes. Experts specialized in the “rationality field” distinguish epistemic and instrumental rationality. Epistemic rationality is about what is true and instrumental rationality is about what to do. Of course instrumental and epistemic rationality are intertwined, because if we want to determine what to do, we need to make sure that our actions are based on what is true. (Stanovich, West, Toplak, 2016)

Economists normally define instrumental rationality as the maximization of expected utility and therefore a rational human being (*homo economicus*) should always choose the option, which has the greatest expected utility. (Stanovich, West, Toplak, 2016). But the empirical evidence indicates that people often do not choose the option with the highest expected utility and violate lots of axioms of the utility theory. (Kahneman, Tversky, 2011). It is also known that people vary widely in their ability to maximize their benefits and choose rationally. Relatively big proportion of population assess probabilities incorrectly, test hypothesis inefficiently, is not able to properly calibrate degrees of belief, ignore alternative hypotheses when evaluating data, get affected by irrelevant context and display other information processing biases. (Stanovich, West, Toplak, 1998).

Despite the fact that individual's cognitive functions such as the ability of information processing, good judgement and decision-making are necessary for achieving the desired goal in corporate, non-profit or government management, there are no rational test commonly used for assessing such an ability. And since this ability is not reflected in even in the newest versions of IQ tests, a new instrument - the Comprehensive Assessment of Rational Thinking (CART) is being developed. The goal of this paper is to use the questions from the Comprehensive Assessment of Rational Thinking and one question from the Cognitive Reflexion Test and introduce the first results of the rational testing in the Czech Republic and enable comparison of rationality of the Czech population by gender, education and net earnings.

2. Research methods

The full version of the original CART test is currently not a completed instrument ready for practical use and its current full-form has twenty subtests making the whole testing very time-demanding. Therefore I have carefully chosen 5 CART questions and also one Frederick's cognitive reflexion test question, which can be tested electronically, are not very time-demanding to motivate as many respondents as possible to get involved in such a testing. (Frederik, 2005)

The one Frederik's cognitive reflexion question, which was included in the Czech rationality testing focuses on the respondent's tendency to override a proponent response alternative that is incorrect and to engage in further reflection that leads to the correct response. (Toplak, Stanovich, West, 2011). For such a reflexion it is necessary to switch from the system 1 to system 2 in the dual-process thinking. (Kahneman, 2011; Burda, Havlíčková, Kalábová, 2017)

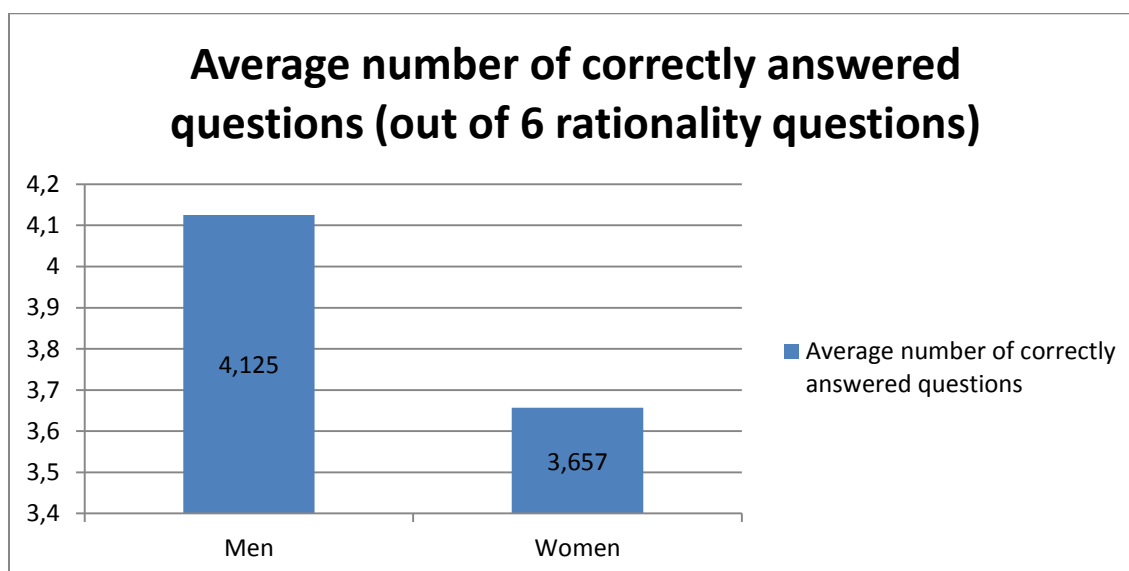
Five out of the six rationality tested questions included in the Czech rationality testing were from the original version of CART test, two questions were from the subtest on Probabilistic and Statistical Reasoning, one question was from the subtest on Scientific Reasoning and two questions were from the subtest on Financial Literacy.

This shorter version of rationality test was displayed under the name “test of rational thinking” on the internet. Except from the six “rationality testing questions” there were included questions asking on gender, education, self-confidence and net earnings of the respondent to find out how is the ability to think rationally distributed in the society. 220 respondents older than 18 years got involved in the testing.

3. Results

According to the results of rationality testing abroad, males tend to outperform females (especially if the questions are about probabilistic and statistical reasoning and financial literacy). We came to the same results in the Czech Republic, where men responded correctly on the average of 4,125 out of 6 rationality questions and women responded correctly on the average to 3,657 out of 6 rationality questions. In total 80 men and 140 women has participated in the testing.

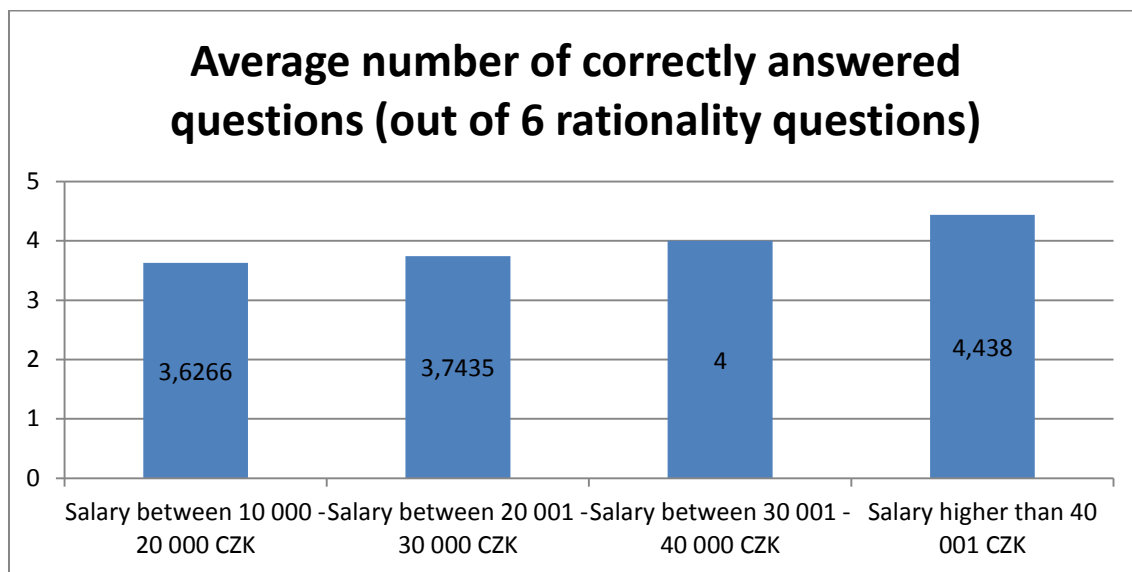
TAB. 1: THE NUMBER OF CORRECTLY ANSWERED RATIONALITY QUESTIONS BY GENDER



Source: Own processing

The second goal of this paper to search for a dependence of monthly net salary and the number of correctly answered rationality questions. To provide more precise data 78 participants of this research had net-monthly salary between 10 000 and 20 000 CZK, 42 respondents indicated monthly net salary between 20 001 and 30 000 CZK, 22 respondents indicated their monthly net salary between 30 001 and 40 000 CZK and 14 respondents indicated a salary higher than 40 001 CZK. The rest of respondents were mostly students without a stable work contract.

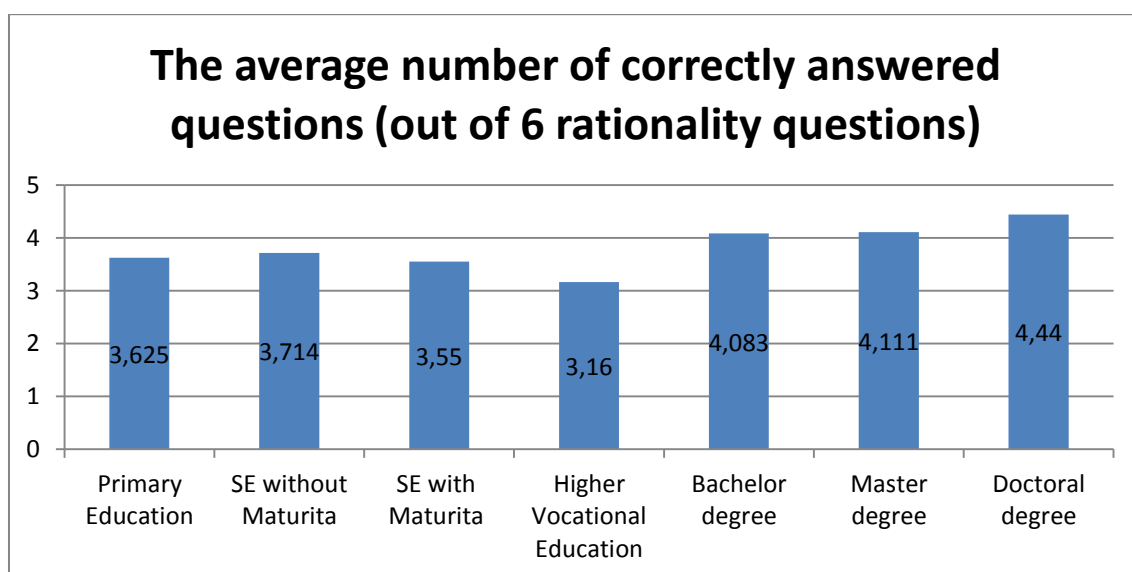
TAB. 2: THE NUMBER OF CORRECTLY ANSWERED QUESTIONS BY MONTHLY NET INCOME



Source: Own processing

The third goal of this paper is to search for a dependence of monthly net salary and the number of correctly answered rationality questions. It is important to note that 37, 2 % respondents of this testing have indicated secondary education with the Maturita exam as their highest education. The graduates of doctoral studies has constituted only 3,6 % of the respondent 's group and the graduates of the Higher Vocational Education have constituted only 4,8 % of the respondent's group. Therefore the bigger difference between the average numbers of correctly answered questions in these two categories can be distorted by a smaller number of respondents in these categories. The abbreviation "SE" in the graph means "secondary education."

TAB. 3: THE NUMBER OF CORRECTLY ANSWERED QUESTIONS BY HIGHEST EDUCATION ACHIEVED



Source: Own processing

4. Discussion

The research was attended by a large number of students. For this reason, I decided not to include a category earning 0 - 10 000 CZK in the results of the dependence of rational testing to income. Most of the participants in the category of income between 0 and 10 000 CZK were bachelor or master degree students who are not fully involved in the work process due to their study responsibilities.

Furthermore, the fact that only 220 people over the age of 18 participated in the test can be seen as problematic. On the other hand even with "only" 220 participants of this research the evaluation of the open questions was challenging. It would be interesting to repeat such a rationality testing in the future on a larger sample of population and include more rationality questions to achieve a higher validity.

5. Conclusion

The first results of rationality testing in the Czech Republic confirm that the ability to think rationally, decide for the best outcome possible to maximize utility varies among Czech population. Like abroad men tend to outperform women. The first results also indicate a clear dependency between the ability to think rationally and monthly net-salary. On the other hand the results of this first testing suggest that in some cases people with lower education level (for example people with secondary education without the Maturita exam) outperform people with higher education level (for example people with secondary education with the Maturita exam and people with Higher Vocational Education).

Some of the results focused on the relationship between the ability to think rationally and the education level can be incoherent due to the fact that some participants of the research were students over 18 years, shortly before completing high school, bachelor's or master's degree. Overall it could be interesting to repeat the rationality testing on a bigger population sample.

Literature:

Burda, P., Havlickova, B., Kalabova, M. (2017). Vnímání rizika teroristických útoků jako ovlivňující faktor při rozhodování o dovolené u obyvatel ČR. *XX. Mezinárodní kolokvium o regionálních vědách*, Brno, Masaryk University. Retrieved July 1, 2017, from <http://www.econ.muni.cz/veda-a-vyzkum/konference-seminare-a-kolokvia-na-esf/mezinarodni-kolokvium-o-regionalnich-vedach/sborniky/sbornik-2017>.

Evans J. St. B. T., Stanovich, K. E. (2013). Dual Process Theories of Higher Cognition. *Perspectives on Psychological Science*, Vol 8, Issue 3.

Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives*, 19, 25–42.

Kahneman, D. (2011). *Myšlení rychlé a pomalé*. Brno, Czech Republic: Jan Melvil Publishing.

Stanovich, K. E., West, R. F., Toplak, M. E. (2016). *The rationality quotient*. Cambridge, MA: MIT Press.

Stanovich, K. E., West, R. F. (1998). *Individual differences in rational thought*. *Journal of Experimental Psychology*, 127(2), 161-188.

Stanovich, K. E., West, R. F., Toplak, M. E. (2011). *Intelligence and Rationality*. Cambridge, UK: Cambridge University Press. Retrieved July 1, 2017, from http://keithstanovich.com/Site/Research_on_Reasoning_files/Stanovich_Handbook.pdf.

Toplak, M. E., Stanovich, K. E., West, R. F. (2011). *The Cognitive Reflection Test as a predictor of performance on heuristics and biases tasks*. *Memory and Cognition*. Retrieved July 1, 2017, from <https://link.springer.com/article/10.3758/s13421-011-0104-1>.

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THE APPROACH OF THE SMALL AND MEDIUM ENTERPRISES TO RISK MANAGEMENT IN THE CONTEXT OF CONNECTION INTO THE CLUSTERS

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Abstract: *Clustering of stakeholders in the regions creates new strategies and brings different economic and non-economic benefits. Significant clustering entities are SMEs. One reason of low interest in clustering by business entities is uncertainty and risk aversion. Therefore, the current risk management agenda is in place. The main aim of this paper is to compare the opinion of owners and managers from SMEs in Slovakia and Poland towards the main types of risk, which are most important in the case of connection into clusters. The results of realized surveys are evaluated by Gamma correlation between risk element assessments connected with potential cluster cooperation and the size of enterprises in Poland and Slovakia. Main results pointed on following risks: market trend, industry, raw materials availability, R&D, production and personal risks.*

Keywords: *Risk, risk management, cluster cooperation, small and medium sized enterprise.*

JEL classification: G31, L2, L26

Grant affiliation: *This paper was supported by Grant Agency VEGA [No 1/0918/16]: Risk management of SMEs in the context of clusters' involvement activities in the Slovak Republic.*

1. Introduction

Changes in the economic environment affect that small and medium sized enterprises (SMEs) look for factors which could help them not only survive on the market but also shape their competitive position (Sipa, Gorzeń-Mitka, and Skibiński, 2015). Nowadays, the different forms of cooperation (including clusters) become one of the most important ways to achieve this goal.

Business cluster constitutes an example of territorial concentration of specialized enterprises, functioning in the same and/or related economy sectors, competing and cooperating, using mutual resources, infrastructure and qualified providers, associated in market and non-market terms with the network of public and private institutions supporting their activity (Bembenek & Jankowska-Mihulowics, 2014). Although cluster cooperation brings many opportunities for participants, it is

connected with risk as well. In cluster engineering, many risks arise, from planning stage to the full implementation (Haviernikova, Okręglicka, and Lemańska-Majdzik, 2016).

Research shows the significance of clustering in the performance and growth of SMEs (Hagen, Zucchella, Cerchiello, and De Giovanni, 2012). There are growing opportunities for clustering among SMEs and the neighboring community - "stakeholders" in the region. Clustering creates new strategies and brings various economic and non-economic benefits (Krajnakova & Krajco, 2016; Mura & Slezia, 2015). If the stakeholders connected into cluster's work in the same physical space, several activities are no longer under their own control, and are affected by a number of risks, not only related to own activities but also the activity of whole cluster. Risk is the price to pay for extraordinary profit, market success and entrepreneurial self-realization (Kiselitsa & Shilova, 2016). The change of rules and solving the common projects within a one group will affect all areas of risk management even in the case of clusters. Important group of stakeholders is presenting by SMEs. We can find outlined concepts of risk management in various fields of economic practice: bank, SMEs (Virglerova, Kozubikova, & Vojtovic, 2016), projects, networks (Heikkilä, Malmén, Nissilä, and Kortelainen, 2010), in the supply chain (Giannakis & Papadopoulos, 2016) and partially in clusters (La-Yin & Fu-Zhou, 2011). The result of this paper could lead and contribute to the elaboration of risk management towards clusters because risks present also chances. Therefore risk management purely oriented to minimize risk need not be the most efficient. The subject of decision therefore is the balance between risk and reward.

2. Methods

For the main aim's achieving the questionnaire surveys were realized during the year 2016 in Slovakia and Poland. The representative sample of the populations consists of 273 SMEs (150 from Poland and 123 from Slovakia) who know the principle of risk management and cluster cooperation.

Respondents evaluated the risk level in different areas of business activity in the case it would be carried out within cluster cooperation. The evaluated were risk factors: 1. Economic development; 2. Market trends; 3. Industry; 4. Competition; 5. Partners; 6. Market area; 7. Political risks; 8. Legislative risks; 9. Taxation; 10. Company location; 11. Infrastructure; 12. Raw materials availability; 13. Transport and Storage; 14. Retail space; 15. Machinery and equipment; 16. Energy supply; 17. Research & Development; 18. Production; 19. Quality; 20. The life cycle of an enterprise; 21. Competence; 22. Personal risks; 23. Slowdown of enterprise's economic development dynamic; 24. Cluster production; 25. Outflow of own customers. For evaluation the scale from 0-not applicable and 1-very low risk to 5 very high risk was applied.

For the processing of questionnaires surveys the gamma correlation as non-parametric equivalents to the standard correlation coefficient was used. The Gamma statistic is preferable when the data contain many tied observations. Determining the strength of relationship, the value of the correlation coefficient varies between +1 and -1. When the correlation coefficient value lies around ± 1 , then it is said to be a perfect degree of association between two variables. As the correlation coefficient value goes towards 0, the relationship between two variables will be weaker.

3. Results and discussion

The results of respondents' answers and results of Gamma correlation are presented in table 1. In general, it could be noticed that the potential risks of cluster cooperation was assessed higher in Slovakia than in Poland. For evaluation of risk factors we counted the value 4 and 5. We can conclude that the highest risk factors evaluated in the context of cluster cooperation perceived by SMEs are:

- in Slovakia: competition (58%), outflow of own customers (54%), quality (46%), competence (39%), taxation (34%), machinery and equipment (34%), partners (33,33%);
- in Poland: competition (37%), outflow of own customers (34%) and market area (31%);

The results of Gamma correlation showed only weak correlation between answers of respondents due to the sized of enterprise.

TAB. 1: The results and evaluation of questionnaire surveys

Risk	Respondents' answers												Gamma correlation	
	0		1		2		3		4		5			
1	SK	PL	SK	PL	SK	PL	SK	PL	SK	PL	SK	PL	SK	PL
2	12%	21%	15%	27%	26%	27%	28%	15%	10%	5%	8%	5%	-	0,218
3	12%	18%	7%	22%	25%	25%	33%	19%	14%	8%	10%	9%	0,216	0,215
4	11%	9%	11%	21%	21%	27%	33%	26%	16%	11%	8%	5%	0,228	0,183
5	7%	5%	6%	7%	9%	17%	21%	35%	34%	19%	24%	18%	-	-
6	11%	18%	2%	17%	20%	20%	33%	27%	22%	12%	11%	6%	-	0,263
7	8%	11%	10%	6%	24%	29%	33%	23%	15%	21%	11%	9%	-	-
8	26%	20%	20%	27%	24%	24%	18%	11%	7%	13%	6%	5%	-	0,156
9	13%	33%	15%	23%	23%	18%	21%	17%	15%	5%	12%	4%	-	-
10	6%	8%	7%	10%	20%	33%	33%	24%	21%	16%	13%	9%	-	-
11	9%	10%	15%	16%	23%	19%	27%	28%	16%	19%	11%	7%	0,189	-
12	12%	11%	15%	23%	20%	23%	27%	24%	18%	13%	8%	6%	0,240	-
13	27%	14%	12%	25%	19%	27%	20%	15%	14%	15%	8%	5%	0,254	0,184
14	22%	10%	14%	24%	15%	22%	25%	21%	12%	17%	11%	7%	-	-
15	18%	19%	18%	21%	19%	20%	25%	23%	14%	15%	7%	3%	-	-
16	17%	13%	11%	19%	17%	19%	21%	23%	19%	19%	15%	8%	-	0,248
17	16%	16%	20%	21%	19%	19%	23%	21%	15%	14%	7%	8%	0,213	-
18	29%	24%	15%	27%	19%	22%	18%	19%	16%	7%	2%	1%	0,252	0,175
19	21%	25%	9%	19%	21%	21%	28%	17%	12%	9%	8%	9%	0,197	0,227
20	10%	11%	7%	19%	19%	20%	20%	21%	23%	13%	23%	17%	-	-
21	12%	15%	11%	25%	25%	27%	29%	23%	14%	3%	8%	7%	-	-
22	11%	9%	8%	20%	15%	21%	27%	23%	22%	17%	17%	11%	-	-
23	12%	12%	4%	21%	23%	23%	33%	19%	21%	19%	7%	7%	0,246	0,163
24	8%	12%	11%	25%	21%	27%	39%	19%	12%	9%	9%	7%	-	-
25	11%	35%	12%	16%	19%	28%	31%	11%	17%	5%	11%	5%	-	-

Source: own research; Gamma correlation between risk element assessment connected with potential cluster cooperation and the size of enterprises in Poland and Slovakia ($p=0,05$); *"-“ – lack of statistical significance

During correlation analysis, some positive correlations were found between particular risk elements and the size of company. The higher intensity of correlation which appears in both countries in the

same time and for the same factor are: 3. Industry; 4. Competition; 13. Transport and Storage; 18. Production; 19. Quality; 23. Slowdown of enterprise's economic development dynamic.

4. Conclusion

Clusters carry out their activities within the internal (cluster management, organizational structure, processes arising in cluster, relationships among entities, etc.) and external environment (framework, where the implementation of cluster activities is executing, consisting of factors package: natural, cultural, social, economic, technological, political, legislative, not only at the governmental level, but also at the regional level). From this point of view, we can observe the risks influenced from cluster cooperation from two perspectives: the existence of an external threat (external risks) and risk associated with its own activities (internal risks). The causes of risk lie in dynamics and changes that are happening in the actors being involved in and at the same time in the cluster organization by itself, changes in supply and demand of products and services, changes in input prices and energy prices, changes in national and global economy, changes in cluster policy at national, European and global levels, changes related to research and development, new technologies, taxation and so on.

From the results of this research can be derived the following conclusions towards risk management in clusters:

- The application of risk management in Slovak and Polish SMEs is substantial and based on intuition and empirical experience from the past. It is limited to know-how barriers; this reflects in knowledge and applications methods and risk quantification.
- As risk management creates one part of entrepreneurial culture it can be stated mainly intuitively is applied by Slovak and Polish entrepreneurs the relation to risk.
- Risk management and its application in the Slovak and Polish clusters is at low level, its applications are conditioned by decisions of entrepreneurs, if they take part in cluster cooperation, or not without sufficient knowledge of the benefits of cluster cooperation.
- In general in high percentage of SMEs the staff focused only at risk management is absenting. If risk management in case of cluster is assigned to different stakeholders it is important to keep the communication that improves information changes and coordination also in area of risk management. The ideal is to establish risk management department or risk management agenda can be transferred to department of common cluster organization.

Literature:

Bembenek, B., & Jankowska-Mihulowics, M. (2014). Decision-Making in the Cluster under Conditions of Risk. *Journal of Business Management*, 8, 35-44.

Giannakis, M., & Papadopoulos, T. (2016). Supply chain sustainability: A risk management approach. *International Journal of Production Economics*. 171, 455-470.

Hagen, B., Zucchella, A., Cerchiello, P., & De Giovanni, N. (2012). International strategy and performance - Clustering strategic types of SMEs. *International Business Review*, 21, 369-382.

Haviernikova, K., Okręglicka, M., & Lemańska-Majdzik, A. (2016). Cluster Cooperation and Risk Level in Small and Medium-Sized Enterprises. *Polish Journal of Management Studies*, 14(2), 82-92.

Heikkilä, A-M., Malmén, Y., Nissilä, M., & Kortelainen, H. (2010) Challenges in risk management in multi-company industrial parks. *Safety Science*, 48, 430-435.

Kiselitsa, E.P., & Shilova N.N. (2016). Economic Technology of Enterprise Risk Management Based on Information Support for Their Activity. *Journal of Internet Banking & Commerce*, 21(S3), 1-14.

Krajnakova, E., & Krajco, K. (2016). The risk and clusters in the V4 countries and in the EU 27. Proceedings from SGEM 2016: *3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts*. Political sciences, law, finance, economics and tourism, Book 2, Volume III. Albena, BULGARIA, AUG 24-30: Bulgarian Academy Sci. 1135-1142.

La-Yin, W., & Fu-Zhou, I. (2011). *The Study of the Risk Decision of Cluster Park Engineering*. Systems Engineering Procedia, 1, 221-227.

Mura, L., & Sleziak, J. (2015). Innovation and Entrepreneurship Network. Proceedings from CERS 2014: *5th Central European Confrence in Regional Science*, Kosice, CZECHIA, OCT 5-8: Technical University of Košice, 643-651.

Sipa, M., Gorzeń-Mitka, I., & Skibiński A. (2015). *Determinants of Competitiveness of Small Enterprises: Polish Perspective*. Procedia Economics and Finance, 27, 445-453.

Srovnalíková, P., & Karbach, R. (2016). Tax changes and their impact of managerial decision making. *Proceedings from CITPM 2016: 1st International Conference Contemporary Issues in Theory and Practice of Management*. Czestochowa, POLAND, APR 21-22: Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej, 410-415.

Virglerova, Z., Kozubikova, L., & Vojtovic, S. (2016). Influence of selected factors on financial risk management in SMEs in the Czech Republic. *Montenegrin Journal of Economics*, 12(1), 21-36.

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HUMAN FACTOR IN THE CONDITIONS OF THE STRATEGY OF OPEN INNOVATION

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Abstract: *There is human factor, which decides to a large extent about the innovation performance and competitiveness of enterprises. It has become the key factor for the effective functioning of the process of open innovation. The objective of this contribution is the identification and setting of the criteria for searching the workers who are capable to work in multidisciplinary teams for open innovation. Workers are basically not hired to a specific place in the organizational structure, but on the basis of their abilities, on a specific innovation project. They must be mobile, flexible and able to move from their original team to another.*

Keywords: *Open innovation, innovation management, business culture and open innovations.*

JEL classification: *O30, O31, O32*

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1. Introduction

On the basis of the statistical surveys, we have come to the conclusion that the share of the enterprises with the open innovation model, increases from the year to year in Slovakia. Its implementation requires unconventional, specific and sensitive methods of selecting personnel, who may be carriers of the strategically significant knowledge and benefit for the effectiveness improvements. In claims for human factors the main requirements are focused on number of years of experience in the field, experience and professional, truly interdisciplinary insights.

2. Theoretical background

The traditional model of the closed innovation was based on the idea that the innovation process was done inside a company, and the great importance was given to the protection of the created innovation. One of the most famous tool has been the protection of the intellectual property rights. In many cases, however, and patented ideas or inventions have remained unused, since they did not meet the market strategy of the undertaking. Innovations models at its core, reflect the changes in

the innovation environment. There are many different models. The authors of the works, which are dedicated to innovation distinguish between the classical models of innovation initiated by the scientific and technological knowledge, or by the pressure caused by customers requirements (first generation). M. Dugage describes in the work about models innovation development, two generations of the models (2008):

Classic linear models of innovation:

pressure-innovations are initiated under the pressure of the new scientific knowledge, move-in the foreground there are unfulfilled customer needs, customer requirements (schema: the customer-the innovative design – production)

Interactive models-at the present time the basic model for the management of innovation is interactive, we talk about the second generation of innovation models, there are a combination of science and innovation, the pressure of the customer requirements in the form of the reverse binding loop (research, development and marketing are in balance).

The increasing complexity of innovation has led to the fact that the interactive models are further sub-divided. The authors of the publication (Tidd, Bessant, Pavit, 2005) describe 5 generations. In addition to the classic models-move and pressure, there are also other modifications of the interaction models such as:

Interactions between the different elements and feedback among them - junction model,

A parallel model of integration between the companies, connection with the key suppliers and active customers, with the emphasis on the linkages and alliances, system integration, extensive networks, flexible and customized responses of continuous innovation.

In the event that the cooperation is entered by multiple entities, we are talking about a different type of innovation-the partially open innovation (Müller, 2007). This is a strategic process where the flow of knowledge is directed into the interior, or outside of the entity. In any case, the objective is to speed up the internal innovation or expanding to the other markets through its external use (Chesbrough 2003). On the contrary, in the case of open innovation companies actively seek out knowledge and innovation for external entities and try to use them for their own benefit.

Open innovation is inherently purposive based distributed innovation process (Chesbrough, et al., 2014). It requires interaction between organizations with a different corporate culture, motivating system and with different experiences in the area of knowledge sharing. Open innovation is a paradigm that is based on the assumption that the companies can or should look for inspiration in the outdoor environment, and their access to innovative ideas, and the idea should exceed the boundaries of the enterprise. They would then combine into architectures and systems through to the requirements defined by the enterprise models (Chesbrough, 2003). According to J. Pénin (2008) open innovation consists three basic elements:

- voluntar access/disclosure of knowledge by the partners in the group,
- free knowledge interchangeability
- sharing and exchange of knowledge must have a lasting nature.

In the real practice it means that the company cooperates with other entities on research and development, and the results are reported to the present, already existing markets but also to the new, represented by the competitors, other research and development institutions, etc.. Open innovation model should speed up and into the further extend also make innovative efforts of the enterprise more available from the financial perspective. Naturally this would contribute to an increase in the success rate (or efficiency) (Grell & Hyránek 2012) and at the same time help the company to commercialize new knowledge and technology, so called knowledge and technology transfer (K&TT) (De Stobbeleir, 2013). It is also necessary to look for solutions that deliver eco-innovation (Spirko, Spirkova, Caganova & Bawa 2016). In the case of the open innovation there is necessary to remember the protection of intellectual property rights. It is necessary to define how and what to protect, and depending on such decision to decide how to handle with the invention. Formal instruments of protection of the intellectual property may complicate the commercialization (Herzog, 2011).

Due to the rapid technological development and rapidly changing preferences of consumers, the lifecycles of the products get shorter. At the same time the costs on the research and development or technical requirements for the new products increase. There is constantly reduced availability of talented workers and increased degree of specialization. These three forces increase the pressure on the efficiency of the research and development. As can be seen from the report of OECD (2016) Slovakia implements the open innovation. From the data provided, however, it is not clear to what extent this is just about the transfer from the parent company into the subsidiary within the transnational corporations. It would not fulfil the definition and requirements for the open innovation by J. Pénin (2008). As shown by data from the OECD, the highest degree of cooperation is among the large companies (over 250 employees). With decreasing magnitude there decreases a level of cooperation.

3. Corporate culture changes induced by the open innovation

A corporate culture focused on open innovation assumes a flexible communication among departments within the company. The exchange of knowledge and information must run on both levels, the vertical but also horizontal. It assumes a willingness to undergo a risk as well as stimulating and, to some extent, even the right to mistake. It includes a chance to experiment and tolerate possible failure, alternatively learning from the mistakes.

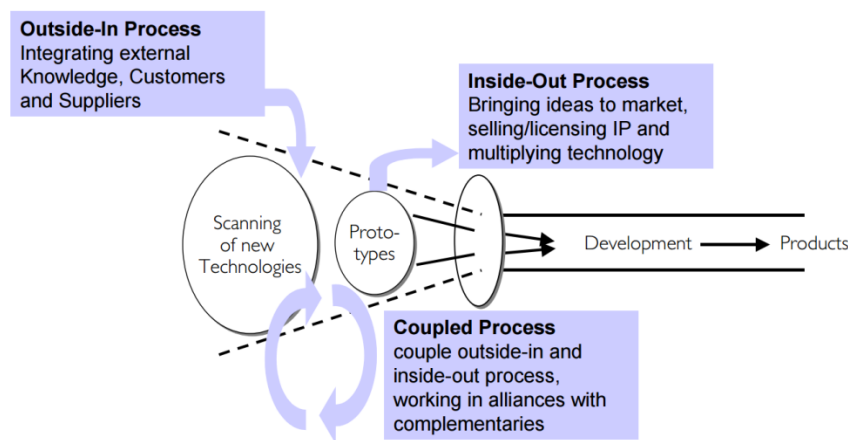
In the enterprise it is associated with the changes in business processes, but also with the external and internal processes link. Gassman & Enkel (2004) describe the three main processes (see. Fig. 1). in an enterprise, which is oriented on open innovation:

The outside-in process - enriching of the own knowledge base, increase of innovation company

The inside-out process –brings profit through transmission of ideas within the environment outside the company

The coupled process - combining the internal and external processes through cooperation with partners in a number of complementary partners

FIG.1: Three archetypes of open innovation processes



Source: Gassmann & Enkel, 2004, p. 7

All three main processes in the enterprise help to fill in an open innovation strategy, but not all are of the same importance for every company (Gassman & Enkel 2004).

4. Conclusion

The personnel involved in the process of the open innovation should be able to flexibly move from their original team (in the original, parent) to another, also outside the organization. Team members, who go into the other businesses, within mobility, should understand the way of thinking and approaches of the new team members, and seek to achieve the result which will be beneficial for all partners involved. The ongoing routine will need to be replaced by creative response to conditions in the partner organization and on the market. The uncertainty in the new situation may be higher than in the original organization, but they have to deal with it. The possible necessity of acceptance of alternative approaches, or even a change in working conditions should be natural for them. It is substantial, that all this will contribute to the fulfilment of the tasks and objectives of the cooperation with the partner organization.

Literature:

Chesbrough, H., Vanhaverbeke, W., & West, J. (Eds.). (2014). *New frontiers in open innovation*. Oup Oxford.

Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press, Cambridge, MA.

De Stobbelein, K. (2013). *The Human Factor in Open Innovation: How People Management Can Promote Open Innovation*. Vierick Business School, Flanders DC Knowledge Centre.

- Dugage, M. R. (2008). *Developing a Culture of Innovation Proc.* Organization 2.0 Tours, June 2008.
- Gassmann, O., & Enkel, E. (2004), *Towards a theory of Open Innovation: three core process archetypes*. In: R&D management conference. p. 1-18.
- Grell, M., & Hyránek, E. (2012). *Matrix models for production systems efficiency's measurement / Maticove modely na meranie vykonnosti produkcných systemov*. E+ M Ekonomie a Management, 15(5), pp. 73 - 88.
- Herzog, P. (2011). *Open and Closed Innovation*. Spring Verlag : Wiesbaden, 2011.
- Ketels, C., Sölvell, Ö., & Schwaag-Serger, S. (2005). *State of the Region-Report 2005: Competitiveness and Cooperation in the Baltic Sea Region*. Vinnova/TEKES: Stockholm.
- Mládková, L. (2004). *Management znalostí v praxi*. Profesional Publishing.
- Müller, K. (2007). Institucionální faktory růstu inovační výkonnosti českých podniků. In Kadeřábková, A. a kol. *Růst, stabilita a konkurenceschopnost III: Česká republika v globalizované a znalostní ekonomice*. Praha: Linde, 2007, s. 307–326.
- OECD (2016). *Economic Surveys: European Union*. Retrieved from http://www.oecd-ilibrary.org/economics/oecd-economic-surveys-european-union-2016_eco_surveys-eur-2016-en, accessed June.
- Penin, J. (2008). *More open than open innovation? Rethinking the concept of openness in innovation studies*. Bureau d'Economie Théorique et Appliquée, Working Paper, 18(33), 1-20.
- Spirko, M., Spirkova, D., Caganova, D. & Bawa, M. (2016). Eco-Innovation in Manufacturing Process in Automotive Industry. In: Leon-Garcia A. et al. (eds) *Smart City 360°. SmartCity 360 2016, SmartCity 360 2015*. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 166. Springer, Cham, pp. 533-540.
- Tidd, J., Bessant, J., Pavit, K. (2005). *Managing Innovation: Integrating Technological, Market and Organizational Change*, Amazon.

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SHIFT PARADIGMS AND SYNERGY EFFECTS OF MANAGEMENT

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Abstract: *Under the conditions of ongoing globalization and hyper-competition, the success of an organization is conditioned by the targeted fulfillment of requirements not only by customers but by a much wider range of stakeholders, whose expectations are usually different. It means the need to shift the management paradigm and move away from thinking and negotiating that the only key criterion of economic success is economic growth. The article deals with the very current managerial issues - the relationship between the changes in the macro and the micro environment of the organizations and the response of the management systems to these changes due to the shift of the paradigm. On the basis of practical examples, it is also possible to find such managerial solutions that will generate synergy effects to satisfy stakeholders in line with the concept of sustainable development.*

Keywords: *Management, Shift paradigms, Synergy effects.*

JEL classification: L21, M31, M54, P47, Q01

Grant affiliation:

1. Introduction

Dramatic changes in an environment that interfere with stable models of everyday life encourage managers to fulfill their organizational goals at "other, higher levels." Are they equipped for the new demanding requirements?

Man has reason and free will that allows him to choose his way through the life more or less meaningful. S.R. Covey in his work "8th Habit, From Efficiency to Exceptionality" says we have the three most important gifts:

- freedom and ability to choose,
- natural laws or principles that are universal and unchangeable,

- four kinds of intelligence (potentials) – physical potential (economic), emotional (social), mental and spiritual. These four kinds of intelligence correspond to four parts of human nature - symbolized by the body, the heart, the mind, and the soul.

Globalization brings about the need of focused meet of the requirements of a much wider range of stakeholders, whose expectations are usually different and raises the need for a shift in management paradigm and a shift away from thinking and acting, according to which economic growth is the only key criterion for economic success.

2. Changes in Managerial Environment - Impulses for Changes in Managerial Theory and Practice

The age of globalization brought about significant changes in STEEP macro-environment factors in organizations and changes in their microenvironment.

2.1. Characteristics of the most significant environmental changes

In general, technological changes are highlighted in particular in connection with the development of information technology. But technology is not just hardware, physical structure of components and their logical layout, but also software, a set of rules for using hardware, know-how to accomplish tasks to achieve a goal and brainware, meaning, goals for using hardware and software, is knowledge-oriented (Zelený, 2011).

Globalization also brings space capacity transfers. Determinants are people's knowledge. Capital transfer generally means also the welcome transfer of know-how, top technology, what can be described as the benefit of globalization as part of the strategy of technological catching up undeveloped regions. It is a process that requires developing of the know-how and improving it to adapt to local conditions, "tailor-made". Any changes made to Industry 4.0 should bring savings in live work. There is a question of what to do with released people, the impact on the development of human personality, etc. New stimuli and impulses for education and science are opening up.

The era of networking and added value comes, a new customer - a global customer – comes with his demanding demands that drive the uniqueness of products. Increasing emphasis on customer requirements as a basic prerequisite for his satisfaction belongs in modern management among the most up-to-date trends. Several empirical studies have confirmed that customers typically evaluate product quality based on a small number of important features, improving customer satisfaction (and quality) is greatly influenced by improving the small number of requirements (Madzík, 2016).

The well-known development of birth rates, longevity and mortality in different parts of the world, and the resulting diametrically different demographic curves, is not only a social factor but also interferes with other factors. A dramatic lifestyle change in the "more developed" part of the world is a very serious issue. People have different disposable potentials that change over the course of their lives. A large group of people is not able to keep a balance between private and working life. There is an increase in so-called civilization diseases, family inefficiency as the basic cells of society, natural communication is lost.

The projected population aging in most developed economies is a warning signal for these countries. It means a significant increase in the burden on the social system of states and consequently the economic burden. However, OECD and IMF surveys have shown that the economic burden of aging populations needs to be seen as much more complex. For older people, performance decreases as measured by labor productivity. The aging population (e.g., in the Slovak Republic number of retirees increase each year by approximately 20,000) can also be reflected in a change in customer needs (e.g. by giving preference to established product brands), in the structure of a "consumer basket" in favor of leisure activities or products provided by social services facilities. It also encourages such views, if the aging population does not require a whole new approach from the point of view of e.g. the so-called silver economy, the payment of pensions, but also the care of the elderly, for example, more home care than expensive institutional care.

Serious and distinct contradiction that globalization has exposed is very dangerous contradiction between the former forms of wealth production and the suicidal nature of environmental destruction (Šikula, 2003). The consequences of human activity on the environment and natural resources appear to be very unfavorable in most indicators, because natural laws can not be ignored.

The expected pace of societal growth, mostly only materialistically and egoistically perceived, the global and regional development that globalization should bring, lags behind the originally presented forecasts. This is explained by a lack of innovations, weak incentives for demand, high government indebtedness, or excessive regulation. Searching for the root causes, however, means focusing more on the human factor, on shared values, demographic development, on the effective use of human potential and on the synergy of national or regional cultures.

2.2. Environmental factors - driving factors for management development

The brief characteristics of the environment in the previous chapter show that the world has changed and changes. As a response to these changes and effects, pressures on the balance of economic, social and environmental development, as well as critical views of the work of some political groups, are growing in the world. According to M. Zelený (2011), it is necessary, for example, in Europe instead of political unification and the social model to give priority to entrepreneurial and educational integration for more efficient and stable forms of cooperation between states and regions within the EU. At the same time, it offers as a solution the concept of the Triad, based on a balanced cooperation of the three basic components of integration: educational, entrepreneurial and political spheres, yet to complement it by a fourth, strongly determinant factor: the socio-cultural environment.

All the major economies of the world have their own development based on the richness of using their internal potential, especially the knowledge of their people. Knowledge, information turned into actions, have become a decisive factor in the company's quality of life. Top technology, progressive technology, strategic minerals are also serious factors, but people are more, adding value to the product. The human potential, the synergy of knowledge, can be a dynamizing element of the development of society. It needs a good strategic goal and supportive environment culture. The strengths of national culture can act as managerial factors of competitive advantage, uniqueness and marketing distinction, which does not prevent the acquisition of potential managerial synergies from learning and taking over strengths from other (even distant) cultures.

3. Shifting management paradigms and innovation of management systems

Changes in the environment have prompted the need for innovations in management systems. For the most modern scientific approach to innovation in managerial systems considers I. Vágner (2015), according to T. Khun's model, the scientific apparatus based on the so-called paradigm and its shift, the paradigm being determined by the relevant axioms. The paradigm as a theory, the interpretation or model of a certain complex phenomenon is conditioned by the time, is based on a concept valid only for a certain period of time and therefore is time-dependent. Changing the validity of old axioms, respectively principles, respectively premises and the creation of new axioms, respectively principles, premises means shifting the paradigm.

From this point of view, it is possible to characterize the development of management systems in recent decades as a shift (change of validity) of these paradigms:

- shifting the paradigm from the industrial to the postindustrial model,
- shifting the paradigm from operational to process management,
- current changes in the environment encourage the paradigm shift towards a fundamental leadership that is based on helping people find and fulfill the meaning of their existence, sharing the same (similar) values, focusing on such mental principles (Covey, 2013) as honesty, openness and integrity, accepting the effects of natural laws and principles, creating a culture of high trust.

Shifting the paradigm to fundamental leadership is a great opportunity to innovate organizational management systems in the direction of their greater flexibility and greater competitiveness. Non-acceptance of natural laws and mental principles, profit fetish, materialist egoism, and consumerism bring about risks that are generally known and (in particular by the world powers) underestimated.

The search for managerial synergy (compared to the concept of seeking political compromises) has brought such important managerial philosophies and concepts as the concept of sustainable development, social responsibility of organizations, business philosophy TQM, JIT, etc. At the Department of Management of CU in Poprad, we have successfully solved several projects in the spirit of shifting the paradigm to fundamental leadership and the search for positive synergic effects:

- development program of a specific sub-Tatran municipality by using qualitative and quantitative multipliers to optimize the program using the values of the environment quality indicator and the territory stability index
- research confirming the impact of cultural diversity on the positive synergy effect on company management
- achieving a synergic effect in the management of social service facilities using the ethical dimension to improve the fulfillment of the requirements of customers and other stakeholders by creating a deep mutual trust and a personal example
- demonstration of positive synergy effects when managing a college with an accent on social responsibility.

4. Conclusion

The great traditions and centuries of practice and practice of the tested values teach us to keep humility, but also proud to offer many specialties, which are our strength in building marketing distinctions and contributing to the creation of synergic effects.

The paradigm of the principled leadership deals with how to help people find the meaning of their existence, based on the understanding that it will always be decisive the working of timeless, untouchable natural laws and such mental principles as the consistency of thought, expression and concrete deeds, the mental principle of integrity, the product of which is trust as a stabilizing pillar of the organization's development as well as of the entire society. People have enormous potential, huge energy that, with a good management can bring about much better results, synergy effects.

Literature:

Covey, S.R. (2013). *Třetí alternativa*. Praha: Management Press, 2013.

Covey, S.R. (2015). *8.návyk. Od efektivnosti k výjimečnosti*. Praha: Management Press, 2015.

Madzík, P. (2016). *Increasing accuracy of the Kano model – a case study*. Total Quality Management & Business Excellence, London : Taylor & Francis, s. 1–23. doi:10.1080/14783363.2016.1194197.

Šíkula, M. et al. (2003). *Determinanty formovania priemyselnej politiky v podmienkach globalizácie a integrácie*. Bratislava: Ústav slovenskej a svetovej ekonomiky SAV, 2003.

Vágner, I. (2015). *Podněty k posunu paradigmatu myšlení a jednání v managementu*. Brno: Sting, spol. s r.o., 2015.

Zelený, M. (2011). *Hledání vlastní cesty*. Brno: Computer Press, 2011.

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THE ROLE OF THE ECONOMICS OF RENEWABLE ENERGIES IN ACHIEVING ECONOMIC DEVELOPMENT IN THE ARAB COUNTRIES

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Abstract: *The research aims to evaluate the economic and social effects of the transition to renewable energy economics in order to stand on the path of economic development in the Arabic countries in the future. As they depend –and still- on the sources of poor fossil energies in the financing their development for long years.*

Keywords: *Environmental policy; development; economic; renewable energies; Arab countries.*

JEL classification: O2, O21, O210

Grant affiliation:

1. Introduction

At the first sight, studying of energy situation in Arab countries shows that the renewable energy activities Concentrated in Northern Africa region: Egypt, Morocco and Tunisia, as well as some pilot projects in some countries such as Jordan and Syria. It is also clear that the main role in the development of renewable energy uses whether on the level of solar energy (water heating, electricity production "under construction") or wind power is falls on various government agencies in the Arab countries with limited participation of the private sector (Al-Mohamad, 2001).

However, we can notice the disparity of governmental participation in this field. While independent government bodies care to various renewable energy issues in the Arab countries in North of Africa, for example: the New and Renewable Energy Authority in Egypt, the Centre for Renewable Energy Development in Morocco and the National Renewable Energy Authority in Tunisia, we find in some other countries that the renewable energy management entity is limited to the existence of sub-departments within larger bodies and institutions, which inhibits the role and effectiveness of their participation in the development of the use and dissemination of renewable energy applications in these countries, we also find a mix between the management of new energy and renewable in some countries and other activities such as energy conservation and energy efficiency, and examples of these countries: Yemen, Saudi Arabia, Sudan, Lebanon (Chedid, Chaaban, 2003).

The second part of the participation of the private sector is the establishment of production lines of some requirements of renewable energy systems, particularly solar heating systems for water, which are spread in many Arab countries, especially Tunisia, Morocco, Egypt, Algeria and Lebanon, where we find in these countries factories for the private sector producing these systems either with local components and technologies, or importing some components from abroad, we also find a contribution to the private sector in the cable production factories needed to transport produced electricity from wind farms as in Saudi Arabia, Egypt and Sudan (Kazim, 2007).

2. Renewable Energy in the Arab Region

The Arab countries are very rich in solar energy resources and some Arab countries are also rich in wind energy resources. However, the use of solar energy is still limited in the Arab world for the slow development of technology, its uses and the limited economics of solar energy. The use of solar energy as an energy source in the Arab world continues to be limited to water heating in some countries (such as Jordan) and also in photo-voltaic (PV). This is mainly due to the availability of fossil fuels in large quantities and at subsidized prices in many cases in all Arab countries (as well as LPG), leaving little room for any serious economic development of solar energy (Mostafaeipour, Mostafaeipour, 2009). There have been numerous attempts to set power plants works on solar energy by heating through reflective mirrors, but these technologies are still in their early stages and their economic feasibility is questionable (Arab and global).

Hydroelectric power is a major source of energy production worldwide, with production reaching about 3000 TWh in 2002 and thus it is about 18% of the world's electricity production. Its growth in recent years was slightly higher than the growth rate of energy demand globally. There are very large sources in the world for increasing the exploitation of hydropower, but their costs and their distance from sources of consumption prevent them from investing. Hydropower also suffers from large environmental problems caused by flooding into large areas, which requires moving and re-housing large numbers of people after the implementation of dams (Rohani, Nour, 2014).

Hydropower is a limited source of energy in the Arab countries for the limited water and rivers in the region. Arab hydropower production is estimated at about 28,000 GWh and only 12% of the electricity production in the Arab world (AUPTDE 2004) that is declining as a result of the increase the production of fossil energy sources, production of hydroelectric power is limited to some Arab countries with rivers as shown in (TAB. 1).

TAB. 1: Arab Hydropower Production (2004)

Country	Hydropower Production (GWh)	Ratio to electricity production
Syria	4247	13.5 %
Lebanon	1122	11.0 %
Egypt	13019	13.7 %
Sudan	1107	29.5 %

Morocco	1600	9.7 %
Iraq	5723	19.0 %
Tunisia	154	1.3 %
Algeria	251	0.8 %
Jordan	53	0.6 %
Total Arab Countries	27276	12 %

Source: On the efficient use of High Aswan Dam for hydropower and irrigation (Thomas Jr, Revelle, 1966)

The production of electricity from renewable energy (non-aquatic) in the Arab world is very limited due to the economics of this doubtful source, the spread of fossil fuels and the use of natural gas in the production of electricity. The installed capacity (MW) and the produced energy (GWH) from renewable sources of energy in all its forms can be summarized in (TAB. 2).

From these numbers, it is clear that the production of electricity from renewable sources does not exceed 5.3% of the total electricity production in the Arab world in 2004, which is very modest production and below the global rates, which is about 16%. This production is not expected to increase in the future but is expected to decline as a result of the limited water resources and electricity potential in the Arab world, as well as the limited investment in electricity production from other sources (wind, solar, etc.) for the spread of the use of natural gas to produce electricity in the Arab world (Kazim, 2007).

TAB. 2: Capacity and Production of Electricity from Arab Renewable Energy Sources in 2004

	Capacity (MW)		Production (GWH)	
	aquatic	Wind and solar	aquatic	Wind and solar
Renewable Energy	9120	214	27276	614
Arab Electricity Production	122829		526785	
Renewable energy in total production of electricity	7.6 %		5.3 %	

Source: Energy subsidies in the Arab world (Fattouh, El-Katiri, 2012)

3. Conclusion

Taking into the current circumstances and laws of various countries, this objective can't be reached without setting of legal legislation that encourages the use of renewable energy.

The nutrition tariff policy is often the most successful in the deployment of renewable energy, but sometimes, as demonstrated by the experiences of countries such as China and Canada, the competitive public bids policy can be applied as the most appropriate for its advantages:

- Ensures access to lower prices, which helps to reduce provided support for renewable energies.
- Achieve competition between producers or competitors to provide the best conditions through provided offers.
- The country has the capacity to control the amount of energy produced from renewable sources according to its plan and the priorities it determines at each stage of implementation stages.

It is necessary to choose the appropriate policies for the conditions of the country to benefit from those selected by the different countries, either that for the development of demand and production of renewable energies or for the promotion of local production or renewable energy support policies as well as the identification of law enforcement agencies. In the case of appropriate choices of the above policies, appropriate wording of the articles of law can be expressed such policies. Whatever the main policies and support adopted by the country through its legislation, such legislation must be successful expressed a coherent policy covering all aspects of the subject and a viable mechanism for the development of electricity production from renewable sources.

Literature:

Al-Mohamad, A. (2001). Renewable energy resources in Syria. *Renewable energy*, 24(3), 365-371.

Chedid, R., & Chaaban, F. (2003). Renewable-energy developments in Arab countries: a regional perspective. *Applied Energy*, 74(1), 211-220.

Kazim, A. M. (2007). Assessments of primary energy consumption and its environmental consequences in the United Arab Emirates. *Renewable and Sustainable Energy Reviews*, 11(3), 426-446.

Mostafaeipour, A., & Mostafaeipour, N. (2009). Renewable energy issues and electricity production in Middle East compared with Iran. *Renewable and Sustainable Energy Reviews*, 13(6), 1641-1645.

Rohani, G., & Nour, M. (2014). Techno-economical analysis of stand-alone hybrid renewable power system for Ras Musherib in United Arab Emirates. *Energy*, 64, 828-841.

Thomas Jr, H. A., & Reville, R. (1966). On the efficient use of High Aswan Dam for hydropower and irrigation. *Management Science*, 12(8), B-296-B-311.

Fattouh, B., & El-Katiri, L. (2012). *Energy subsidies in the Arab world*. Oxford, United Kingdom.

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EARLY WARNING SYSTEMS FOR STRATEGIC AND CRISIS MANAGEMENT

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Abstract: *The external turbulent environment affects companies suddenly and from unexpected sources and it is very difficult to predict its gusts. This impacts cause failure to achieve strategic goals or crisis situations, and sometimes leads to dissolutions of the companies. This article presents the concept of early warning systems that can be an effective tool for early identification of especially soft and weak signals and symptoms of potentially threatening companies and the condition for their efficient operation. Author's research has shown that the concept of an early warning system is very little known or it is associated with technological systems. If the systems are introduced in companies, they are not usually complex and do not work with weak signals.*

Keywords: *Early warning systems, strategic management, crisis management.*

JEL classification: *M10, M12*

Grant affiliation: *University internal grant Early warning systems in companies.*

1. Introduction

The beginning of 1970s was affected by sudden changes in the entrepreneurial environment that was influenced by existing strategic approaches of companies and required completely different managerial approaches. Absolutely new factors, called turbulence, discontinuity and chaos, have begun to influence companies. In the 1980s, these were joined by globalization influences, development of new technologies and scientific knowledge, which have subsequently led to new phenomena, continuous innovations, concentration and establishment of giant multinational companies with large bargaining and market power, overproduction, substitution products, rapid changes in fashion and customer demand while increasing awareness and education via social networks. Competitive struggle in the 1990s resulted in a hyper-competition, where achieving a competitive advantage is predominantly short-lived, and factors leading to it require greater complexity, originality and severity. Many previously successful companies get into situations, when they are unable to maintain their position on a long-term basis and they are falling within a scale of rated companies or they merge, become subsidiaries or they end their business activities.

2. Influence of the turbulence on companies

The concept of turbulence has been taken over from meteorology and it expresses the unpredictable and sudden effects of natural phenomena. Passengers in aircraft often experience this phenomenon (Kotler, Caslione, 2009) and its use in the business world should express the environment, in which companies operate and the necessity of their adequate responses to changes in it. According to Drucker (1980), companies should endeavor to forecast turbulences and even manage their basic causes and thus their use as an opportunity. This results in two basic requirements: timely identification of a turbulence at its beginning and adequate response to it. "Turbulence that goes undetected, including turbulence that is detected but that management is unable or unwilling to act on, or act on quickly enough, will create chaos for the company" (Kotler, Caslione, 2009).

Managerial decision-making process in relation to turbulent phenomena shows a significant difference from decision-making for risks. Turbulent phenomena with their suddenness, unpredictability and ignorance of resources and consequences require decision-making under conditions of uncertainty. Decision-making process in turbulent conditions requires solving problems of the type of "unknown" "unknown", when there is not known in advance, what problem will arise, when it will arise, what will be its cause, strength and direction of action. Thus companies get into situations, for which they are not ready and not able to respond adequately.

Turbulences were identified primarily in the following areas:

1. market, when new predatory go-ahead newcomers enter the market, there are sudden changes in customer preferences and fashion and changes in corporate strategies;
2. technical and technological, especially on the basis of new knowledge of science and research, which is rapidly applied into products, innovation cycles are being reduced there; knowledge is the most important source used by competitors to gain longer-range competitive advantage on the basis of discontinuous development and a delay response to a competitor's move, which subsequently leads to the loss of market position;
3. political, legislative and macroeconomic (e.g. new laws, trade embargoes, global crises) that are connected together in today's global world.

Commonly used information and control systems, are often not able to give timely concrete information to top managements for their strategic decision-making, which is reflected in subsequent failures, mistaken decisions and crises. These systems may not be suitable for identifying turbulent phenomena occurring unexpectedly and suddenly. Some of the turbulent phenomena show first in the form of weak signals and symptoms, which can be detected at a stage when there is no immediate threat or when such threat is in a stage of its initial development.

The mentioned problems can overcome effectively functioning early warning systems that are based on completely different principles. The principle systems, which have arisen in the military area, are nowadays used in other areas. The strategic success of companies is often based on the ability to recognize turbulences in a timely manner and using this fact for decision-making.

3. Early warning systems

3.1. The goal of early warning systems

The goal of early warning systems is identifying weak and soft signals both within and around companies that could potentially lead to a strategic surprise and thus to endanger the achievement of strategic goals and eventually lead to a crisis. Ansoff (1975) puts great emphasis on these signals focus, because their origin and development used to be hidden and blurred, and their identification in the form of obvious and clear symptoms, which work in the developed stage, does not allow a rapid and adequate response. "A competitive early warning system may be a sensible and practical process to avoid having executive's eyes wide shut" (Gilad, 2004). Systems are also important in the process of formulating and implementing strategies and in identifying crisis development in the latent phase of the crisis or to identify threats that can lead to crisis. The obtained information is important for reducing variants of strategies that are relevant to the selection for the implementation and for the timely application of changes in already adopted strategies.

3.2. Principles of early warning systems

The following assumptions and conditions have been identified for the effective functioning of early warning systems.

1. Proactive approach. The system must be based on active search for signals and not on passive receiving. It must create sensors, like seismologists, to permanently detect little vibrations. Searching for them is compared to broad-band radar (Gomez, 1983) and Hubble space telescope, which focuses not only on objects and phenomena within the visual field but must also use peripheral vision (Day, Schoemaker, 2006).
2. Use of a wide range of resources. It is necessary to include a wide range of resources into the system that are formed by people (e.g. employees of a company, customers), subjects (e.g. suppliers, customers, banks, competitors, consulting companies, state institutions, research institutes), sources of information, especially the Internet, social networks, media, printed materials, etc. Among all the internal and external subjects, there must be active and effective co-operation.
3. System focus. The structure and focus of the system must be specific for each company based primarily on business activities and processes in the company and with a goal focus on protecting key processes and business positions from threats.
4. Evaluation of signals. Identified signals must be rapidly transferred to the point where these signals are being analyzed and evaluated for threats. Unprofessional signal evaluation and subjective underestimation of a danger may be a risk for a system failure. After evaluation, there must follow their assignation to categories with an adequate response – necessary rapid response, preparation for a response within a certain time horizon, observation of further development and being in the state of watchfulness, observation of further development over a certain period, there is no danger.

An early warning system should be linked to control and information systems and should maintain a single line. At the same time, it should be linked to the knowledge management in a company and the knowledge source. It is important for acquired information to become a part of company's knowledge, to be archived and to ensure their flat transfer. Besides that there can be used a number

of formal but also especially informal methods (Junková, 2013). The organization culture and values adopted by company's employees are very important for effective functioning of the system. This is reflected mainly in the attempt to engage into the system, the ability of adequate response to signals and symptoms and learning.

4. Outcomes

The literary analysis of Czech and foreign sources has shown that the issue of early warning systems does not get adequate attention. The subsequent questionnaire research, supplemented by interviews with managers of companies, showed the underestimation of threats of the turbulence and the inability of adequate response to its actions. The questionnaire research showed that only 23 % of respondents met with the conception of the early warning system and 13 % of respondents met with technical systems focused on achieving functionality of used technologies. In 20 % of companies, there has been established a system with a character of an early warning system, but these are partial systems that do not have a more complex character and are not focused on weak signals, but mainly on customer behavior.

There were identified three basic approaches to creating early warning systems. The first approach, which is the most common, is based on analytical procedures and indicators (Bamberger, Spateneder, 2007; Gomez, 1983). Its deficiency is mainly not being focused on weak signals and time-current delay of hazard identification.

The second approach is based on looking for answers to questions asked by top managements of companies (Gomez, 1983; Day, Schoemaker, 2006) or by consultancy firms. Bickhoff et al. (2004) mention a principle of an early warning system used by the consultancy firm Roland Berger, whose goal is to identify initial crisis development based on questions and answers in consequence of, for example, fashion cycles, changes in technologies, merges, acquisitions, diversification strategies, rapid growth. This approach is based on identifying factors and sources of threats and the resulting indicators that can reveal their impact and processing of their catalogues. The third approach is based on a comprehensive conception of the system that accepts the principles outlined in the previous part of this article.

5. Conclusion

Creation of early warning systems is one of the ways to maintain companies' competitiveness, achieve and maintain competitive advantage on a long-term basis. The lack of knowledge of the importance and principles of system functioning in companies requires their perspective completion into the form of the best practice and their popularization in professional circles, including the use of teaching particularly in MBA courses.

Literature:

Ansoff, H. I. (1975). *Managing Surprise and Discontinuity - Strategic Response to Weak Signals*. Brussels: European Institute for Advanced Studies in Management.

Bamberger, N., Spateneder, N. (2007). *Operative Kennzahlen als Frühwarnsystem im Internationalen Hotelmanagement*. München: Grin Verlag.

Bickhoff, N. et al. (2004). *Unternehmenskrise als Chance. Innovative Ansätze zur Sanierung und Restrukturierung*. Berlin: Springer.

Day, G. S., Schoemaker, P. J. H. (2006). *Peripheral Vision. Detecting the Weak Signals That Will Make or Break Your Company*. Boston: Harvard Business School Press.

Drucker, P. F. (1980). *Management in Turbulent Times*. London: William Heinemann Ltd.

Gilad, B. (2004). *Early Warning. Using Competitive Intelligence to Anticipate Market Shifts, Control Risk, and Create Powerful Strategies*. New York: Amacom.

Gomez, P. (1983). *Frühwarnung in der Unternehmung*. Bern: Verlag Paul Haupt.

Junková, D. (2013). The transfer of knowledge in the methods of the police of the CR. In *Scientific reflection of new trends in management* (pp. 219-226). Praha: Policejní akademie v Praze.

Kotler, P., Caslione, A. (2009). *Chaotics: the business of managing and marketing in the age of turbulence*. New York: American Management Association.

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NEGOTIATION – PROCESS, SKILLS, STRATEGY

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Abstract: *Negotiation is a process where two parties with different needs and goals discuss an issue to find a solution acceptable for both of them. Every time you negotiate, you have to make choices that affect whether you achieve a successful outcome for your live or business. To get the best outcomes, you need to understand the steps involved in the negotiation process.*

Negotiation skills are important in both informal day-to-day interactions and formal transactions such as negotiating business things. It means conditions of sale, service, delivery and others. Negotiating requires give and take. A good negotiation leaves each party satisfied and ready to communicate with each other or do business with each other again.

During a negotiation, you may choose to use a passive, aggressive or assertive communication style. Using an assertive style will help increase your chances of negotiating successful outcomes. Your chosen strategy and style will depend on who you are negotiating with and the type of relationship you have with them.

Keywords: *Negotiation, negotiation skills, assertive communication, strategies for negotiating.*

JEL classification: A120

Grant affiliation:

1. Process of negotiation

1.1. Negotiation planning

No amount of preparation is too much in approaching complex or high-stakes negotiations. Plan both your approach to the subject under negotiation, and your tone and communication style.

In approaching the subject of your negotiations:

- set your objectives clearly in your own mind (including your minimum acceptable outcome, your anticipated outcome and your ideal outcome)
- determine what you'll do if the negotiation, or a particular outcome, fails
- determine your needs, the needs of the other party and the reasons behind them

- list, rank and value your issues (and then consider concessions you might make)
- analyse the other party (including their objectives and the information they need)
- conduct research and consult with colleagues and partners
- rehearse the negotiation
- write an agenda - discussion topics, participants, location and schedule.

In deciding your communication style, familiarise yourself with successful negotiating strategies. Arm yourself with a calm, confident tone and a set of considered responses

1.2. Alternative plan

It's important to remember that, when it comes to negotiating, there's always more than one positive solution for your business. Ensure you have an alternative plan.

Consider your 'best alternative to a negotiated agreement' (also known as BATNA). Take pressure off yourself by identifying several other options or alternatives to the outcome you are seeking.

Brainstorm all available alternatives to the process you are negotiating.

Choose the most promising ideas and expand them into practicable alternatives.

Keep the best alternative in reserve as a fallback.

Take a firm and assertive stance when proposing ideas or drawing definite lines in your negotiation. Being willing to walk away is a powerful tool.

Clearly determine the worst possible outcome you are prepared to accept in the negotiation.

2. Negotiation skills

Strong negotiators master written, verbal and non-verbal communication. They adopt a conscious, assertive approach to their communication.

Good negotiators are:

- Flexible
- Creative
- aware of themselves and others
- good planners
- honest
- win-win oriented
- good communicators

2.1. Assertive communication

As you know, during a negotiation, you may choose to use a passive, aggressive or assertive communication style. Using an assertive style will help increase your chances of negotiating successful outcomes for your business.

Passive communicators are inclined to use ambiguous language, adopt under-confident body language, and give in to demands too easily.

Aggressive communicators take a confrontational approach that tends to alienate other parties and destroy negotiations.

Assertive communicators, however, are both confident and considerate. These communicators are more likely to keep discussion going and facilitate mutually beneficial outcomes. They adopt a strong, steady tone of voice. They are factual, rather than emotional or critical. They describe their views, starting sentences with 'I', rather than direct criticisms starting with 'you'.

Assertiveness is one of those foundational communication skills required in any successful relationship. There is often a lot of talk about being assertive in your communication, but time to time communicators are not truly understand, how to do it. Here are the components of assertiveness that we can use to communicate clearly and effectively.

When you initiate a discussion or raise an issue, the outcome will almost always be better for both parties. Don't lose sight of what you want to express or have known. Consider your intention before you begin and hold onto that, especially when the going gets tough.

If your intention is about you expressing something about yourself, (I feel, I thought, I imagined...), then your prospects for a good outcome are significantly higher.

Once you have communicated with assertiveness and incorporated the steps above, it's important that you each agree on what outcomes you would like and what you both agree to. This is an important step, because it consolidates all the other steps and gives a concrete resolution to your communication. Without this step, it's easily to each leave the conversation and not be sure of what was achieved. When you communicate with assertiveness, it's a two-way process. Your partner receiving the message will respond, and this gives you an opportunity to listen in a different way. As you listen to the response, go beyond the content you are hearing and listen for the deepest wants and desires that are embedded in the message. Don't get caught up in the details, but go deeper into the message and pick up what's not being said. Not every assertive conversation needs or should have a solution. If your communication opens up the possibility of a solution make sure there is space to discuss one.

However, many communicators fall into the trap of moving to solutions too quickly, and negate the important steps of listening, understanding and validating. Make sure you engage in these practices before negotiating possible solutions, to facilitate resolution of the issue.

3. Negotiation Strategy

3.1. Tips for effective negotiation

Don't confuse negotiation with confrontation. You should remain calm, professional and patient. Don't become emotional - remember to stick to the issue, don't make it personal, and avoid becoming angry, hostile or frustrated. Don't blame the other party if you can't achieve your desired outcome.

Try to be clear about what you are offering and what you need from the other party, be prepared - think about what the other party needs from the deal, and take a comprehensive view of the situation. Be consistent with how you present your goals, expectations and objectives. Set guidelines for the discussion and ensure that you and the other party stick to them throughout the entire process. Use effective communication skills including positive body language. Prepare for compromise. Ask plenty of questions. Pay attention to detail. And last important advice - put things in writing.

3.2. Strategies for negotiating

Understanding the other party's interests and tactics is integral to good negotiating. Choosing a strategy that best responds to their interests and tactics will help you achieve the best outcome.

Matching the strategy to the situation

Some of the different strategies for negotiation include:

- problem solving - both parties committing to examining and discussing issues closely when entering into long-term agreements that warrant careful scrutiny
- contending - persuading your negotiating party to concede to your outcome if you're bargaining in one-off negotiations or over major 'wins'
- yielding - conceding a point that is not vital to you but is important to the other party; valuable in ongoing negotiations
- compromising - both parties forgoing their ideal outcomes, settling for an outcome that is moderately satisfactory to each participant
- inaction - buying time to think about the proposal, gather more information or decide your next tactics.

Your chosen strategy will depend on who you are negotiating with and the type of relationship you have with them. For example, what level of cooperation and common interest exists between you, and how will each party behave during the negotiation? It will also depend on what you are negotiating, and the time frame and setting you are negotiating in.

4. Program on Negotiation at Harvard Law School

During my analyzing and thinking about how to negotiate successfully I read a lot of articles about this topic. I have possibilities to learn about negotiation from experienced people from Harvard Law School. I am sure that this program helps me to be better at this complicated field of knowledge as I was before. Try to remember some of these advices:

1. Analyze and cultivate your BATNA. BATNA is the best alternative to a negotiated agreement. In both integrative negotiation and adversarial bargaining, your best source of power is your ability and willingness to walk away and take another deal. Before arriving at the bargaining table, wise negotiators spend significant time identifying their best alternative to a negotiated agreement, or BATNA, and taking steps to improve it.

2. Negotiate the process. Don't assume you're both on the same page when it comes to determining when to meet, who should be present, what your agenda will be, and so on. Instead, carefully negotiate how you will negotiate in advance. Discussing such procedural issues will clear the way for much more focused talks.

3. Build rapport. Although it's not always feasible to engage in small talk at the start of a negotiation (particularly if you're on a tight deadline), doing so can bring real benefits, research shows. You and your counterpart may be more collaborative and likely to reach agreement if you spend even just a few minutes trying to get to know each other. If you're negotiating over email, even a brief introductory phone call may make a difference.

4. Listen actively. Once you start discussing substance, resist the common urge to think about what you're going to say next while your counterpart is talking. Instead, listen carefully to her arguments, then paraphrase what you believe she said to check your understanding. Acknowledge any difficult feelings, like frustration, behind the message. Not only are you likely to acquire valuable information, but the other party may mimic your exemplary listening skills.

5. Ask good questions. You can gain more in integrative negotiation by asking lots of questions—ones that are likely to get helpful answers. Avoid asking “yes or no” questions and leading questions, such as “Don't you think that's a great idea?” Instead, craft neutral questions that encourage detailed responses, such as “Can you tell me about the challenges you're facing this quarter?”

6. Plan for the implementation stage. Another way to improve the long-term durability of your contract is to place milestones and deadlines in your contract to ensure that commitments are being met. You might also agree, in writing, to meet at regular intervals throughout the life of the contract to check in and, if necessary, renegotiate. In addition, adding a dispute-resolution clause that calls for the use of mediation or arbitration if a conflict arises can be a wise move.

5. Conclusion

Negotiation is an important process. Could be hard and difficult, but we can learn some techniques and strategies to be successful. Never forget that the best way have to do does not exist. It depends on the situation, on your individuality and other reasons. But we can our entire live try to do the best we can, try to learn about negotiating planning, negotiation skills, and strategy and use it.

Literature:

For more see: <http://www.pon.harvard.edu/daily/international-negotiation-daily/coping-with-culture-at-the-bargaining-table/?mqsc=W3850723>, 26.9.2016.

For more see: <https://www.amazon.com/Daniel-Shapiro/e/B002BM8UCU>.

For more see: <https://www.business.qld.gov.au/business/running/managing-business-relationships/negotiating-successfully>.

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AN ANALYSIS OF WORKING CAPITAL MANAGEMENT IN TRANSPORT COMPANIES

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Abstract: *Service companies have a great influence on the development of all businesses, either manufacturing or commercial ones. The most important services that are necessary for the proper development of sellers or buyers are medical services. However, the second place should be reserved for transport services that affect all sectors of economy. Transport costs affect the price of foodstuffs, medical services, trade and production. Therefore, the operation of transport companies and their reliability is crucial for every business and an individual consumer. In order to be able to operate efficiently, to reduce the risk of financial loss and to avoid unnecessary costs, it is important to manage working capital appropriately. The purpose of this article is to analyze the management of working capital in transport companies.*

Keywords: *Services, transport, working capital.*

JEL classification: G32,G33

Grant affiliation:

1. Introduction

Any changes that occur in the transport industry affect the functioning of other industries and sectors of the economy. There is a close link between the development of the national economy and the development of the transport system, as transport is serving the rest of the economy (Jacyna 2012 p. 27). The most important obstacle to the management of a transport company is that external factors such as politics and armed conflicts have the greatest impact on corporate governance. These factors often have the key impact on the price of fuel and energy. The rise or fall in prices of fuel and energy affects both private and public companies, small, large, medium and micro units. It does not matter whether it is an automobile, air, rail or maritime transport company because the price of fuel, energy is the most important item in the cost structure. Even the best-managed transport companies at a time when the prices of fuel, energy and, for example, rising, will have financial problems related mainly to maintaining liquidity. Price increases are greater liabilities towards fuel and energy

providers, less cash in hand and bank accounts, which affects negatively liquidity. In recent years, companies have often collapsed as a result of emerging payment bottlenecks. Others often incurred additional costs to save their financial situation. They pledged unfavorable loans, benefited from the services of advisory companies, resulting in a further reduction in the level of cash and thus the level of working capital. Rotary capital is a kind of buffer that protects the company against liquidity loss. The assessment of the level and structure of working capital provides the detailed information on the financial security of companies. In the case of transport companies the working capital analysis is specific because in transport services not all working capital management areas appear and are used in the business of the company.

2. Working capital in transport company

Working capital is the difference between current assets and current liabilities. Therefore, it is the capital that funds only that portion of current assets that has not been financed by short-term liabilities (Nowak, 2005, p.198). The net turnover capital in an enterprise performs the following roles (Karpus, 2006, p.246):

- is a measure of liquidity,
- provides a buffer to protect the company from operating losses,
- reduces the negative impact of the environment on the operation of the company, protects against volatility of supply.

Working capital and its level have a big impact on the current financial situation of companies. It should be noted that in the day to day operation of an enterprise most of the decisions are related to (Kusak, 2006, p.156):

- enforcement of receivables,
- regulation of current liabilities,
- supply chain management and warehouse management,
- production control,
- control of the sales process,
- maintaining of cash resources.

In commercial companies receivables and current liabilities have the most significant influence on its level in the company. Stocks are practically non-existent and cash is generally issued very quickly. Lack of inventory makes it easy to manage your business as an optimization of your supply chain for an important competitive edge (Walasek, 2016, p.178)

So that the working capital will be influenced by the policy of merchant credit management and discounts. In transport companies, the most important elements affecting the level working capital:

2.1. short-term receivables

Receivables are the most important elements affecting the level of net working capital. The management of the goods begins with the sales of goods and services with deferred payment. Receivables management is a process whose the main process is to prevent the occurrence of overdue receivables and their recovery from customers. A company that manages receivables can be more competitive in the market because it provides increased liquidity. The process consists of complex actions to be taken at all stages, i.e. prevention, monitoring and recovery.

2.2. short-term liabilities

Management of liabilities largely depend on the receivables management strategy. If receivables are flowing quickly, one can take advantage of vendor offers and pay off debts faster. Quicker repayment will generally mean extra workout. Management of liabilities is reduced to:

- show the priorities of payments,
- strict monitoring of commitments,
- negotiating with suppliers and customers.

Financial needs of a company depend primarily on the scale of the company's activity and the size of its demand. Growing business needs are partially covered by growing "spontaneously" short-term liabilities and ever-increasing long-term liabilities. To finance the short-term needs the followings are necessary (Rutkowski, 2015, p.435):

- obligations towards suppliers (merchant credit),
- short-term debt securities (bills of exchange)
- short-term bank credits and loans,
- factoring.

As in the case of receivables management, it is important to carry out an analysis of merchant and bank credit costs. The comparison of them with each other will allow to choose a better one. Everything depends on the economic and financial situation of a company. When a company has excess of cash, it can use the offers offered by the suppliers for early settlement of liabilities. They reduce the costs associated with purchasing, which increases the financial result. The use of appropriate instruments to source the company's funding is important for managing liabilities. The choice of commitment management strategy is closely linked to the company's strategy (Zimon, 2012, p.337).

2.3. short-term investments management

A company cannot function without cash; they are a component of current assets. In general, they represent a small share in the structure of current assets. Managers should set a level of cash that will provide an adequate stock of security for the business at the time.

3. Working capital analysis

The analysis was carried out on the basis of financial reports from 2015. 10 Polish transport companies were used for the research. The table 1 presents the net working capital and ratio of financial liquidity

TAB.1: Net working capital

Company	Net working capital	Ratio of financial liquidity
Company 1	Positive working capital	1,1
Company 2	Positive working capital	2,0
Company 3	Positive working capital	3,6
Company 4	Positive working capital	1,1
Company 5	Positive working capital	1,1
Company 6	Positive working capital	4,0
Company 7	Positive working capital	4,1
Company 8	Positive working capital	2,0
Company 9	Positive working capital	1,4
Company 10	Positive working capital	1,1

Source: own research

It is positive in all companies. Average ratio of financial liquidity 2,15. Next the structure of current assets of the surveyed companies was determined. The table below shows the structure of current assets.

TAB. 2: The structure of current assets

	Share of short-term payables in total liabilities	Share of short-term investments in total current assets
Company 1	0,94	0,06
Company 2	0,75	0,25
Company 3	0,80	0,20
Company 4	0,98	0,02

Company 5	0,90	0,01
Company 6	0,55	0,45
Company 7	0,70	0,30
Company 8	0,65	0,35
Company 9	0,93	0,03
Company 10	0,71	0,28

Source: own research

The average share is 0,8 for liabilities and 0,2 of short-term investment. The next table shows the share of total current payables and liabilities.

TAB. 3: The share of total current payables and liabilities

Company	Share of short-term payables in total liabilities	Share of short-term payables in liabilities
Company 1	1	0,90
Company 2	0,98	0,83
Company 3	1	0,20
Company 4	1	0,35
Company 5	1	0,66
Company 6	0,12	0,78
Company 7	0,78	0,88
Company 8	1	0,4
Company 9	0,4	0,93
Company 10	0,7	0,73

Source: own research

The average results for the companies surveyed are: for the ratio of short-term payables in total liabilities 0,80 and for the ratio of short-term payables in liabilities 0,66.

4. Conclusion

The research showed that all companies analyzed had positive working capital. The research period was 2015. All companies have financial liquidity as a result of having working capital. The two largest units generating revenues of over 300 million PLN have a low liquidity ratio from 1,1 to 1,4. In other companies only two have similar results, the rest will get high values of this ratio. By analyzing the structure of current assets only the two largest companies hold stocks that range from 1 to 4% of total current assets. The average level of receivables in current assets is 80%, of which 8 companies have such value. The other two companies have low receivables. The average share of cash in current assets is about 20%. Foreign capital is more financed by assets, with an average score of 0,67. Companies with the lowest liquidity do not have long-term liabilities, which should be assessed negatively.

Working capital management is based on the systematic holding of cash reserves to cover current expenditure. It is important to create appropriate debt management policies based on the level of current liabilities. Inventories in transport companies generally do not appear. There is, therefore, no buffer to protect companies against liquidity loss and negative working capital. To sum up, the management of working capital in commercial companies is a process of continuous monitoring of cash, short-term liabilities and an analysis of possibilities, tools enabling the collection of specific receivables from customers.

Literature:

Jacyna, M. (2012). *System logistyczny Polski. Uwarunkowania techniczno-technologiczne komodalności transportu*. Warszawa, Oficyna Wydawnicza Politechniki Warszawskiej.

Karpuś, P. (2006). *Zarządzanie finansami przedsiębiorstw*. Lublin, Wydawnictwo UMCS.

Kusak, A. (2006). *Płynność finansowa. Analiza i sterowanie*. Warszawa, WZW.

Nowak, E. (2005). *Analiza sprawozdań finansowych*. PWE.

Rutkowski, A. (2016). *Zarządzanie finansami*. Warszawa, PWE.

Walasek, R. (2016). *Supply chain optimization and competitiveness of an enterprises – results of the study, Research In Logistics & Production*, Vol. 6, No. 2, pp. 177-189. Poznań.

Zimon, G. (2012). Zarządzanie zobowiązaniami bieżącymi w przedsiębiorstwach tworzących zintegrowany system dostaw, Czas to pieniądz – Zarządzanie finansami. Inwestycje, wycena przedsiębiorstw, zarządzanie wartością, edited by D. Zarzycki, Zeszyty Naukowe Uniwersytetu Szczecińskiego no. 689, Finanse, rynki finansowe, ubezpieczenia no. 50, pp. 377-345, Szczecin.

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NEW POSSIBILITIES FOR COOPERATION IN THE ACTIVITIES OF SMES BUSINESS

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Abstract: *This paper focuses on the opportunities for cooperation between small and medium-sized enterprises (SMEs), which are mainly related to digitization, information technology development and the use of the Internet in the business. The current possibilities of using information technologies together with growing digital literacy of the population and their practical use offer new opportunities for communication with customers but also with other SMEs. The aim is to explore the use of business networking, the use of information technologies and their tools in the practice of small and medium-sized enterprises. The paper contains the results of researching the attitudes of entrepreneurs to the use of selected communication tools, analyses tools used in communication and cooperation with other enterprises. The paper includes comparison of the obtained results with the real opportunities from formal or informal networks to the use of electronic communication - social networks, mobile applications and shared activities.*

Keywords: *Cooperation between Small and Medium-sized Enterprises. Internet in Business. Business Networking. Shared Activities in SMEs Business.*

JEL classification: D22, L26, M21

Grant affiliation:

1. Introduction

Information technology influences life in all spheres of business and civil life. This situation arises, in particular, from the relatively easy availability of information and communication technologies. In countries that are considered mature, it is commonplace today to own a computer or other electronic device, in varying numbers, per employee or private person. Along with the widespread use of electronic devices in recent years, the number of people using the Internet has grown, electronically communicating across platforms, hardware, as well as various programs and applications.

The rapid availability of technologies brings many positive but also many negative ones. It depends on the point of view of the thing, whether it is the transmission of information on a legal or illegal level and many other factors. Electronic communication has the benefit of, for example, rapid transmission of information - photographs, videos, laboratory test results - to the right physician who

is on the other side of the planet to save the patient's life. The information given by an entrepreneur to one state institution can be shared by several other state institutions, information about the nearest train link, buy a ticket, get a job, sell goods, find the right way to travel. They are useful in private life, in business, and in government.

On the other hand, misused information can be sent and received, eg.: in a competitive struggle of business entities or in the personal life of a particular person. Many of these activities take place in real life and use mainly electronic form of communication, but many already exist in a virtual environment. Newer concepts that have emerged in the context of the use of information and communication technologies in the economy (not only in business) are the shared economy (SE). These progressive activities, raise questions, especially in relation to the need for their regulation or taxation.

The facts have led us to decide to deal with the SE as a professional concept and then to explore the use of property sharing by SME in the region of northern Slovakia.

2. Shared economy in the European space

Business trade law in Slovakia characterizes the entrepreneurship as a systematically performed activity carried out in its own name, on its own responsibility and for profit (Act No. 513/1991 Coll. Commercial Code, Act No. 455/1991). Business entities have the appropriate authority for their business, the property and other resources to help them secure income from business activities. They have an obligation to keep accounts, pay taxes and fulfill other obligations related to the conduct of business. The entrepreneur is the entity that practically implements innovation in production processes. (Janičková, 2015) Business entities are doing their job efficiently. Therefore, they use all the new possibilities available to achieve their goals. Likewise, non-entrepreneurs, private individuals, are trying to use their personal property effectively. One of the options is the effective use of environmental conditions, the sharing of private assets or a certain type of service.

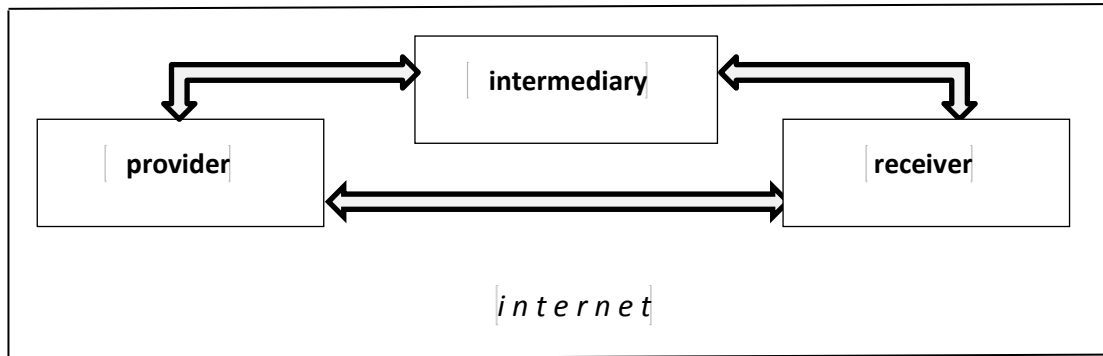
The boundary between business and non-business is difficult to determine. Taking someone to work in the morning, a taxi driver who provides his services is a tradesman and is legally a entrepreneur. The same person can also take away a neighbor or colleague who has a vacancy in the car. Both pay. Taxi drivers for a service and neighbor, or colleague can only contribute to gasoline. The neighbor does not take advantage of his private property and his free time in favor of a friend. It is not a systematic activity carried out on its own behalf, under its own name, on its own responsibility and for the purpose of making a profit - it does not fulfill the legal conditions of business. However, such an activity has become a relevant basis and model for entrepreneurs: to share any tangible or intangible property. Here is the law of demand and supply. Where is demand there, there is an offer, so types and forms of shared property are difficult to characterize or delimit. The result of sharing may be uncertain.

Under the term SE we mean "the product of a new age where underutilized assets become peer-to-peer services for hire, enabled by the internet and smartphones". (Kosintceva, 2016)

For a better definition of the concept of a SE, Olson and Kemp (2015) have defined such a condition for its characteristics. SE is a market where:

- users are individuals, businesses or machines,
- sharer and the user, there is an overcompensation of an asset or skillset,
- communication and coordination of sharing is via the Internet.

FIG. 1: Subjects of sharing



Different businesses (businesspeople, but also ordinary people (citizens)) who act as intermediaries, providers or recipients of sharing, shared goods or services operate in different countries, dealing with a variety of activities, some of which have been very well established in different countries around the world. The most commonly used and the most widely used, for example, entities dealing with people transporting, housing, lending tools, housekeeping, and food sharing.

Some of the best-known applications in our environment include Uber (shared cars) and Airbnb (accommodation). Uber is not a classic taxi service. Customers are ordering via the application, via internet communications, most often through a mobile application. Taxi drivers in Europe are hindering their activities. The driver based on Uber is not an entrepreneur - no taxes, no licences, etc.

People also share the same and other activities through social networking groups. In Slovakia eg.: OdveziemeVás, OdvezSa, Odveziem priateľov; Upracem; I donate, eats, swap; etc.

3. Exploring the use of the shared economy in SMEs

We have explored the use of sharing in selected SMEs in northern Slovakia. We have compiled a questionnaire and approached more than 200 potential respondents without accurately determining the returns (distributed electronically; April - June 2017). We received 134 correctly filled out questionnaires.

The concept of SE know 51.49 % of the respondents, 38.81 % do not know the term. More than 1/2 of respondents knows the concept of SE and its meaning. After explaining the concept of SE, we searched a personal experience with SE activities: 8.21 % of the respondents met once, 28.36 % several times, 41.61 % used it regularly. Of those sharing regularly: daily (65 %), 22.81 % more than once a week, and 12.28 % more than once a month. Until now, 14.93 % of respondents did not use the sharing, of which 65 % did not even consider it.

More than 1/3 of respondents (35.10 %) shared business-related activities, 14.91 % were in private, and 49.12 % shared business and private activities. Only providers were 17.54 %, 34.21 % were only recipients, providers and recipients (44.74 %), only intermediaries 2.63 %.

The most used subject of sharing was a passenger car: (68.42 %), then the truck (28.07 %), approximately the same share was spent on borrowing tools (27.19 %). The ranking of other options: non-residential premises (18.42 %), storage (11.4 %), accommodation (11.4 %), machine or mechanism (7.9 %), less than 1 % of a motorcycle or bicycle and shared food (catering). No one used funds to share.

Reasons of non-use SE: ignorance of opportunities (50 %), did not need sharing (27 %), 13.64 % information about SE, but fear of risks, mistrust other people, love for freedom.

The most famous portal was Uber (69.40 %), Blabalacar (50.75 %) and 83.82 % of them actually use this platform. Airbnb (21.64 %) with 10.34 % real experience, the same share: LetGo, Trivago.

The most famous from the Slovak portals: Jaspravim (20.90 %), Yellow Melon (17.16 %), then Trivago.

Members of different communities or groups are through social networks where they place their supply and demand. They work well, eg. in smaller regions people through a group on Facebook agree on a shift to work or school, tutoring in exchange for a counter, sharing basic tools, etc.

Most used SE activities: tools (61,19 %), storage (53,73 %), lorry (50 %); around 30%: machine or mechanism, cycles, personal services, non-residential premises and none (11.94%). Some (4.48 %) would share a boat, yacht, scooter, snowmobile. Up to 60.45 % of respondents never would be prepared sharing money, food (32.10 %) or accommodation 19.40 %.

In personal interviews some respondents said that share property is in many cases also dependent on the cost of the farm to be shared. So some entrepreneurs will willingly share their car, but others will find it too rare to borrow.

4. Conclusion

SME owners know the concept of a SE, many even activities that are characterized as part of a SE, even in their practice. SE is part of their business and private life. People often use different social networking groups where they share their activities or provide services.

The state in a SE can see a possible source of revenue for the state budget in the form of taxes and levies. It is often difficult to distinguish the SE from the shadow economy. Identity on the Internet is not unambiguous; people do not state the truth about themselves, the problem of control, the problem of consumer protection, etc.

It is necessary to hold expert discussions on the SE and to lay down certain rules that will not disrupt the simplicity of its operation and, at the same time, not lead to unfair competition. Therefore, it may be appropriate to approach a SE and business relationship in our conditions by trying to deregulate business activity rather than to regulate a SE.

Literature:

Brighenti, B. (2015). *Brusel riešil Uber a nové pravidlá pre takzvanú zdieľanú ekonomiku*. Retrieved: May 09, 2017, from <https://europskenoviny.sk/2015/10/14/brusel-riesil-uber-a-nove-pravidla-pre-takzvanu-zdielanu-ekonomiku>.

Janičková, J. (2015). *Štvrtstoročie príležitostí a výziev pre podnikateľsky orientované správanie manažérov a personálnu prácu v podnikoch*. In Zborník z MVK, Ružomberok : 2015, Verbum, s. 382-390. ISBN 978-80-561-0246-6.

Kosintceva, A. (2016). *Business models of sharing economy companies*. Retrieved May, 10, 2017, from <https://brage.bibsys.no/xmlui/bitstream/handle/11250/2403861/masterthesis.pdf?sequence=1>.

Mesík, M. (2016). *Zdieľaná ekonomika*. [Shared economy], retrieved May, 15, 2017, from www.konzervativizmus.sk/upload/pdf/Mesik_ESEJ_2016.pdf.

Odkladal, M. (2017). *Moderné internetové technológie prinášajú dnes obrovské možnosti. Aj obyčajný človek môže byť kapitalistom*. Retrieved June, 27, 2017, from <https://www.aktuality.sk/clanok/302141/novy-fenomen-doby-zdielana-ekonomika-kazdy-moze-byt-podnikatelom/>.

Olson, M. J., Kemp, S. J. (2015). *Sharing economy An In-Depth Look At Its Evolution & Trajectory Across Industries*. Retrieved June, 25, 2017, from <http://collaborativeconomy.com/wp/wp-content/uploads/2015/04/Sharing-Economy-An-In-Depth-Look-At-Its-Evolution-and-Trajectory-Across-Industries-.pdf>.

Pomffyova, M., Kožárová, M. (2017). *Innovative perspectives of business management*. In "Enterprise and Competitive Environment", Brno : 2017 MU Brno, s. 643-652, ISBN 978-80-7509-499-5.

TASR. (2017). *Zdieľaná ekonomika vytvára veľkú príležitosť pre naše hospodárstvo*. Retrieved June 30, 2017, from <https://openiazoch.zoznam.sk/cl/173961/Zdielana-ekonomika-vytvara-velku-prilezitost-pre-nase-hospodarstvo>.

Zákon č. 455/1991 Zb. Zákon o živnostenskom podnikaní.

Zákon č. 513/1991 Zb. Obchodný zákonník.

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THE SIGNIFICANCE OF ECO-LABELS IN TOURISM INDUSTRY

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Abstract: *Eco-labeling is method of environmental performance certification and labeling that is practiced all around the world. An eco-label identifies products or services proven to be environmentally friendly above average within a specific product or service category. The popularity of eco-labels among various entrepreneurs and enterprises is constantly growing. The same applies in tourism, where these labels have been used since the mid-eighties of the twentieth century. Eco-labeling of tourism services has been discussed extensively in the past, but still, there is no final agreement whether eco-certification increases demand for a product or service among the general tourist population. The aim of this paper is to conduct a literature review of empirical studies which have investigated the issue of eco certifications in the context of tourism and identify the main key findings.*

Keywords: *Eco-label, Tourism, Consumer behavior, Environmental, Certification.*

JEL classification: *L83, Q57, Z33*

Grant affiliation: *IGA_FF_2017_011 Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

Consumption is one of the key drivers of market economies. To consume is natural for human beings, because consuming goods and services allows them to live a life on a certain level. Therefore, for many years, consumption was a logical consequence of basic rational needs of individuals, leading gradually to the state of affairs, where consumption started to substitute satisfaction of other needs as well. It became a medium of entertainment or a tool, the purpose of which is to represent social status. Hence, the consumer behavior itself has been deformed so significantly, that consumer does not evaluate the basic characteristics of a product but characteristics like novelty, trendiness etc .

Due to natural effort to balance extremes, there have been some corrections demonstrated by changes in consumer behavior. Namely, consumers started to appreciate environmentally friendly products. This new requirement led to demand for “green” or environmentally responsible product in the whole market, tourism included.

2. Eco-labeling

Nowadays, consumers suffer from lack of orientation on the market of environmentally friendly products. On daily basis an average consumer is confronted with many different labels which aim to represent relationship a product has to the environment. There are labels, the validity of which is guaranteed by the law and there are others, for which only producers hold responsibility. According to latest surveys, consumers lack proper orientation between these labels, even though these very same labels have significant effect on consumer behavior. (WBCSD, 2008, str. 18).

The labels can be understood as a kind of declaration, that the product bearing them, meets some criteria of responsibility towards the environment or that it contains some environmental components (De Boer, 2003). Originally, the eco-labels were a tool for providers of touristic services when they were adopting ecologically sustainable working procedures (Font, 2002). Even at the time of their introduction, the marketing potential of eco-labels was taken into consideration. In the scope of marketing communication, the eco-labels are perceived as communication media, the aim of which is to influence consumer behavior so that consumers would take ecological problems into consideration (Gossling and Buckley, 2014).

With respect to communication, labels can have various roles. Service providers have the possibility to let consumers know, that they provide environmentally friendly services with minimal impact on the environment (Buckley, 2002). The eco-labels can help differentiate a product from the one made by competition, in the same way regular labels can. A research conducted ten years ago proved that marketing specialists use eco-labels as a cost-cutting tool. In their opinion having the eco-label often provides the product with the decisive competitive advantage (Ayuso, 2007). There are also other reasons for tourism services providers to obtain eco-labels. The entrepreneurs may have personal interest in protection of the environment (Bohdanowicz, 2006) or may want to improve public relations of their organization (Rowe and Higham, 2007).

2.1. Negative aspects of eco-labels

There are some negative consequences of adopting an eco-label, which must be mentioned. Some studies call attention to costs related to eco-labels (West, 1995). The high financial requirements limit most small businesses in tourism with respect to obtaining an eco-label (Sasidharan et al., 2002). This fact could serve as an explanation as to why are eco-labels and environmentally responsible behavior more typical for larger businesses on the tourism market. The costs related to obtaining an eco-label are, however, important to any business unit. Notwithstanding specific occasions, where an eco-label can really reduce operating costs, the question, whether the costs related to obtaining an eco-label do or do not pay off, is ever present between managers (Ayuso, 2007; Rowe and Higham, 2007).

3. Methods

This paper employs the method of review of empirical studies, which deals with the issue of eco-labels in tourism. The evaluated studies were published between 2000 and 2016 in a specialized journal which covers the researched areas of tourism. The journal was chosen based on criteria as follows: presence in databases Web of Science and Scopus, the journal makes evaluations and categorizations based on Academic Journal Guide by Association of Business Schools (ABS) and its journal impact factor (IF) is to be above 1.

Based on the aforementioned criteria, a journal called International Journal of Tourism Research was chosen. Relevant articles were searched for in its database with use of key words as follows: “ecolabel”, “ecolabels”, “eco-label”, “eco-labels”, “environmental label”, “ecocertification”, “ecocertifications”, “eco-certification” and “eco-certifications”. The key words were chosen based on the topic and at the same time, the choice was verified according to methods used in an article Does ecocertification sell tourism services? (Karlsson and Dolnicar, 2016).

According to aforementioned methods, categories of examined articles content were determined. The results are in the table below. Examined and entered categories were as follows: Title of an article or study, what was measured or evaluated, key results and used methods.

4. Results

Twelve articles in total were examined, using the aforementioned method. Eleven were chosen based on compliance with aforementioned criteria.

TAB. 1: Result of empirical studies examination

No	Title of study / article	What is measured / evaluated	Key results	Used methods
1	Mensah, I. (2014)	Environmental management practices of different categories of hotels in Accra, Ghana.	Significant differences in the extent of environmental management of the hotels suggesting that the better the quality of a hotel, the better the environmental management performance.	Survey
2	Sampaio, A. R., Thomas, R., & Font, X. (2012)	This paper examines the reasons for different levels of environmental engagement among small firms in tourism.	Varying levels of environmental engagement may be explained by differences in world views, self-efficacy beliefs, context beliefs and goal orientation	Survey
3	Font, X., & Tribe, J. (2001)	Paper reviews and assesses environmental awards in tourism and recreation using comparative analysis. Sixteen awards relating to manufacturing, forestry, tourist attractions and tourism companies are appraised under the classifications of focus, criteria, certification system and results.	It is concluded that the time is ripe to rationalise awards and labels in the tourism industry and that an environmental management systems approach provides a flexible template to fulfill such a need and drive the agenda of environmental improvements in the industry.	Comparative analysis
4	Carr, L. M., & Liu, D. Y. (2016)	Measure stakeholder perspectives on the scope and direction of tourism industry development on Providenciales, Turks and Caicos Islands. These perspectives can be used to flag stakeholder and resource use conflicts, which if left unidentified or ignored, pose long-term threats to the island's tourism industry, community and natural environment.	Results show that Q-methodology is a robust tool for informing the policy-making process and quantifying stakeholder views in a tourism-dependent economy.	Q-methodology
5	Sánchez-Medina, P. S., Díaz-Pichardo, R., & Cruz-Bautista,	Research aims to analyze the relationship between hoteliers' perceptions of stakeholders' interests and the implementation of environmental	Empirical evidence, obtained from hotel owners and/or managers, reveals a direct and positive relationship between the hoteliers' perceptions of stakeholders'	Survey

	M. (2015)	management practices in Oaxaca, Mexico, incorporating the effect of three hotel characteristics: size, age and economic capacity.	interests and the implementation of environmental management practices, with hotel age and size having a moderating effect.	
			Economic capacity, as an independent variable, is also an important factor in the implementation of environmental management practices.	
6	López-Gamero, M. D., Molina-Azorín, J. F., & Claver-Cortés, E. (2011)	The examination of the possible direct link between environmental protection and firm. This paper does considering the antecedents of hotel managers' environmental attitudes to check whether perceptions of the external and internal factors are behind the adoption of a proactive environmental management. The study also tests whether or not the resource-based view of the hotel mediates the positive relationships of proactive environmental management and improved environmental performance with competitive advantage and financial performance.	Managers' commitment to contribute to sustainable development holds the key to long-term business success and could become a source of competitive advantage. Environmental legislation, stakeholders, as well as the amount and type of resources and capabilities available to the organization may influence the managerial perception of the natural environment.	Survey
7	Jithendran, K. J., & Baum, T. (2000)	Human resources development and sustainability within the case of Indian tourism.	This paper suggests a comprehensive and strategic approach to Human Resource Development (HRC), catering to the training and education needs of Indian tourism at various levels for the major target groups. The paper also identifies the pressing issues confronting HRD in Indian tourism and potential strategies to address them within the context of sustainability.	Data analysis
8	Hashimoto, A. (1999)	In this paper, the current national environmental policies of Britain, Germany, China, Taiwan and Japan are summarized and differences in the irrespective emphases are highlighted along with the resulting implication for tourism.	Environmental concern is evidently increasing at a global level. In the West, insightful scholars and other experts have been issuing warnings about the exhaustion of natural resources and the degradation of the living environment for centuries.	Comparative analysis
			When the environmental policies of the five countries are compared, the diversity of the categorization of laws and regulations is quite remarkable.	
9	Doran, R., & Larsen, S. (2016)	Study investigating the relative importance of social and personal norms in explaining intentions to choose eco-friendly travel options.	Personal norms showed the strongest association with behavioral intentions and further mediated the link between injunctive social norms and behavioral intentions. Overall findings indicate that social and personal norms seem both related to travel choices but that a particular emphasis should be given to the role of personal norms.	Survey

10	Knowles, T., Macmillan, S., Palmer, J., Grabowski, P., & Hashimoto, A. (1999)	The development of environmental initiatives in tourism within the London hotel sector.	Very high percentage of respondents (94%) in the reported survey was found to be taking action on environmental matters shows that "green" values are, on the surface, being integrated with business values. The data suggest that whereas London hotel managers may increasingly recognise the need to protect the environment, it seems likely that most continue to take a pragmatic approach, only taking actions that are most likely to advance the company's objectives.	Survey
11	Buckley, R. (2004)	Australian political frameworks for partnership in ecotourism.	There are several national-scale initiatives in Australia. Conservation interests hope to use tourism as a tool in conservation, whereas tourism interests want to use conservation as a tool in tourism development. Both promote partnerships, but with different political aims.	Descriptive analysis

5. Conclusion

The aim of this paper was to conduct a literature review of empirical studies which have investigated the issue of eco certifications in the context of tourism and identify the main key findings. The obtained results can be considered as a valuable input for further research on eco-certification in the field of the tourism industry.

Literature:

Ayuso, S. (2007). Comparing voluntary policy instruments for sustainable tourism: The experience of the Spanish hotel sector. *Journal of Sustainable Tourism*, 15(2), 144-159.

Bohdanowicz, P. (2006). Environmental awareness and initiatives in the Swedish and Polish hotel industries survey results. *International Journal of Hospitality Management*, 25(4), 662-682.

Buckley, R.C. (2002). Tourism ecolabels. *Annals of Tourism Research*, 29(1), 183-208.

Buckley, R. (2004). Partnerships in ecotourism: Australian political frameworks. *International Journal of Tourism Research*, 6(2), 75-83.

Carr, L. M., & Liu, D. Y. (2016). Measuring Stakeholder Perspectives on Environmental and Community Stability in a Tourism-Dependent Economy. *International Journal of Tourism Research*.

De Boer, J. (2003). Sustainability labelling schemes: the logic of their claims and their functions for stakeholders. *Business Strategy and the Environment*, 12(4), 254-264.

- Doran, R., & Larsen, S. (2016). The Relative Importance of Social and Personal Norms in Explaining Intentions to Choose Eco-Friendly Travel Options. *International Journal of Tourism Research*, 18(2), 159-166.
- Dytrt, Z. et al. (2008). *Manažerská etika IV. díl: Inspirace pro 21. století*. Hradec Králové: Wamak, 2008.
- Font, X. (2002). Environmental certification in tourism and hospitality: Progress, process and prospects. *Tourism Management*, 23, 197-205.
- Font, X., & Tribe, J. (2001). Promoting green tourism: The future of environmental awards. *The International Journal of Tourism Research*, 3(1), 9.
- Gossling, S., & Buckley, R. (2014). Carbon labels in tourism: Persuasive communication? *Journal of Cleaner Production*.
- Hashimoto, A. (1999). Comparative evolutionary trends in environmental policy: Reflections on tourism development. *The International Journal of Tourism Research*, 1(3), 195.
- Jithendran, K. J., & Baum, T. (2000). Human resources development and sustainability--the case of Indian tourism. *The International Journal of Tourism Research*, 2(6), 403.
- Karlsson, L., & Dolnicar, S. (2016). Does eco certification sell tourism services? Evidence from a quasi-experimental observation study in Iceland. *Journal of Sustainable Tourism*, 24(5), 694-714.
- Knowles, T., Macmillan, S., Palmer, J., Grabowski, P., & Hashimoto, A. (1999). The development of environmental initiatives in tourism: responses from the London hotel sector. *The International Journal of Tourism Research*, 1(4), 255.
- López-Gamero, M. D., Molina-Azorín, J. F., & Claver-Cortes, E. (2011). The relationship between managers' environmental perceptions, environmental management and firm performance in Spanish hotels: a whole framework. *International Journal of Tourism Research*, 13(2), 141-163.
- Mensah, I. (2014). Different shades of green: environmental management in hotels in Accra. *International Journal of Tourism Research*, 16(5), 450-461.
- Rowe, T., & Higham, J. (2007). Ecotourism certification in New Zealand: Operator and industry perspectives. In R. Black, & A. Crabtree (Eds.), *Quality assurance and certification in ecotourism* (pp. 395-414). Wallingford: CABI.
- Sampaio, A. R., Thomas, R., & Font, X. (2012). Why are some engaged and not others? Explaining environmental engagement among small firms in tourism. *International Journal of Tourism Research*, 14(3), 235-249.
- Sasidharan, V., Sirakaya, E., & Kerstetter, D. (2002). Developing countries and tourism ecolabels. *Tourism Management*, 23, 161-174.
- Sánchez-Medina, P. S., Díaz-Pichardo, R., & Cruz-Bautista, M. (2015). Stakeholder Influence on the Implementation of Environmental Management Practices in the Hotel Industry. *International Journal of Tourism Research*.

WBCSD (2008). *Sustainable Consumption Facts and Trends: From a business perspective*. Geneva: World Business Council for Sustainable Development.

West, K. (1995). Ecolabels: The industrialization of environmental standards. *The Ecologist*, 25, 1620.

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RURAL TOURISM: LABELS AND CERTIFICATION OF CZECH ORGANIZATIONS

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Abstract: *Labels are a popular tool of competitive differentiation. Labels can be found in many areas - environmental, local, national, international, quality, etc. They are optional and voluntary. At the same time, they are paid and verification often takes place only at the beginning of the process. This paper analysis label possibilities for Czech organizations with focus on rural tourism. All of Czech rural labels are described and analysed. At the end, the individual observations are synthesized.*

Keywords: *Labels, certification, tourism, rural.*

JEL classification: *Z32, M31*

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1. Introduction

Quality labels, eco-labels and other certification programs in tourism serve to distinguish products and services from those offered by competition on the market. They indicate better product quality compared to others on the market or more environmentally friendly production or operation. They could also indicate local origin of the product or traditional brand. Usually, the certification labels indicate more of these characteristics at the same time. There are regional labels, linked to a location (e.g. Jeseníky regionální produkt, Regional product Jeseníky), eco-labels (e.g. Ekologicky šetrná služba, Environmentally friendly service), quality labels (e.g. Český systém kvality služeb, Czech service quality system), thematic (Cyklisté vítáni, Cyclists welcome), private (Stezky dědictví, Heritage trails), and national or international.

Certification (Zelenka a Pásková, 2012) is a process which proves, whether a product meets specific criteria required to obtain a label. Eco-labels are programs and regulations, which were developed to communicate information about sustainability attributes to interest groups (Cashore, 2002). They are intended to reduce uncertainty the interest groups might feel about validity of the statements companies make about their green products (Pedersen & Neergaard, 2006).

Labels might depend on outside verification, which ensures compliance to specific standards (Darnall, Ji & Potoski, 2014). However, some depend only on affirmation of characteristics by the producer or provider and are not subject to further control.

Quality labels serve to provide a possibility to objectively judge quality by comparing the desired and actual conditions. They formulate processes which should lead to attain the desired condition. The customers are then presented with clear facts and can adjust their expectations according to them (for instance when a hotel possesses a certificate of quality regarding some service, the customers would expect this service to be provided in high quality. On the other hand they would not expect high quality, if the hotel does not possess such certificate).

There are many reasons for companies to put labels on their products. Labels can create high trust levels and make the company more prestigious. The labels can be cancelled any time if the company needs to do so, because they are voluntary. Labels also serve as a marketing tool. Label providers often offer possibility of marketing communication in the form of presenting the company in catalogues or different promotion material.

There are also some negative aspects connected with labels. The label cannot ensure higher revenues by itself; its possessor must work with it. There are many different certificates on the market, even with foreign origin, and consumers are easily disoriented. The labels are not free and fees must be paid repeatedly, although they are often differentiated based on the size of company purchasing the label. Many labels are not subject to physical control when they are purchased or during the time they are held, therefore the declared standards are not ensured for the whole time a company holds a label.

In the Czech Republic, there are several labels connected with rural tourism. Only one of them does, however, focus exclusively on the rural area – Accommodation in Privacy. Other labels are not dedicated solely to rural area; however they can be used in rural tourism.

2. Accommodation in Privacy

The label “Accommodation in Privacy” is provided by Union of entrepreneurs in Czech rural tourism under authorization of Ministry of Regional Development. New standards have been valid since 2017. A certificate and classification emblem is provided for three years since it is issued. Every year a new emblem labeled with the current year is delivered. The classification classes of “Accommodation in Privacy” are as follows:

* Tourist ** Economy *** Standard **** First Class

For the purposes of the classification, the “Accommodation in Privacy” is defined as a temporary touristic accommodation in 1 to 4 housing unit(s), such as rooms, apartments or studios; or in detached house, block of flats; or as a temporary touristic accommodation in a house built for family recreation. Subjects to classification with regard to “Accommodation in Privacy” are those categories: Guest rooms, apartments, recreational accommodation and small guest houses.

And online or written application, self-evaluation table and sworn declaration must be submitted to apply for the certificate. Subsequently a commissioner is assigned to the application and evaluates the accommodation on the spot with regard to “Accommodation in Privacy” standards. A classification committee then decides if the label is to be granted. The label must be visible at the access to the accommodation unit.

3. Environmentally Friendly Service

Environmentally Friendly Product or Service is nation-wide system of eco-labels, which are granted to products or services which adhere to requirements specified by CENIA, an organization under Ministry of Regional Development. This eco-label does not focus solely on tourism. The national program of eco-labels for environmentally friendly products and services follows the technical regulation norm ČSN ISO14024 Environmental labels and declarations – Environmental labels of Type I.

With regard to tourism, this label can be obtained in area 42 – Camping services and 43 – Touristic accommodation services. Evaluated are: “operation” of product (emissions, energy consumption, volatile substances emission), its life cycle (production materials, its disposal method, energy and material cost of production) and its package. The label demonstrates that the product is more environmentally friendly than others in its category. Most important are energy and water consumption savings, reduction of waste production, using renewable sources and substances that are less dangerous to environment and communication and further education with regard to environment.

The company must make the first step in order to start the process of obtaining an eco-label and must submit all data which prove meeting all criteria and conditions needed for the eco-label to be granted. The same applies when the certification needs to be renewed. The organization, which grants certificates, carries no physical inspections on premises.

4. Heritage Trails

The label “Heritage Trails” aims to help all visitors to experience the best from the Czech regional cuisine and its heritage. The label is granted to those businesses, which offer regional specialties, be it a peculiar inn or an elegant restaurant offering “haute cuisine”. The food must be prepared from ingredients which can be produced in the Czech Republic. Foreign ingredients cannot be used with an exception of indispensable ones, like seasonings and spices. Artificial ingredients like flavor enhancers, colorings and scents are also excluded. The food cannot be prepared from industrial ready-to-cook meals.

5. Czech Specials

The label “Czech Specials” is presented at gastronomical events supported by Czech Tourism agency or at events co-organized by its partners – Association of hotels and restaurants and Association of

chefs and confectioners in the Czech Republic. A business, which is granted this label, commits to have food belonging to Czech cuisine on the menu. It furthermore commits to offer tasting of traditional Czech specialty of choice to controllers. This tasting, along with one beverage are provided to the controller, while the business operator bears the cost. The menu must be in least two languages with quoted prices and the waiting staff must be able to provide information about any meal on the menu on demand.

6. Cyclists Welcome

The label “Cyclists Welcome” is nation-wide certification system which serves to evaluate the offerings and equipment of catering and accommodation services, camps and touristic destinations from the point of view of cyclist tourists. The aim is to enable the broad public to access sustainable way of relaxation and tourism with help of verified network of services, which offer basic setting and background to cyclists. The label is administered by Czech Environmental Partnership Foundation.

Some of criteria for accommodation services like hotels, guest houses, private apartments and cottages are: possibility to rent room for one night only, possibility to order an energetically rich breakfast with minimum of fats, possibility to wash and dry clothes and equipment, free lockable room or stalls to store bikes, providing cyclists with basic tools to repair bikes, possibility and basic equipments to clean bikes etc.

7. Czech Republic on Road

The label “Czech Republic on Road” is nation-wide and focuses on cyclo-tourism and other sports (in-line skates, hiking, paddling sports). The aim is to provide clear and verified information about options regarding cycling and cyclo-tourism in all of Czech regions to both Czech and foreign cyclists. Apart from building a united label, the focus is on publishing maps and guides in collaboration with various partners, online presentations and offers of personal and bike transport and other services (accommodation, restaurant services, guiding services and so on). This project was founded in 2011 under patronage of Association of cities for cyclists. Agency CzechTourism is also actively involved in the project.

8. Regional Labels

Regional labels are connected with products and services which are special because of their ties to some region, its character, traditions, culture or history and which have notable potential in the area of tourism due to their uniqueness. The customer can be certain, that a product bearing this label meets the following criteria: it was produced in the region it is of high quality, environmentally friendly and is unique due to its ties to the region (e.g.: tradition, local materials, craftsmanship, regional motive or other special qualities).

Most of regional labels in the Czech Republic are administered by Association of Regional Labels, which has been working with 26 of Czech regions since 2004. In some regions, this label is used to support chosen accommodating or restaurant services or various tourist attractions.

There are some regional labels which are not administered by Association of Regional Labels. These are independent quality labels administered by private non-profit organizations: Tradition of White Carpathians, Bohemian Paradise Regional Product, Traditional Product of Moravian Slovakia, Regional Product of Jizera Mountains, True Moravian Wallachia, Regional Product of Lusatian Mountains and Mácha's Paradise.

9. Czech Service Quality System

Ministry of Regional Development is responsible for Czech Service Quality System on national level. The ministry has the role of guarantor and implementer of the whole system. The requirements of implementation standards are divided into two groups, based on requirements: Grade I and Grade II. Grade I deals with topic of quality of services on basic level and leads organizations to implement the principle of quality into their everyday operation. In practice, this means that the "philosophy of quality" is shared not only by management but by all employees in the organization. Grade II means deeper implementation of established tools of service quality. The evaluation of quality of services itself is provided with means of external evaluation, questionnaires and covert controls. This system enables an objective attitude, exclusively adapted to each organization.

TAB. 1: Summary table for chosen characteristics of labels connected to rural tourism in the Czech Republic

Label		Focus on	Physical control	Validity (years)	Number of Bearers	Owner (administered by)
Accommodation in Privacy		Accommodation, Quality	Before issue	3	New	Ministry of Regional Development
Cyclists Welcome		Accommodation, Sustainability	After issue	Not Specified	1212	Czech Environmental Partnership Foundation
Czech Quality Grade I	Service System	All organizations, Quality	None	3	3535 (In total for both grades)	Ministry of Regional Development

Czech Quality Grade II	Service System	All organizations, Quality	Before issue	3	3535 (In total for both grades)	Ministry of Regional Development
Environmentally Friendly Service		Accommodation, Ecology	Before issue	3	3	CENIA, Ministry of Environment
Regional Labels		Products and services, Quality	Before issue	Not specified	1119	Association of Regional Labels
Heritage Trails		Restaurant services, Quality			60	European Centre for Ecology and Tourism (ECEAT)
Czech Republic on Road		Activities	None	Unlimited	over 100	CzechTourism

10. Conclusion

It is not easy to become oriented in the overall offer of labels on Czech tourism market. Some labels appear on the market for a short time and vanish soon after (e.g. ECEAT Quality Label terminated its existence in 2011). Other labels are either granted without presence of strict rules or there is no possibility to verify whether controls are ongoing during the time the label is held or not, which puts doubt on credibility of those labels. The customer's situation is made even more difficult by the fact that apart from Czech labels, it is also possible to find international certification labels on the tourism market.

Literature:

Asociace regionálních značek. Retrieved June 15, 2017, from <http://www.regionalni-znacky.cz/>.

Cashore, B. (2002). *Legitimacy and the privatization of environmental governance: how non-state marketdriver (NSMD) governance systems gain rule-making authority*. *Governance*, 15, 503-529.

Cyklisté vítáni. Retrieved June 15, 2017, from <http://www.cyklistevitani.cz/uvod.aspx>.

Český systém kvality služeb. Retrieved June 15, 2017, from <http://www.csks.cz/>.

Darnall, N., Ji, H., & Potoski, M. (2014). *The institutional design of ecolabel programs: A comparative analysis*. Paper presented at the Association for Public Policy Analysis Research Conference, Albuquerque, NM.

Pedersen, E. R., & Neergaard, P. (2006). *Caveat emptor—let the buyer beware! Environmental labelling and the limitations of ‘green’ consumerism*. *Business Strategy and the Environment*, 15, 15-29.

Stezky dědictví. Retrieved June 15, 2017, from <http://www.stezky-dedictvi.cz/>.

Svaz venkovské turistiky. *Ubytování v soukromí*. Retrieved June 15, 2017, from <http://www.svazvt.cz/doc/62/>.

Zelenka, J. & Pásková, M. (2012). *Výkladový slovník cestovního ruchu*. Kompletně přeprac. a dopl. 2. vyd. 768 s. ISBN 978-80-7201-880-2.

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TOOLS FOR CONTROLLING THE MANUFACTURING PROCESS IN INTERNATIONAL COMPANIES

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Abstract: *In the 21st century, the priority objective of manufacturing companies is to use innovative quality and logistics tools that enable significant production processes to be significantly optimized to reduce production costs. The purpose of this paper is to evaluate the functioning of innovative systems in international companies around the world, as a result of the ability to continually control the manufacturing cycle and to respond faster to problems or errors.*

Keywords: *Lean management, international companies, globalization.*

JEL classification: F 23

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1. Introduction

The purpose of this article is to show the essence of Lean Management, management practices applied by companies, and the possibility for this method to be used to further improve management in an international organisation. This article uses a review of existing literature, studies and reports relating to management.

2. Lean management tools and techniques

The Lean Management theory comprises many management tools and techniques. There is no clear term, or division into tools and techniques, found in the literature. One may encounter such terms as Lean Management tool, technique, system, methodology or philosophy. Undoubtedly it can be said that all those tools, methods and techniques are essential elements of Lean management, and that they build this whole system. In the literature, one may also find a division of Japanese concepts,

methods and techniques into three levels: level 1 – concepts (philosophy, orientation, approach), level 2 – method (general method), level 3 – technique (specific method, technique, tool). Level 1 includes Kaizen and Lean Management. Level 2 includes Just-in-Time and Hoshin Kanri, while level 3 includes Kaizen, Kanban, Andon, Poka-yoke, Quality Circles, 5S. Krasiński (2014) suggests that Level 1 encompasses Kaizen and Lean Management which influence management in an organisation in the most general and comprehensive way. It is worth noting that Kaizen is mentioned twice: first on level 1 where we think about the general philosophy of continuous improvement that is present in the corporate culture of all companies which apply Japanese management concepts, and, second, on level 3 because Kaizen is also a tool through which employees may report and implement their own ideas for minor improvements. Lean Management, in turn, is an approach which provides that all processes in an organisation should be 'lean' in order to eliminate all types of waste that may result from general waste (*muda*), overburden (*muri*) or unevenness (*mura*). Level 2 encompasses general methods which include, among other things, Just-in-Time and Hoshin Kanri. These are also comprehensive methods that, on the one hand, affect the strategy of the entire company and, on the other hand, also extend to operational levels. It should be noted, however, that the concepts included in level 1 form a common basis for all the Japanese methods and techniques. The fact that Lean Management is a philosophy that is implemented in an organisation, among other things, by applying the Just-in-Time method which, in turn, encompasses a number of techniques and tools, such as, e.g., Kanban, Andon or Poka-yoke, may serve as an example of such interrelation. As Krasiński proved (2014) many methods and techniques complement each other, and one tool cannot work without the other and vice versa. To fully understand what the various tools are all about, the value, as well as the pull and push systems need to be defined. 'Value' is the right product value from the customer's point of view, reflected in the product's price and market demand. Research (Marchwiński, Shook, Schroeder, 2010) suggests that, the 'pull system' refers to the Lean concept and means that we produce and 'pull' only as much as we need according to the actual orders from customers. The 'push system' is the opposite of the pull system and it means production based on forecasted orders, i.e., we manufacture first and then 'push' the product. This system applies to large production batches. Among the many Lean methods and tools, one may distinguish those that are the most important and popular ones, as applied by organisations:

1. JIT (Just-in-Time): a system which means making only what is needed, when it is needed, and in the amount needed. Heijunka, i.e., production leveling, is one of the elements of the Just-in-Time system. The purpose of JIT is to completely eliminate all waste, ensure the best quality, the lowest possible cost, the most effective use of human, financial, material and information resources, and the shortest possible times both in production and deliveries.

2. Kaizen: a practice of continuous improvement relating to everyone: top executives, managers and workers. In Japan, numerous systems have been developed to enhance Kaizen awareness. Kaizen may relate to a system or flow, or to a process. The flow Kaizen is designed for management, while the process Kaizen is for work teams and their leaders. The flow Kaizen focuses on the flow of materials and information, with the process Kaizen focusing on people and individual processes. The main Kaizen concepts include: Imai (2006) suggests that Kaizen and management; process vs. result; PDCA/SDCA; quality first; use of data; the next process is the customer. The first concept has two components: maintenance and improvement of standards. Maintenance refers to maintaining current technological, managerial and operating standards so that everyone can follow the relevant standard operating procedures. Improvement, in turn, refers to activities directed towards improving

current standards. Imai (2006) suggests the second concept provides for the improvement of processes in order to improve results. The PDCA/SDCA concept refers to the improvement of processes through PDCA (Plan-Do-Check-Act) and SDCA (Standardise-Do-Check-Act) cycles. The quality concept means that a company should give top priority to quality. The use of data means that a company must gather and analyse data to effectively implement Kaizen.

3. Kanban: an important element of lean production. The Kanban system makes it possible to define the volume of production in each of the processes. It is often called the nervous system of lean manufacturing because it manages production in the same way the brain and nerves control human body. The key benefit of the Kanban system is the elimination of overproduction. Its objective is to produce only as many goods as have been ordered, in the time and quantity specified in the order. Kanban is a signal that gives authorisation and instruction for the production or withdrawal of items/goods. Kanban may take the form of, e.g., cards, triangular metal plates or electronic signals. Kanban cards contain information such as part name and number, external supplier or internal supplying process, pack quantity, storage address, barcode. In the Kanban system, each of the processes makes as many products as are needed to replenish those that were taken earlier by the subsequent process. Workers in the consuming process take from the supplying process only as many parts as they need and only when they need them. This system of 'pulling' starts with the customer's order. It is called the pull system. There are two types of Kanban: transportation Kanban and production Kanban. Transportation Kanban gives a signal when parts should be supplied to the production line. This Kanban can also be split into supplier Kanban and internal Kanban for communication among internal processes. Production Kanban is used for providing operating instructions within processes. This Kanban is split into a production-ordering Kanban and signal Kanban which indicates when changeover is needed. As Smalley proved (2011) Kanban has four functions to fulfil: it prevents overproduction (and over-movement) of materials between production processes; delivers specific production orders to processes based on replenishment principles; serves as a visual control tool for production supervisors that enables them to determine whether the production is ahead of or behind schedule; is a tool of continuous improvement.

4. Hoshin Kanri: it refers to the strategy of a company and to quality management. It is a very comprehensive and consistent method that encompasses all levels of the organisation and focuses on quality and co-operation among people from all management levels as its key priority.

5. Jidoka: a method whose objective is to detect abnormalities and stop the production line whenever a defect occurs. Jidoka highlights the causes of problems because work stops immediately when a problem first occurs. This leads to improvements in the processes that build in quality by eliminating the root causes of defects. Andon is one of the Jidoka tools.

6. Standardised Work: a method that eliminates and prevents defects and waste. Standardisation elements include, among other things: visual and audio signals; red labels that are used to mark items which are not needed for manufacturing activities; information boards; outlines and lines; Andon and Kanban.

7. Visual Management: it is used to show in a clear manner the various parts, tools, activities, as well as production indicators. Its purpose is to facilitate work, notice product defects and detect any irregularities. Visual Management tools include, among other things, Andon and Jidoka.

8. SMED: a method for quick process and equipment changeovers. Changeovers can be split into internal and external ones. Internal changeovers include all those activities that have to be performed while the machine or equipment is stopped. External changeovers, in turn, include all those activities that can be performed before the equipment is stopped or after the process is re-started to make a new type of product.

9. TPM (Total Productive Maintenance): a system for in-house machine and equipment maintenance by operators and maintenance personnel. OEE (Overall Equipment Effectiveness) is one of the TPM tools. OEE is a measurement used in TPM to determine how effectively machines are used.

10. Value Stream Mapping: a method for presenting all stages of material and information flow, starting from an order through to delivery. This method is used for analysing the current state and any problems encountered by the product from the order, through the manufacturing process, to the delivery.

11. Heijunka: a method for production leveling by product and by volume over a fixed period of time. Heijunka box is one of the leveling tools. The box has slots wherein kanban cards are placed. Columns in the box represent the pitch, i.e. the rhythm of the batch, and the rows represent products. The pitch is takt time multiplied by packout quantity. Cards are loaded into the box according to the pitch. Leveling by product means that customer orders (kanban cards) are placed in the box in the agreed sequence by product type. The sequence can be chosen, for instance, in such a way so as to minimise changeover times or split large production batches and distribute them evenly over the entire day.

12. PDCA: a cycle that refers to process improvement. It is made up of the following elements: Plan, Do, Check, Act.

13. Six Sigma: a method for improving quality and customer satisfaction whose objective is to analyse processes and detect defects even before they occur.

14. 5S: one of the tools of standardised work. It is made up of the following elements: sort, set in order, shine, standardise, sustain.

15. TQM/TQC (Total Quality Management/Total Quality Control): it refers to quality management and responsibility of all employees for product quality and its continuous improvement. The PDCA cycle is one of TQC elements.

16. 5 Why: a tool that consists in asking 'why?' whenever a problem occurs in order to detect its true root cause.

17. Poka-yoke: a method for avoiding mistakes. It may, e.g., mean designing machines or products in such a way so as to prevent their installation in an incorrect manner.

18. Andon: a tool used to detect any abnormalities within a process. It is a system of multi-coloured signal lights that may show, among other things, the status of the machine, operator delays, or a quality problem.

The aforementioned tools and methods originate from the Toyota Production System, thus being the key elements of Lean Management. Under the Lean theory, management is based, among other

things, on the pull system of production. For this system to operate effectively, a number of tools and methods are needed that include, inter alia, Just-in-Time, Kanban, Kaizen, Heijunka, Jidoka or Value Stream Mapping. In the literature, there is no clear-cut terminology used for tools, techniques or methods as they all complement one another. Those presented above are only the most important Lean Management tools that are used by various companies world-wide. In reality, the Toyota Production System relies on an even greater number of Lean Management methods. According to Toyota, Lean Management is not just about tools and techniques of lean manufacturing, but also about the entire organisational culture.

3. Andon System

Visual management is an important part of the lean management concept. It is based on internal communication of the company and monitoring of its processes. Visual delivery of information between management and staff, despite ongoing automation, plays a very important role. Effective visual management can not only improve the relationship between co-workers and the management, but also enhance the internal motivation to act and thus increase productivity. In a properly functioning enterprise, the most important link, one of the so-called. Input resources are human, so it is important to take care of his motivation and influence the desire for continuous self-improvement, which translates into improving the quality of business and the quantity of goods produced. We have, therefore, fundamentally translated the visual impact on the company's staff on its productivity. The more effective the impact will be on visualization on employees, the better the performance and quality of work.

Visualization creates a standard work environment. There are endless possibilities in the use of visual management techniques. These techniques include the following tools: photos, graphics, graphs, kanban cards, colored lines, colored work clothes, labeling methods.

Andon is a visual way of communicating using light signals. It gives you the ability to stop the production process when a defect occurs. The main tool of this system is a board that uses light signals, tones, and music to indicate where the problem occurred in the production process. This system indicates the location where the alert was generated, and can also describe the problematic situation that occurred in the production process. The modern Andon system alerts you of problems with text, graphics, and audio. Audio elements include pre-recorded verbal messages. " The operation of the Andon routine usually takes place on an array, which contains the numbers assigned to the operators' operating sectors or the names of the respective machines. At the time of the defect, the worker pressing a particular button causes the lamp to light up, which indicates that the workplace has reached an unusual situation and needs help resolving it. An alarm can also be generated automatically by the machine if it detects an abnormality during its operation. By creating the boards described most often use the color yellow and red. If a problem that has occurred does not endanger the flow of production the line is not stopped and the operator lights up the yellow light. However, if the problem is difficult to solve, the line stops and the operator must light the red light. As a rule, operators are encouraged to use signaling and even to stop the line completely if irregularities are detected.

The main benefits of using the entire system are:

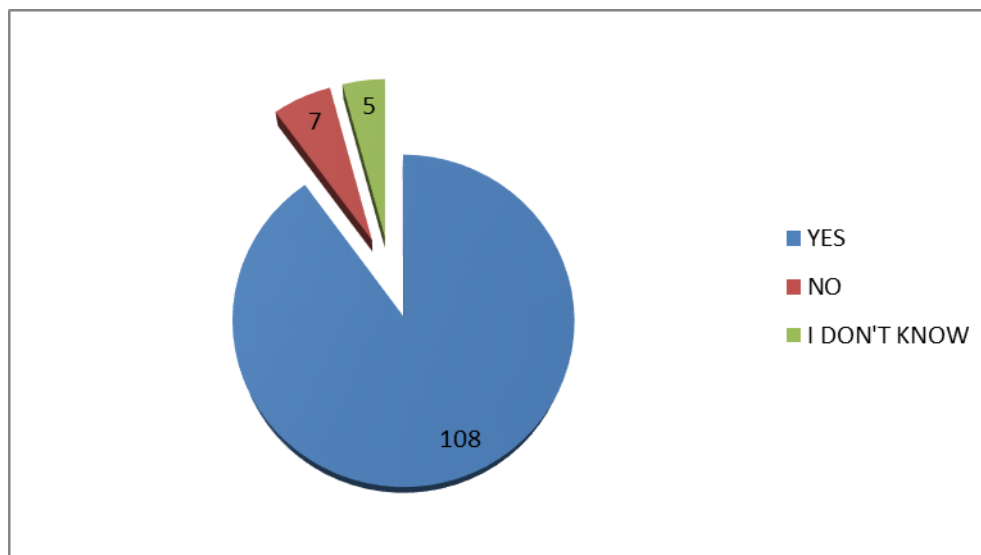
- reporting problems directly on the production line,
- calling the appropriate service to the post,
- monitoring the speed of response to reported problems,
- collecting and storing information about problems,
- increase in productivity,
- discipline the relevant services. The further structuring of subchapters is indicated below.

4. Analysis and evaluation of the effectiveness and functioning of the Andon system in the international enterprise

The researched company is engaged in production activities, namely the manufacture of car accessories. The company has been using one of its qualitative tools for years. The purpose of the enterprise survey is to assess the effectiveness of the system and the analysis of the production areas involved in its operation. The survey was conducted in the form of a survey completed by employees of the manufacturing company. The correct questionnaire consists of 19 questions, essential for the research problem, the questionnaire survey was completely anonymous. 120 validated forms were selected in the survey. Only those workers who use the Andon terminal know the procedures and use them, so most of the respondents are production operators and their direct supervisors.

Question 1: Do you think the Andon system is a tool to support production?

FIG. 1: Answer to question 1 "Do you think the Andon system is a tool to support production?"

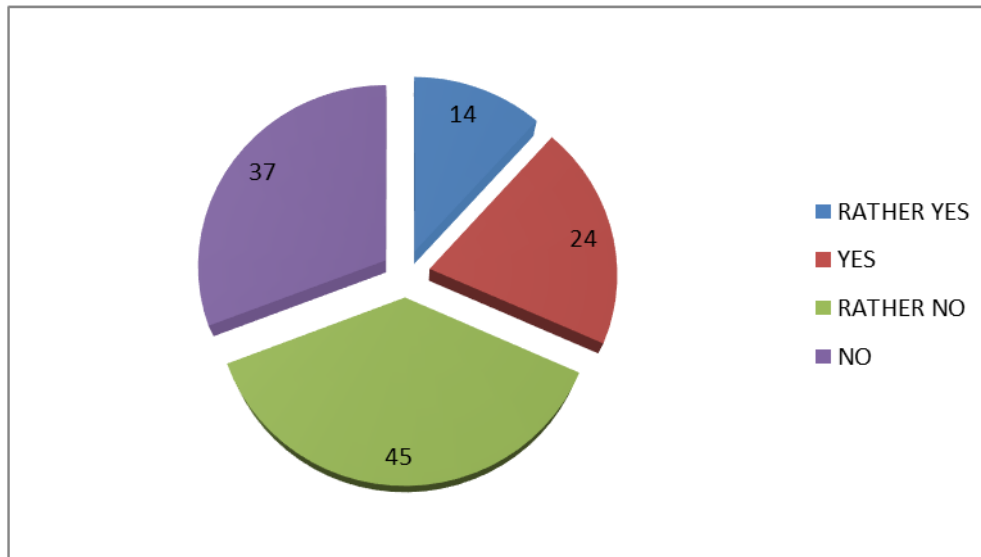


Source: Own study

Based on the answer to question 1, it can be seen that the majority of respondents consider Andon as a tool to support production. The number of people who give a positive answer is over 100, while those who think that this system is not a tool supporting production is only 7 people. Thus, it can be said that this system helps and supports the production processes.

Question 2: Is it difficult to use the operating system to service Andon?

FIG. 2: Answer to question 2 "Does using the operating system to handle Andon make it difficult?"

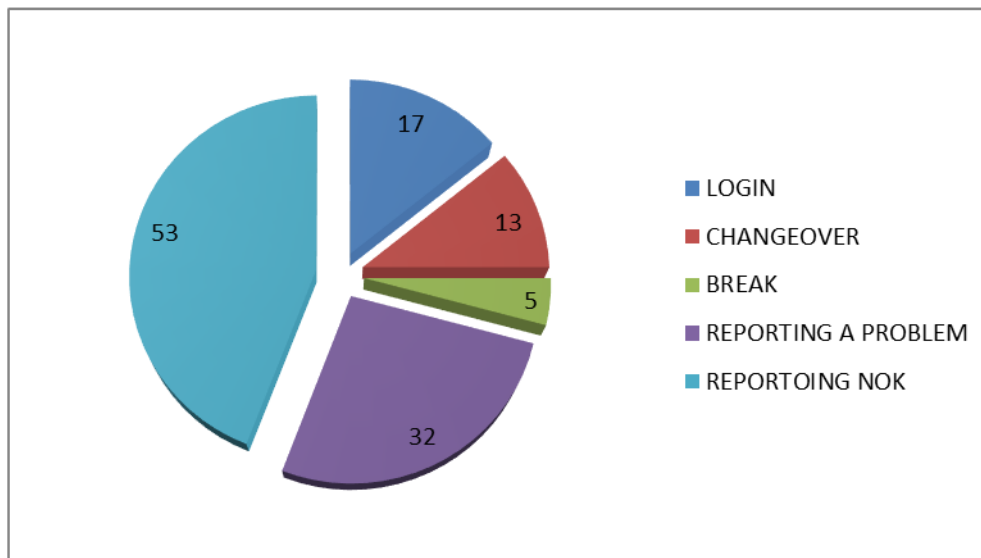


Source: Own study

Based on the statistical analysis of question no. 2 we can see that the difficulty of using the operating system is not more than half the respondents. In 45 cases they responded that using the terminal is not quite difficult, but in 24 cases, that the use rather difficult. This study shows that a system implemented too quickly or too difficult to handle the environment can be difficult to handle. The consequence of such a state of affairs may be the lack of credibility of the data entered and their profound analysis within the Reports.

Question 3: Please indicate which of the following tasks recorded in the Andon operating system is the most burdensome?

FIG. 3: Answer to question 3 "Please indicate which of the following tasks recorded at the terminal is the most cumbersome?"



Source: Own study

On the question of the most burdensome of tasks recorded in the Andon System, 53 respondents answered that it was the inclusion of faulty pieces / defects in production. In the course of a personal conversation with employees, it was reported that there was a need for multiple operations (no keyboard shortcuts or references). The second most problematic task is to report problems such as failure, regulation, waiting for a component. In a more in-depth analysis, it has been proven that this is related to the frequency of entries and a large number of categories of problems. The least burdensome activity is to record the break, this is the task associated with its frequency - once in a shift.

5. Conclusion

The literature research presented above shows that there are many definitions and concepts of management. Which of them is, thus, the best and most effective, and which will make the organisation successful? There is no clear answer to that question because a concept applied in one organisation may prove to be totally ineffective in another. What is more, numerous organisations apply their own methods of Lean Management implementation, depending on their needs, resources, capabilities, industry, etc. With such a wide range of methods, techniques and tools, an organisation must individually select a set of them, taking into account many different factors, including, among other things, the organisation's environment, sector of operation, as well as material, financial, information and human resources that it has at its disposal.

Literature:

Kraśński, M. (2014). *Kulturowe uwarunkowania wykorzystania japońskich koncepcji, metod i technik zarządzania*. Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław, p.12.

Marchwiński, Ch., Shook, J., Schroeder, A. (Eds.) (2010). *Leksykon Lean: ilustrowany słownik pojęć z zakresu Lean Management*. Foreword to the Polish edition by Tomasz Koch and Tomasz Sobczyk, The Lean Enterprise Institute Polska, Wrocław, p. 103.

Imai, M., Gemba (2006). *Kaizen: zdroworozsądkowe, niskokosztowe podejście do zarządzania*. MT Biznes, Warsaw, p. 40.

Kornicki, Sz. Kubik (Eds.), (2009). *Kanban na hali produkcyjnej*. ProdPress.com, Wrocław, p. 11.

Smalley, A. (2012). *Poziomowany system ssący: przewodnik w zakresie doskonalenia systemu produkcyjnego wg zasad Lean dla specjalistów z planowania i sterowania produkcją*. Lean Enterprise Institute, p.56.

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EDUCATION MANAGEMENT – THE ANALYSIS OF THE ECONOMIC POTENTIAL OF THE SILESIA REGION

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Abstract: *The education market in Poland is currently undergoing many changes and it will become evident whether they will bring out the expected benefits in a few years. Regardless of the changes, appropriate adjustment of the education offer to the requirements posed by the economy seems to be unchanged. The fact is that innovativeness and the associated development (in every field) brings a lot of benefits since even the failure of investment allows for education based on mistakes. It is important, therefore, to possess the basis – knowledge – relatively adjusted to the constantly changing market. In the paper, there will be presented the analysis of the Silesian region, both in terms of economy and education at universities (as the last level of education, directly related to the market). The listing is aimed at finding the directions which are the same for both economic and educational dimension of the analyzed area. The results of the analysis will serve as a guideline for the institutions managing the region and entrepreneurs in order to establish cooperation with scientific research units and commonly set the local trend of development.*

Keywords: *Economy, education, region, management.*

JEL classification: A20, P46, R1

Grant affiliation:

1. Introduction

The issue of management in education is the subject matter of many studies (Harvey, 2001; Washer, 2007; Tormo-Carbó, Oltra, Seguí-Mas & Klimkiewicz 2016; Gasparski, 2008; Skibiński, 2014; López, 2017; Curaj, Scott, Vlasceanu & Wilson, 2012; Krzyzanowska, 2004; Gajda, Cichoń & Gaudy, 2013). However, frequently, management itself is focused on the elaboration of methods / use of tools supporting the teaching process (Bottery, 1992). The problem, referring to the transfer of solutions developed in the field of management, which occur in the economic sphere, to other areas, results from regarding some laws and regulations as universal ones. Some specific solutions from the area of business management, which can be transferred and applied irrespective of the social and cultural or institutional context very often do not bring the expected results in the field of practical operations (Koźmiński, 1996). It is important, therefore, to find such factors supporting the management process

which flexibly adapt to the specificity of a particular economic activity. The school is an institution of a special nature and importance. Its specificity is defined by means of some basic values, unique for this sphere, which it refers to in its work (Bottery, 1990).

In higher education management, in addition to some common and identical problems which are encountered in the process of management and organization of lower level education, an important issue is the market and exactly the position of a graduate in it. While excluding the teaching process itself, universities are very often burdened with responsibility for creating the labor market or the market of the unemployed. In literature, one may come across the studies which characterize the instruments allowing for adjustment of the higher education offer to the needs of the labor market. They include: programme of ordered specialities; national qualifications framework for higher education; educational profile; practical vocational preparation; student internship; monitoring of graduates professional career; education on request and with the involvement of employer; public university assembly; round table of employers and university rectors; internal system of education quality assurance; ombudsman for graduates (Krawczyk, 2014 p.110).

While managing education at university level the labor market should be taken into account. It is highly dependent on the economic potential of the region in which universities operate since it is important for a university to establish relationships with its business environment while following the principles of synergy. In this way, the market is actively involved in the education process adapted to its needs. The aim of the paper is to define the economic potential of the Silesian Voivodeship and to verify whether it meets the needs of the market.

2. The potential of the Silesian region in Poland

The Silesian Voivodeship is located in the southern part of Poland. Its total area of 12 333 km² amounts to 3.9% of the area of the country. The population (the end of 2016) is 4 559 164 (11.9% of the total population of Poland) and population density per 1 km² amounts to 370, which is the first position in the country.

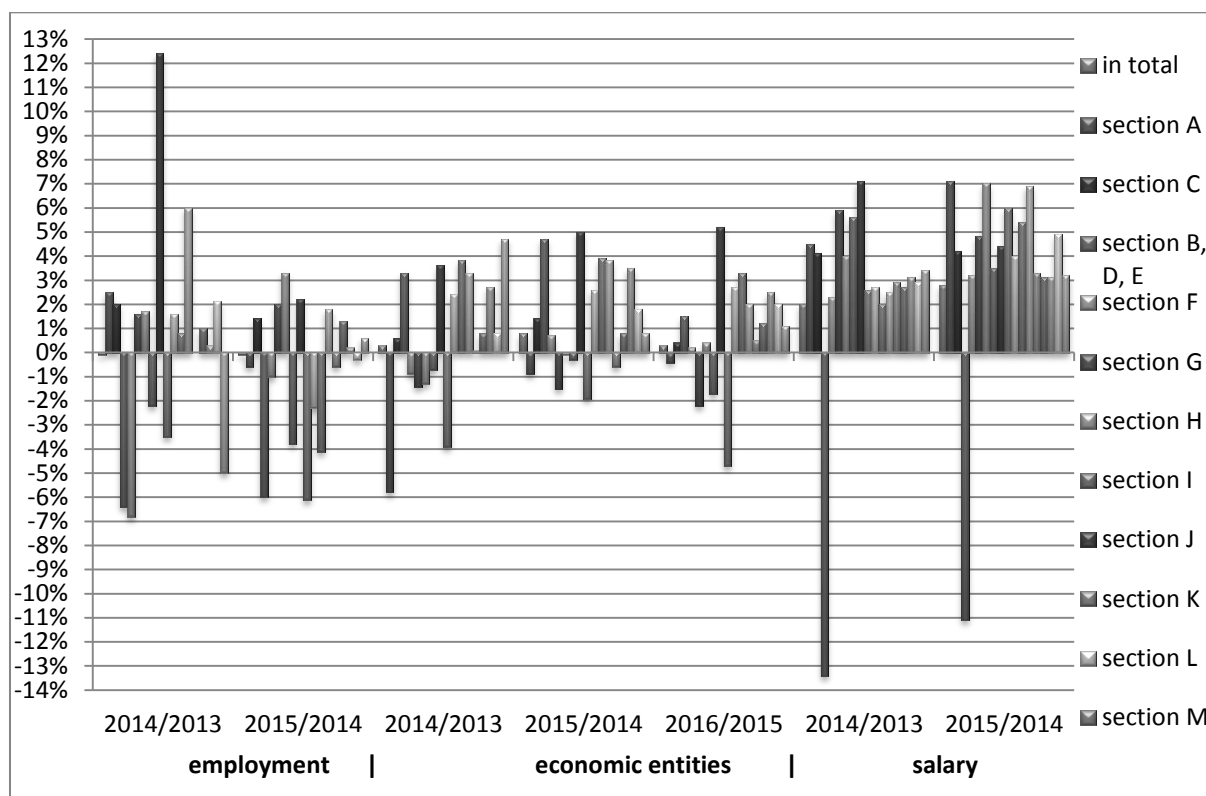
In order to determine the potential of the region in terms of higher education, the author will characterize the Silesian Voivodeship over 4 years (2013-2016), while referring her research to the data coming from Central Statistical Office (<http://stat.gov.pl/>). The dynamics of changes taking place in the subsequent years is to determine the direction of development of the examined area. The factors describing this trend are: population by economic age groups; migration of working age population for permanent residence abroad; the unemployed by education, gender and type – graduates; number of economic entities, average paid employment and wages and salaries by sections of Polish Classification of Activities.

The conducted research concerning the economy of the Silesian Voivodeship shows that the share of the population (taking into account the breakdown by economic age groups) compared to the population in total does not change in the case of the pre-working age group when falling in relation to the working age group. While comparing the years 2014-2013, it amounted to -0.9% and in the subsequent years of 2015-2014 and 2016-2015 it was smaller by 1.1%. However, there is a clear outline of the share of so called “aging society” which admittedly falls by 0.1% in the following years

but it remains at the level of 3.5%. When analyzing the population broken down by women and men, the proportions for both pre-working and working age groups are similar. While comparing, in turn, working age to post-working age, it can be observed that the working age population of women significantly falls in relation to the working age population of men and, with reference to post-working age, there is a rise in the proportion of men compared to the proportion of women. Searching for a suitable job is very often associated with leaving the country. In the Silesian Voivodeship, the level of migration for permanent residence abroad, comparing the year of 2014 to 2013, fell down respectively by 14.6%, 31.1% and 24.3% for pre-working, working and post-working age. In the years 2016-2014 there can be observed a very large shift compared to the previously discussed period since, for all the economic age groups, it fell down by about 53%. The analysis of the unemployment in the Silesian Voivodeship indicates a positive and thus downward trend. The result of the research shows that general unemployment in the region dropped by 19.2% comparing the years 2016-2015, which is the result higher by 4% in relation to the listings from previous years. The proportions for men and women in the years 2014-2013 and 2016-2015 respectively amounted to: -16% and -15.3%; -21.4% and -17.3%. The unemployment registered among graduates falls in the subsequent analyzed periods (in 2016-2015 it amounted to about -30%). The largest share in 2013 belonged to the unemployed with basic vocational education and in 2016 - with junior high school education and lower.

In the process of adjustment of the educational offer of universities to the demand for employees and exactly their knowledge and skills, it seems necessary to analyze a few factors. They should include: average employment, average monthly gross salary and the number of economic entities that can provide employment. For this purpose, there was used the division compliant with Polish Classification of Activities by specific sections and the research results are presented in Figure 1. The characteristics of individual sections (<http://www.klasyfikacje.gofin.pl/pkd/4,0.html>): A – agriculture, hunting, forestry and fishing; B – mining and quarrying; C - manufacturing; D – electricity, gas, steam and air conditioning supply; E - water supply; sewerage, waste management and remediation activities; F – construction; G – wholesale and retail trade; repair of motor vehicles and motorcycles; H – transportation and storage; I - accommodation and food service activities; J – information and communication; K – financial and insurance activities; L – real estate activities; M - professional, scientific and technical activities; N – administrative and support service activities; O – public administration and defence; compulsory social security; P – education; Q – human health and social work activities; R – arts, entertainment and recreation; S – other service activities; T – households as employers; undifferentiated goods and services-producing activities of households for own use.

FIG. 1: The dynamics of changes in the registered economic entities, average monthly gross salary and average employment in the Silesian Voivodeship in the years 2013-2016



Generally, the discussed factors are characterized by high volatility. There can be observed a relatively stable trend of growth in terms of average monthly salary where only the sections of mining, manufacturing and quarrying as well as water supply record significant declines. The situation of employment is not very optimistic since there was a decline in employment (on average, in all sections, it fell by nearly 0.7% in the years 2015-2014, whereas, in the previous period, it recorded an increase by 0.4%). It should be noted that the decline in employment in the years 2015-2014 did not translate into the number of the registered economic entities since in the discussed period, on average, it grew by 1.4% in all the sections. The only section which recorded positive growth in all the discussed periods was the section of education.

3. The characteristics of higher education in the Silesian Voivodeship in Poland

While describing higher education in terms of entering the labor market, the number of its graduates has been subjected to the analysis. The range of time included the academic years: 2012/2013; 2013/2014; 2014/2015 and 2015/2016. The data interpretation will refer to the dynamics of changes, which occurred in the subsequent academic years.

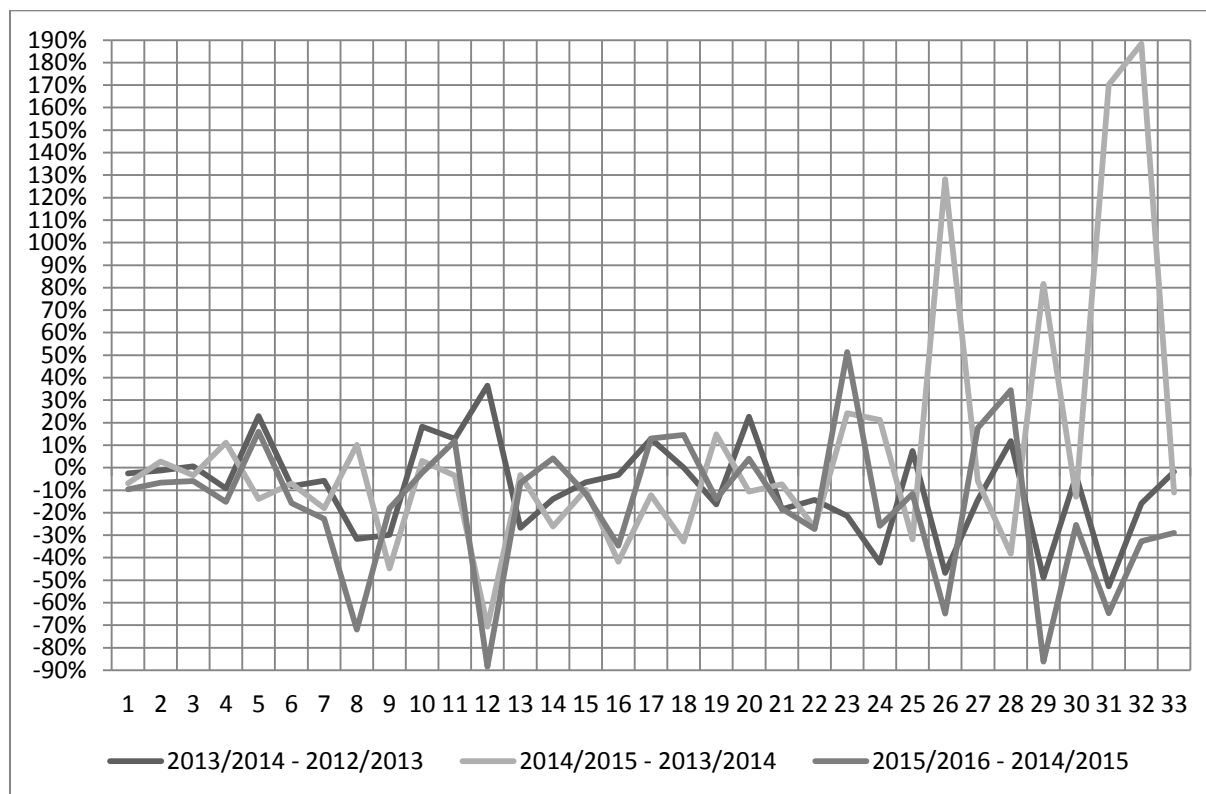
When analyzing university graduates, comparing the data from the Silesian Voivodeship to those for Poland, there can be observed relatively even distribution in relation to the total number of graduates, percentage share of women as well as full-time and part-time course of studies. The

breakdown by the groups of the courses, respectively for Poland and the Silesian Voivodeship was the following: first cycle degree program in total: 55% and 57%; first cycle Engineer's degree program: 16% and 19%; first cycle Bachelor's degree program: 39% and 38%; long cycle Master's degree program: 5% and 4%; second cycle degree program: 40% and 39%.

The lowest percentage of women follow the first cycle Engineer's degree program (38% in Poland and 33% in the Silesian Voivodeship), the highest percentage – the first cycle Bachelor's degree program (74%) and, in the other groups, this amounts to about 65% for both analyzed areas. The proportion of the full-time course compared to the part-time course of studies is 60% to 40%. When comparing the data of graduates in the subsequent academic years broken down by the groups of courses there is observed an annual downward trend. The fewest students graduate from the first cycle Bachelor's degree program and the number of graduates following the first cycle Engineer's degree program recorded the slightest drop.

In the Silesian Voivodeship, there are 42 universities of which 33 had graduates in the academic year of 2015/2016. The dynamics of changes in graduates in total for these universities is presented in Figure 2. The markings in the figure - 1-33 refer to the following universities: 1. Uniwersytet Śląski in Katowice; 2. Politechnika Częstochowska; 3. Politechnika Śląska in Gliwice; 4. Akademia Techniczno-Humanistyczna in Bielsko-Biała; 5. Wyższa Szkoła Techniczna in Katowice; 6. Uniwersytet Ekonomiczny in Katowice; 7. Bielska Wyższa Szkoła im. Józefa Tyszkiewicza in Bielsko-Biała; 8. Akademia Polonijna in Częstochowa; 9. Górnośląska Wyższa Szkoła Handlowa im. Wojciecha Korfańtego in Katowice; 10. Wyższa Szkoła Biznesu in Dąbrowa Górnicza; 11. Wyższa Szkoła Finansów i Prawa in Bielsko-Biała; 12. Wyższa Szkoła Zarządzania in Częstochowa; 13. Wyższa Szkoła Humanitas in Sosnowiec; 14. Wyższa Szkoła Ekonomiczno-Humanistyczna in Bielsko-Biała; 15. Akademia im. Jana Długosza in Częstochowa; 16. Górnośląska Wyższa Szkoła Pedagogiczna im. Kardynała Augusta Hłonda in Mysłowice; 17. Śląski Uniwersytet Medyczny in Katowice; 18. Akademia Wychowania Fizycznego im. Jerzego Kukuczki in Katowice; 19. Akademia Muzyczna im. Karola Szymanowskiego in Katowice; 20. Akademia Sztuk Pięknych in Katowice; 21. Państwowa Wyższa Szkoła Zawodowa in Racibórz; 22. Wyższa Szkoła Informatyki i Zarządzania in Bielsko-Biała; 23. Śląska Wyższa Szkoła Medyczna in Katowice; 24. Wyższa Szkoła Lingwistyczna in Częstochowa; 25. Wyższa Szkoła Administracji in Bielsko-Biała; 26. Wyższa Szkoła Medyczna in Sosnowiec; 27. Górnośląska Wyższa Szkoła Przedsiębiorczości im. Karola Goduli in Chorzów; 28. Wyższa Szkoła Hotelarstwa i Turystyki in Częstochowa; 29. Wyższa Szkoła Nauk Stosowanych in Ruda Śląska; 30. Wyższa Szkoła Zarządzania Ochroną Pracy in Katowice; 31. Wyższa Szkoła Planowania Strategicznego in Dąbrowa Górnicza; 32. Wyższa Szkoła Technologii Informatycznych in Katowice; 33. Gliwicka Wyższa Szkoła Przedsiębiorczości.

FIG. 2: The dynamics of changes in the number of graduates (including foreigners) in the Silesian Voivodeship from the academic year of 2012/2013 to 2015/2016.



The analysis of the data concerning the number of graduates clearly indicates how much variability there is in higher education. The stability in terms of minor differences over subsequent academic years is typical of only 4 universities (the number of graduates in the academic year of 2014/2015 amounted to: the university number 1 – 6310; the university number 2 – 2948; the university number 3 – 7161; the university number 6 - 4014). An unfavorable phenomenon is a lack of an increase in the number of graduates in the discussed period at any of the universities. Noticeable increases in the academic year of 2014/2015, compared to the academic year of 2013/2014 indicated the universities number 26, 29, 31 and 32 (the number of graduates respectively amounted to: 2014/2015 – 381 → 2013/2014 – 167; 247 → 136; 743 → 275; 199 → 69).

In order to be effective, education management should be divided into groups to directly relate them to the sectors of the national economy. The division based on the data obtained from Central Statistical Office includes the following groups: K – education; NHiS – humanities and arts; NS – social sciences (journalism and information and economy and law and business and administration); N – science (natural sciences, mathematics and statistics and information and communication technologies); TPB – technology, industry and construction; ZiOS – health and social welfare; U – services. Table 1 shows the number of graduates broken down by individual education groups in relation to two years: the academic year 2012/2013 and 2015/2016. The analysis of these values allows to assess the variability of the number of graduates broken by areas of education.

TAB. 1: The number of graduates (including foreigners) in the Silesian Voivodeship broken by education groups in the academic years 2012/2013 and 2015/2016

Groups	2012/2013			2015/2016			
	Total number of graduates for the group	Number of universities educating in the group	The biggest number of graduates for the group	Name of university	Number of universities educating in the group	The biggest number of graduates for the group	Total number of graduates for the group
K	5228	16	1504	1*	13	1018	3355
			1095	2*		592	
NHIS	4111	18	1982	1	19	1637	4031
			323/311	3/2		279/283	
NS	15066	26	4482	4	27	3177	9852
			2136	1		1738	
N	2820	16	975	1	13	941	2867
			762	6		682	
TPB	7494	15	4507	6	10	4750	8159
			1177	5		1238	
ZIOS	4583	15	1811	7	16	2068	4765
			563	8		249	
U	3194	15	1038	6	14	473	2112
			818	9		172	

*1Uniwersytet Śląski in Katowice; 2Akademia im. Jana Długosza in Częstochowa; 3Akademia Muzyczna im. Karola Szymanowskiego in Katowice; 4Uniwersytet Ekonomiczny in Katowice; 5Politechnika Częstochowska; 6Politechnika Śląska in Gliwice; 7Śląski Uniwersytet Medyczny in Katowice; 8Wyższa Szkoła Planowania Strategicznego in Dąbrowa Górnicza; 9Górnośląska Wyższa Szkoła Handlowa im. Wojciecha Korfańtego in Katowice

In the analyzed periods of time, the most popular courses of studies among students were the ones associated with education in social sciences (e.g. Political science and social studies; Psychology; Sociology and cultural studies; Journalism; Librarianship, Scientific information and archiving; Management and administration; Law; Accounting and taxes) and sciences in the field of technology,

industry and construction (e.g. Chemical and process engineering; Electronics and automation; Mechanics and metallurgy; Technologies related to environmental protection; Electricity and energy; Raw materials – glass, paper, plastic and wood; Programs and qualifications related to industrial processing n.e.c; Construction and civil engineering; Engineering and engineering professions n.e.c; Mining and quarrying; Architecture and planning). In the academic year of 2012/2013 the smallest number of students graduated from the courses related to science (e.g. Biology; Biochemistry; Ecology and environmental protection; Chemistry; Earth Sciences; Physics; Mathematics; Interdisciplinary programs and qualifications, including information and communication technologies; Development and analysis of software and applications) whereas in the academic year of 2015/2016 in the group of services (e.g. Protection of persons and property; Transportation; Tourism and leisure; Hair and beauty care). The largest decreases in the number of graduates by about 35% can be observed in the group of education, social sciences and services and the smallest decrease amounts -2% and refers to the group of humanities and arts. An increase in the number of graduates is noticeable in the group of: technology, industry and construction as well as health and social welfare, relatively indicating the increases by 2%, 9% and 4%.

4. Conclusions

While summing up the economic and educational factor in the Silesian Voivodeship over 2012 and 2016, it can be concluded that there is a disturbing phenomenon of a lack of young people in the labor market and a significant share of post-working age population. The declining phenomenon of leaving the country is satisfactory, which may indicate improving employment conditions in the domestic market. The results for individual years show an upward trend in relation to gradually declining unemployment, which was the lowest among those with higher education. While analyzing the economy from the perspective of an employee, it can be concluded that the phenomenon of an increase in the average monthly gross salary is optimistic. However, falling employment, which can be associated with a decreasing number of working age population, seems to be disturbing, which in turn justifies an increase in salaries by means of a more flexible form of its negotiation by an employee. Lack of labor force and management staff, in subsequent years, may result in a growing number of newly registered economic entities. Such operations may lead to the need to employ foreigners or move production abroad. The dominant field of study is the full time course with extended curriculum in engineering, where there is a higher percentage of male graduates than female ones. This translates in to the highest percentage of an increase in the number of students graduating from universities in the group of sciences including technology, industry and construction.

Education management, as the process of building the offer of higher education, in order to fulfill its role, and thus to educate qualified staff, must satisfy the needs of the market. It is important, therefore, to use the regional economic potential in order to provide employment to higher education graduates. While analyzing the Silesian Voivodeship, there can be noticed some relationships between the dynamics of employment and the number of graduates. When concentrating on the section of manufacturing and construction in terms of education of the group of technology, industry and construction as well as the section of health care and the group of health and social welfare, it can be concluded that a growing number of graduates will find a job due to an increasing employment potential. In turn, an increasing number of employment in the section of

education is not reflected in a falling number of graduates in the group of education. A similar situation occurs in the section of transportation and storage and services, where the number of graduates with prospects for employment is falling. The situation is opposite in education in the group of science. An increase in the number of graduates translates into falling employment in the section of professional, scientific and technical activities. While making such a statement, one should consider if such a situation takes place due to wrong education management or due to lack of appropriate cooperation between demand and supply among employees. Summing up the considerations taken in the paper, it can be concluded that, in the Silesian Voivodeship, there is used both educational and economic potential in industrial and health perspective. However, one should pay attention to other branches of the economic system of the region in order to avoid a situation in which education at the higher education level is not reflected in the economy, taking into account the falling number of working age population.

Literature:

Bottery, M. (1990). *The Morality of the School: the Theory and Practice of Values in Education*. Cassell, London.

Bottery, M. (1992). *The Ethics of Educational Management: Personal, Social and Political Perspectives on School Management*. Cassell, London.

Curaj, A., Scott, P., Vlasceanu, L., & Wilson, L. (eds.). (2012). *European higher education at the crossroads: Between the Bologna process and national reforms*. Dordrecht: Springer Science & Business Media.

Gajda, J., Cichoń, S., Gaudy, A. (2013). *Kreowanie organizacji uczącej się wyzwaniem współczesnego zarządzania*, In M. Walachowska & A. Zduniak (eds.) *Podmiotowość w edukacji wobec odmienności kulturowych oraz społecznych różnicowań* (pp.283-293). Edukacja XXI wieku 29.

Gasparski, W. (ed.). (2008). *Responsible management education*. Warsaw: Academic and Professional Press – Kozminski University.

Harvey, L. (2001). *Defining and Measuring Employability*. *Quality in Higher Education*, 7, 97-109.

Koźmiński, A.K. (ed.). (1996). *Zarządzanie: teoria i praktyka*. Wydawnictwo Naukowe PWN, Warszawa.

Krawczyk, E. (2014). Instruments for Higher Education Adjustment to Local Labor Market Needs. *Polish Journal of Management Studies*, 9, 104-114.

Krzyżanowska, M. (2004). *Perspektywy rozwoju marketingu usług edukacyjnych szkolnictwa wyższego w Polsce*. *Acta Universitatis Lodzensis, Folia Oeconomica*, 179(1), 417-425.

López, MAR. (2017). *European Higher Education Area-Driven Educational Innovation*. *Procedia - Social and Behavioral Sciences*, 237, 1505-1512.

Skibiński, A. (2014). *Edukacja jako czynnik determinujący aktywność ekonomiczną ludności a procesy demograficzne na przykładzie województwa śląskiego*, In L. Machol-Zajda & C. Sadowska-Snarska (eds.) *Rynek pracy i polityka społeczna w XXI wieku. Aktualne problemy* (pp.36-46). Instytut Pracy i Spraw Socjalnych; Wydział Ekonomii i Zarządzania Uniwersytetu w Białymstoku.

Tormo-Carbó, G., Oltra, V., Seguí-Mas, E., Klimkiewicz, K. (2016). *How effective are business ethics/CSR courses in higher education?*. *Procedia - Social and Behavioral Sciences*, 228, 567-574.

Washer, P. (2007). *Revisiting key skills: a practical framework for higher education*. *Quality in Higher Education*, 13, 57-67.

For more see: <https://bdl.stat.gov.pl/BDL/dane/podgrup/temat>.

For more see: <http://katowice.stat.gov.pl/publikacje-i-foldery/foldery/wojewodztwo-slaskie-w-liczbach-2017,2,7.html>.

For more see: <http://katowice.stat.gov.pl/publikacje-i-foldery/inne-opracowania/raport-o-sytuacji-spoeczno-gospodarczej-wojewodztwa-slaskiego-w-2016-r-,8,6.html>.

For more see <http://www.klasyfikacje.gofin.pl/pkd/4,0.html>.

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AD-BLOCKING AS NEW FORM OF THE IMPACT OF ELECTRONIC SPACE ON BUSINESS ORGANIZATIONS

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Abstract: *The paper concerns a phenomenon with significant economic effects known as ad-blocking that has been rapidly growing for several years. The paper analyses the causes and the scale of this phenomenon and its economic effects. In addition to the analysis of reports on ad-blocking, the survey conducted on a targeted group of individual Internet users was an important part of this project. An analysis presented in the paper was conducted taking into consideration, developed by Author, typology of the impact of elements of electronic space on business organizations.*

Keywords: *Ad-filtering, on-line advertising, e-space influence.*

JEL classification: *M1, M10, M15*

Grant affiliation:

1. Introduction

Along with dynamic growth of organization expenditure on various forms of digital advertising, fast growing phenomenon of blocking ads by Internet users, who are the same time the recipients of these advertisements, is being also observed. This phenomenon is referred to as ad-blocking. At the beginning of the second decade of the millennium we could see this phenomenon beginnings, however its rapid growth became the fact in 2013 and intensified in next years (Ryan et al., 2017). This phenomenon has raised concerns not only among advertisers but also among whole advertising industry affecting each part functioning in the ecosystem of digital advertising. What is more it causes increasing economic costs reaching the level of billion dollars (eMarketer, 2015; Abohe & PageFair, 2015).

Thus, taking into the consideration the meaning of ad-blocking in the context of its impact on whole electronic commerce and its operating entities, primary purpose of this paper is to analyse the causes, scale and dynamics of this phenomenon development as the new form of the impact of

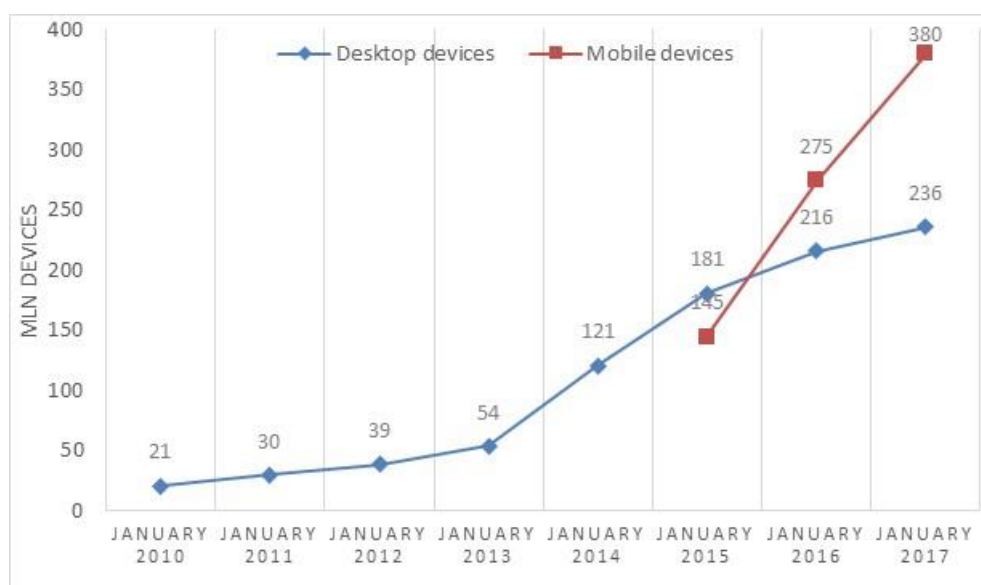
elements of electronic space on organizations, which are basing their functioning on one of the key business models used on-line, advertising model.

2. The essence and the scale of ad-blocking phenomenon

The phenomenon of ad-blocking is associated with using by end users various ad-blocking software which removes or changes ads content displayed in the websites and web pages or in the mobile apps (Adobe & PageFair, 2015). According to eMarketer an ad-blocking user is each Internet user who accesses the Internet at least once per month via any device that has an ad-blocker software installed (eMarketer, 2017).

2013 is the year when the phenomenon of ad-blocking on desktops devices has started its dynamic widespread. Since 2015, a significant growth is observed in the context of mobile devices (FIG. 1).

FIG. 1: Increase in number of desktop and mobile devices which use ad-blocking



Source: PageFair, 2016; PageFair, 2017b

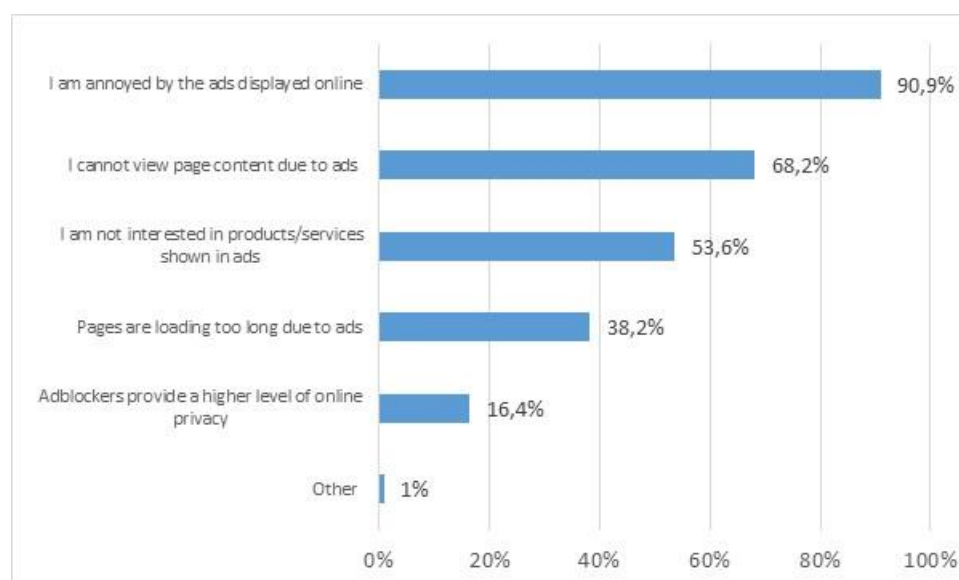
When taking into the consideration mobile devices, users from Asia and Pacific area are in majority. Up to 94% of global use of mobile ad-blocking solutions derive from mentioned before area (PageFair, 2017b). Data from November 2016 indicate that users coming from following three countries: China, India and Indonesia, are in the majority (PageFair, 2016). On the other hand Internet users from Europe are the largest group of those, who block ads on their desktop devices. Greece, Ireland (39%) and Poland (33%) are the countries with the highest rate of Internet users who block ads (PageFair, 2017b). Usage of ad-blockers is significant also in the United States. It is estimated that in 2017 the rate will amount 27,5% and in 2018 – 30,1% (eMarketer, 2017).

3. The causes of ad-blocking phenomenon development in the context of secondary data and own research analysis

Despite some differences related to causes of ad-blocking development, there are elements that are common, regardless of the author of conducted research. The key issues are: increasing number of ads and developing throughout the years the level of their intrusiveness which inhibits users' access to the content of his interest. Issues of security and on-line privacy are also significant (eMarketer, 2016; eMarketer, 2017; PageFair, 2017b).

Having only the secondary data from the reports about the phenomenon of ad-blocking and the users' motivation for employing such solutions, it was decided to, for comparative purposes, obtain primary data by conducting own research on a targeted group of individual Internet users. While matching group the following indicators were taken under the consideration: age of participants, educational background, country of origin. The main aim was to survey such group of users who intensively or very intensively uses the Internet and in the same time come from the country with high rate of users using ad-blocking solutions. Taking under the consideration three of mentioned before features of research group, people between 19 and 25 years were selected, assuming that they use Internet intensively or very intensively. At the same time, as the reports' data indicate, ad-blocking solutions are more often used by better-educated users (PageFair, 2017b). Therefore, students of first, second and third degree from countries with high rate of people using ad-blocking solutions for example Poland were chosen to sample survey. The research was conducted between 01.02.2017–19.05.2017. It was survey for which purpose the Google Forms service was used. 178 full-time students of Opole University of Technology participated. They constituted the largest share of respondents in this survey.

FIG. 2: Users motivation in the context of using ad-blocking solutions



Source: own research

The assumption about the total time spent using Internet by respondents was correct. Surveyed group in majority uses Internet intensively. In case of 39,3% of respondents it is more than five hours, and 27% of respondents uses Internet for three to five hours a day. At the same time more than half, 54,5%, of respondents declared that they are always-on. Regarding the usage of ad-blocking solutions, it occurred that the vast majority of respondents, 61,8%, uses those solutions. They are widely widespread on laptops, 90,9%. In the case of smartphones, which are the second popular Internet access devices, 84,3%, the rate is quite low, less than 14,5%.

Regarding motivation issue of respondents in the context of using by them ad-blocking solutions, the most important issue turned out to be the fact that on-line ads are irritating for Internet users, 90,9%. Significant share of respondents, 68,2% was indicating the fact of inhibiting access to the content because of ads (FIG. 2).

4. Ad-blockers as the new group of stakeholders of modern organizations

4.1. Types of ad-blockers influence on economic organizations

From the point of view of stakeholder theory, the entities operating in electronic space can be divided into three main groups [Wielki, 2007, pp. 321-333]:

1. Known and identifiable entities which influence organization operating in e-space.
2. Unknown and/or hardly identifiable entities which operate in e-space and have real impact on organization functioning.
3. Identifiable and unidentifiable entities which operates in e-space and are neutral form the point of organization functioning.

From the standpoint of mentioned above typology, ad-blockers should be included to the second group. At the same time all entities, which operate in e-space, could influence organization in many ways. Two major types of this influence can be distinguished:

- direct,
- indirect.

Direct influence of e-space entities is understood as targeted intentionally at particular organization resources. On the other hand indirect influence of e-space entities is not intentionally targeted at resources of particular organization, but, in the end, it affects them. In this context ad-blockers fit in the second type of influence.

Simultaneously entities which operate in e-space, influencing directly or indirectly, may affect two kinds of organization resources:

- tangible (e.g. financial resources),
- intangible (e.g. brand, reliability, trustworthiness, reputation or clients trust).

Described above types of influence could be divided into:

- “physical”,
- “non-physical”.

First type of influence of entities that operate in e-space occurs when their main influence and undertaken by those entities operations are targeted at IT system of organization. Whereas the second type occurs when undertaken operations are not targeted at IT system, in other words are not related to attempts to break into the system, infect it with malware or any form of attack on it. Ad-blockers operations classify into the second form.

4.2. Economic effects of development of ad-blocking phenomenon

Ad-blocking phenomenon is becoming increasingly widespread and causes particular and growing economic effects. Costs related to this phenomenon could be divided into two groups:

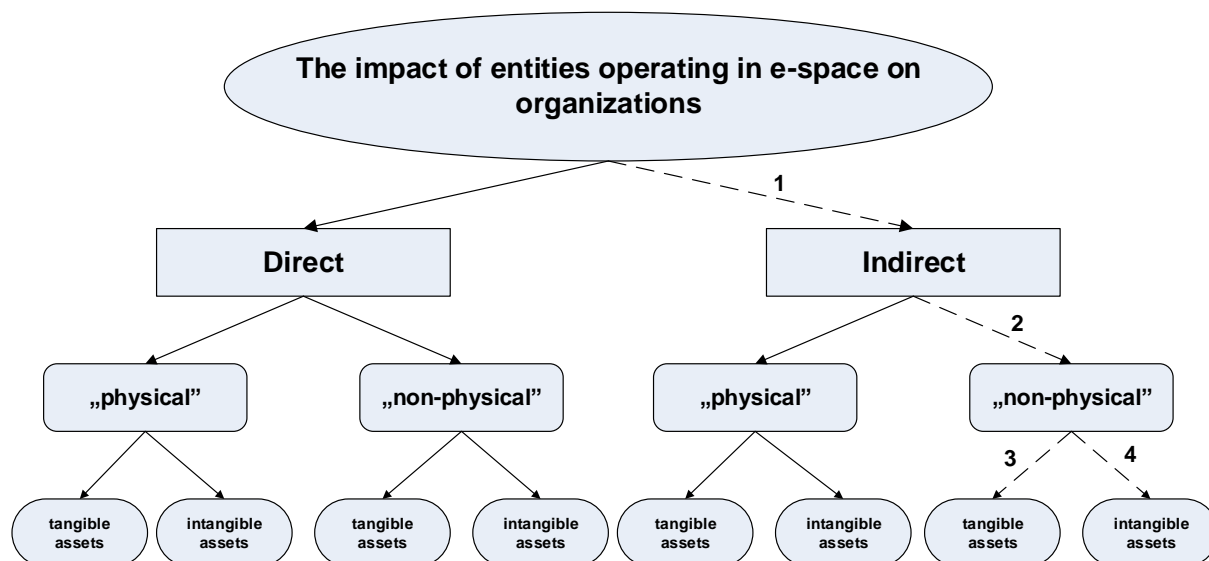
- direct costs,
- hidden costs.

First group of costs is related to reduction of advertisements publishers revenues. Such costs were on the level of USD 3,5 billions in the United States in 2013 and in the year 2016 rose to the level of USD 20,3 billions. The expenditure on the advertisements was on the level of USD 42,8 billions (2013) and USD 68 billions (2015). At the same time the global costs of ad-blocking amounted USD 7,2 billions in 2013 and in 2016 costs forecast suggested the level of USD 41,4 billions (Adobe & PageFair, 2015).

The second group of costs is related, in the first place, to small and local publishers. The mechanism is as follows: ad-blocking is leading to reduction of publishers revenues. Consequently, this situation reduces investment opportunities in the on-line content. As a result advertisements are becoming less attractive for viewers and readers and website traffic is decreasing, hence further reduction of revenues from on-line advertisements (Ryan J. et al., 2017).

From the point of view of the typology presented in the subsection 4.1, the ad-blocking phenomenon development clearly fit into the scenarios 1-2-3 and 1-2-4 (FIG. 3).

FIG. 3: The ad-blocking phenomenon in the context of types of the impact of entities operating in e-space on organizations



Source: own elaboration

5. Conclusion

The phenomenon of ad-blocking in short time developed into completely new form of e-space influencing on economic organizations and Internet users who use blocking solutions became stakeholders of broad spectrum of organizations. It concerns most of all those organizations which operate basing on advertising model with real impact on their functioning. This refers to advertising industry giants as well as to all small and local publishers who operate in the ecosystem of digital advertising.

Although the causes of ad-blocking development are quite clear, as confirmed by presented above analysis of secondary data and results of own research, different forms of actions used by companies against this phenomenon, following different directions, are, for now, unsuccessful with the growing dynamic of this phenomenon as the evidence of ineffectiveness (see FIG. 1). Thus, necessity of developing solutions counteracting or reducing this form of e-space influence on economic organization is becoming an urgent issue, though, similarly to other forms of its impact undoubtedly it will not be easy.

Unquestionably organizations working on counteracting solutions have to remember that the further development of ad-blocking phenomenon connected to its wide-spreading on mobile devices, could become potential danger for one of the most significant business model functioning on-line. Thus, development of systemic solutions taking under consideration both publishers and Internet users interest is of the utmost importance. It seems to be the only way that could reduce the scale of this phenomenon.

Literature:

Adobe & PageFair (2015). *The cost of ad blocking: PageFair and Adobe 2015 Ad Blocking Report*. Retrieved October 16, 2015, from http://downloads.pagefair.com/reports/2015_report-the_cost_of_ad_blocking.pdf.

eMarketer (2017). *As Ad Blocker Use Grows, Publishers Face New Challenges*. Retrieved June 26, 2017, from <https://www.emarketer.com/Articles/Print.aspx?R=1016076>.

eMarketer (2017). *Education Key to Re-Engaging Ad Blockers in the UK*. Retrieved February 24, 2017, from <https://www.emarketer.com/Articles/Print.aspx?R=1015302>.

eMarketer (2016). *In Poland, Ad Blocking Users Complain of Too Many Ads*. Retrieved September 16, 2016, from <https://www.emarketer.com/Articles/Print.aspx?R=1014488>.

eMarketer (2015). *UK Publishers Feel Threatened by Ad Blocking*. Retrieved October 14, 2015, from <http://www.emarketer.com/Articles/Print.aspx?R=1013091>.

PageFair (2016). *Adblocking Goes Mobile: PageFair 2016 Mobile Adblocking Report, revised November 2016*. Retrieved December 12, 2016, from <https://pagefair.com/downloads/2016/05/Adblocking-Goes-Mobile.pdf>.

PageFair (2017). *The Hidden Cost of Adblocking: Adblock's impact on website traffic*. Retrieved March 06, 2017, from <https://pagefair.com/downloads/2017/04/White-paper-on-the-hidden-cost-of-adblock.pdf>.

PageFair (2017). *The state of the blocked web: 2017 Global Adblock Report*. Retrieved February 09, 2017, from <https://pagefair.com/downloads/2017/01/PageFair-2017-Adblock-Report.pdf>.

Ryan, J., Shiller, B., & Waldfogel, J. (2017). *Will Ad Blocking Break the Internet?* (NBER Working Paper 23058). Retrieved February 03, 2017, from <http://www.nber.org/papers/w23058>.

Wielki, J. (2007). Social and ethical aspects connected with e-space development (revised version). *Journal of Information, Communication and Ethics in Society*, 5(4), 321-333.

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WHY DO OBJECTIVE WAGE LEVELS HAVE LESSER IMPACT THAN RELATIVE EARNINGS ON WORK SATISFACTION? COMPARISON OF OBJECTIVE AND SUBJECTIVE WORK EVALUATIONS IN THE CONTEXT OF JOB CHOICE DECISIONS

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Abstract: *One of the main factors determining job selection decisions are wage levels. Yet a lot of studies show that wages have only a small, diminishing impact on job (and life) satisfaction (Easterlin, 2011; Diener and Biswas-Diener, 2002; Kahnemann and Keaton, 2010). Especially, the short term positive wage-increase effect, is moderated by attained level of income in relation to other's people earnings (Clark, 2011). This allows for the hypothesis, that the individual evaluation of work compensation will have a stronger impact on work satisfaction than the direct effect of wages has. The presented study compares psychological and economical variable's impact on job satisfaction. The results, in which a higher level personality variable - core self-evaluations (Judge et al. 1998; Walczak & Derbis, 2017) shows a far stronger impact on job satisfaction than wages or other economic variables, are discussed in light of job choice decisions.*

Keywords: *Subjective wage evaluation, Employee Satisfaction; Core Self-Evaluations.*

JEL classification: *J31 Wage Level and Structure; Wage Differentials ; M52 Personnel Economics: Compensation and Compensation Methods and Their Effects ; Y80 Psychology – Personality & Individual differences.*

Grant affiliation: *The study was not supported by external funding.*

1. Introduction

Wages are one of the most important elements of job satisfaction. Given a choice of two equal positions, people seem to choose the work, which will give them more money. Although this assumption seems obvious, the relation between earnings and satisfaction with them is not so clear. A metaanalysis of 115 studies conducted by Judge and colleagues (Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010) showed, that the average correlation between pay level and pay satisfaction is only .23, and between pay level and job satisfaction .15. Judge et al. (2010) indicate, that those relations may be modified by the country, where the interviewed person lives. As shown by Diener & Biswas-Diener (2002), the wealth level of a given country can have a big impact on the happiness of its citizens - the richer a country is, the less important money seems to be. This finding is an extension to the famous

Easterlin Paradox (Easterlin, 2011), which shows that increasing wealth of nations does not bring an increase in life satisfaction of that countries citizens. There were many attempts to solve this paradox. For example Kahnemann and Keaton (2010) wrote, that there is a certain income cut-off level, above which the positive income-happiness relation becomes flat. Kahnemann and Keaton (2010) intepret this finding so that the increase of wealth, observed by Easterlin (1974), was just made for those above the cut-off level, and that was the reason wealth increase did not impact hapiness. Walczak (2016), buliding on those findings, indicates that the relation between happiness and wages is not only cut-off at a certain level (which for poland is close to the average wage), but also depends on individual determinants, which modify the perception of the wage.

A separate issue reltaing the wage evaluations was raised by Clark (2011). Although he agrees with the obesrvations of (1974) and its interpretation by Kahnemann & Keaton (2010) presented above, he proposes that the weak impact of wages on life satisfaction may be explained by another factor - comparisons. He states that people compare their wages in two aspects. First - retrospectively with their own previous wage (which is affected by hedonic treadmill - returning to a base hapiness level, after a given time interval after a positive event - such as a pay raise or gaining a well paid job; see also Diener, Lucas, & Scollon, 2006). Second - with other people in a similar social situation - that is a reference group. The second kind of comparison is the subject of the present paper.

Besides comparisons, there may be many non-wage factors, which affect both life and job satisfaction. Although it is impossible to even list all, not to mention measuring them, an interesting candidate to include is a higher order personality variable called the core self-evaluations (Judge et al. 1998). Acording to Judge et all. (1998; 2003) core self-evaluations integrate the basic personality variables (self-esteem, positive affectivity, internal locus of control and generalised self-efficacy), allowing for recognition of people best fitting to the working world. Many studies confirm those assupmtions (see Walczak, 2014; Walczak & Derbis, 2015 for example), showing a prominent impact of core self-evaluations on job statisfaction.

1.1. Study assumptions

Considering the abovementioned studies, the following hypothesis will be evaluated within the present study.

H1. Subjective wage level (comparison with others on similar position) has a bigger impact on work satisfaction than objective wage level.

H2. Personal factors (such as core self-evaluations) have a bigger impact on work satisfaction that wages (both objective and subjective).

2. Method

To compare the differential impact of subjective and objective wages, as compared to individual personality variables, on work happiness, an online questionnaire was created to gather the data.

2.1. Participants

The sample consisted of N=308 working adults. Participants were invited to an online survey by students, who got additional course credits for it. All the participants filled an anonymous online

questionnaire, composed of tools measuring various aspects of their jobs. There were n=178 women and n=130 men in the study. Respondents were employed at a wide range of companies, large and small, both in private and public sector. The age of respondents ranged from 18 to 58 years ($M = 29.6$, $Sd = 8.3$). Participants had the on average $M = 7.9$ years ($Sd = 8.3$) tenure, of which $M = 4.2$; $Sd = 5.6$ years in the current organization.

2.2. Tools

Objective wages were evaluated directly in a non-obligatory open question about monthly average wage before taxation (brutto salary). N=8 people failed to indicate their wage, and were removed from subsequent analyses. Subjective wage level was evaluated by a single question, asking the respondent to compare his current earnings to other people, doing similar work. The responses ranged from 1 - "I earn significantly less than others" to 10 - "I earn significantly more than others". Other tools in the study included the measure of Core Self-Evaluations (CSE, Judge, Erez, Bono, & Thoresen, 2003), in the polish adaptation by Walczak & Derbis (2017), Flourishing scale (Diener et al., 2010) to measure general life satisfaction, and a short, 5 item measure of job satisfaction by Zalewska (2003).

2.3. Procedure

Participants received a link to the survey, by the means of e-mail or social networking portal. After following the link they were directed to a web-page (on google docs platform), where they could respond to the survey questions. Afterwards all the data was inputted to statistical software, and analysed.

3. Results

3.1. Comparison of the impact of different wage measurements on job satisfaction

To compare the impact of subjective and objective wages on work satisfaction, three linear regression models were analyzed. For all models, the same set of work environment variables (weekly work hours & company's size) and individual job related variables (tenure - total and in the current company, job position were controlled). In all the cases, only wages proved to be a significant predictor of job satisfaction, and therefore they will be shown in further analyses.

The results are presented in the tables.

TAB. 1: Linear regression analysis Parameters, with Objective Wage as Job satisfaction predictor

Dependent Variable: Job satisfaction				
N=299				
R=.190 $R^2=.036$ Corrected $R^2=.033$				
F(1,298)=11.127 $p<0.001$;				
	b*	b	t(298)	p
Intercept		4.19	36.831	0.000
Objective wage level	0.190	0.00	3.341	0.000

TAB. 2: Linear regression analysis Parameters, with Subjective Wage as Job satisfaction predictor

N=299	Dependent Variable: Job satisfaction			
	R=.301 R ² =.091 Corrected R ² =.088 F(1,298)=29.747 p<0.001;			
	b*	b	t(298)	p
Intercept		3.47	17.263	0.000
Subjective wage level	0.302	0.20	5.454	0.000

The comparison of the received coefficients shows a trend in favor of the hypothesis, but the result is not statistically significant, given $\alpha=0.05$ (it is precisely $p=0.0753$, one-sided).

To compare the impact of both types of wages evaluations, a third analysis, including simultaneously both forms of wage measurement, was conducted.

The results are presented in the tables.

TAB. 3: Linear regression analysis Parameters, with Objective Wage and Subjective Wage as Job satisfaction predictors

N=299	Dependent Variable: Job satisfaction			
	R=.324 R ² =.105 Corrected R ² =.099 F(1,296)=17.355 p<0.001;			
	b*	b	t(296)	p
Intercept		3.39	16.663	0.000
Objective wage level	0.12	0.00	2.145	0.033
Subjective wage level	0.27	0.18	4.754	0.000

This analysis strengthens the proof, that the subjective wage evaluations increase significantly the predictivity of job satisfaction over the level of objective wage evaluation predictions ($p=0.0404$, one-sided).

3.2. Comparison of the impact of individual personality variables with different wage measurements on job satisfaction

To see whether personality variables have greater impact on job satisfaction than wages, a second series of linear regression analyses was conducted.

The results are presented in the tables.

TAB. 4: Linear regression analysis Parameters, with Objective Wage and Core Self-Evaluations as Job satisfaction predictors

N=299	Dependent Variable: Job satisfaction			
	R=.526 R ² =.277 Corrected R ² =.272 F(2,297)=56.777 p<0.001;			
	b*	b	t(297)	p
Intercept		0.38	0.959	0.338
Objective wage level	0.10	0.0	2.066	0.040
Core Self-Evaluations	0.50	0.1	9.936	0.000

TAB. 5: Linear regression analysis Parameters, with Subjective Wage and Core Self-Evaluations as predictors

N=299	Dependent Variable: Job satisfaction			
	R=.545 R ² =.297 Corrected R ² =.292 F(2,296)=62.551 p<0.001;			
	b*	B	t(296)	p
Intercept		0.13	0.331	0.741
Subjective wage level	0.194	0.13	3.868	0.000
Core Self-Evaluations	0.467	0.09	9.315	0.000

A comparison of the regression models with the individual variable CSE, with those without it shows, that the prediction of job satisfaction improves significantly, both for objective wages (p<0.000) and for subjective wages (p<0.000), after inclusion of the CSE.

TAB. 6: Linear regression analysis parameters, with Subjective Wage, Objective Wage and Core Self-Evaluations as Job satisfaction predictors

N=299	Dependent Variable: Job satisfaction			
	R=.549 R ² =.301 Corrected R ² =.294 F(3,295)=42.344 p<0.001;			
	b*	B	t(295)	p

Intercept		0.15	0.365	0.715
Objective wage level	0.065	0.00	1.286	0.200
Subjective wage level	0.179	0.12	3.483	0.000
Core Self-Evaluations	0.459	0.09	9.096	0.000

After inclusion of all the analysed variables, the objective wage level loses its predictive power completely, becoming insignificant. The subjective wage evaluations and core self evaluations remain significant predictors. This results, taken together with previous analyses, proves that objective wage evaluations have lesser impact on job satisfaction than both the subjective wages or the core self evaluations.

TAB. 7: Linear regression analysis parameters, with Core Self-Evaluations as The Job satisfaction predictor

Dependent Variable: Job satisfaction				
N=300				
R=.516 R ² =.266 Corrected R ² =.264				
F(1,298)=108.099 p<0.001;				
	b*	B	t(298)	p
Intercept		0.40	0.998	0.319
Core Self-Evaluations	0.512	0.10	10.397	0.000

The final analysis shows, that the impact of core self evaluation on job satisfaction is greater than the impact of objective wages (p<0.001) as well as the impact of subjective wages (p<0.001) measurements, which proves H2.

4. Discussion

The series of regression analyses conducted shows that although objective/monetary wage level is related to job satisfaction, it has a relatively weak impact on its level. A far better predictor of job satisfaction is a relative wage level (Do I earn more than people on a similar position?; see also Brown, Gardner, Oswald, & Qian, 2008). And a still better predictor is the core personality evaluation a given person has. Such results have tremendous practical applications, especially for the labour market. They show, that the objective (monetary) level of a wage will not have a significant impact on job satisfaction, unless it will be perceived as higher than for other similar jobs. On top of that, people with a strong personality (as reflected with high core self-evaluations) will be satisfied with their jobs, to a great extent independently of their wage level. This in turn may be interpreted as an indication that matching people with the positions where they can realise their potential could be a

far better strategy than rising wages to keep the best in their posts. If people do not feel well with themselves, the positive effect of wage increases could quickly wane. On the other hand, people with strong personality core are more goal oriented, which may cause them to work harder (Judge, Bono, Erez, & Locke, 2005) and in consequence bring them higher wages. Which ever the reason may be, the personality evaluations relate strongly to job satisfaction, overshadowing the impact of relative wage levels and obliterating the impact of monetary wage levels on this variable. Therefore worrying about the personality of employees may be more important than fighting for the highest wage.

Literature:

Brown, G. D., Gardner, J., Oswald, A. J., & Qian, J. (2008). Does Wage Rank Affect Employees' Well-being? *Industrial Relations: A Journal of Economy and Society*, 47(3), 355–389.

Clark, A. (2011). *Happiness, habits and high rank: Comparisons in economic and social life*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2131154.

Diener, E., & Biswas-Diener, R. (2002). *Will Money Increase Subjective Well-Being?: A Literature Review and Guide to Needed Research*. *Social Indicators Research*, 57(2), 119–169.

Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist*, 61(4), 305–314. <https://doi.org/10.1037/0003-066X.61.4.305>.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). *New Well-being Measures: Short Scales to Assess Flourishing and Positive and Negative Feelings*. *Social Indicators Research*, 97(2), 143–156. <http://doi.org/10.1007/s11205-009-9493-y>.

Easterlin, R. A. (1974). *Does economic growth improve the human lot? Some empirical evidence*. *Nations and Households in Economic Growth*, 89, 89–125.

Easterlin, R. A. (2001). Income and happiness: Towards a unified theory. *The economic journal*, 111(473), 465–484.

Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core Self-Evaluations and Job and Life Satisfaction: The Role of Self-Concordance and Goal Attainment. *Journal of Applied Psychology*, 90(2), 257–268. <https://doi.org/10.1037/0021-9010.90.2.257>.

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). *The Core Self-Evaluations Scale: Development of a Measure*. *Personnel Psychology*, 56(2), 303–331.

Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional Effects on Job and Life Satisfaction: The Role of Core Evaluations. *Journal of Applied Psychology*, 83(1), 17–34.

Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C., & Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior*, 77(2), 157–167. <https://doi.org/10.1016/j.jvb.2010.04.002>.

Kahneman, D., & Deaton, A. (2010). *High income improves evaluation of life but not emotional well-being*. Proceedings of the National Academy of Sciences, 107(38), 16489–16493. <http://doi.org/10.1073/pnas.1011492107>.

Walczak, R. B. (2014). PSYCHOLOGICAL PREDICTORS OF EMPLOYEE HAPPINESS. In P. Slavíčková (Ed.), *Knowledge for Market Use 2014: Media and Communication in the 21st Century* (pp. 429–437). Olomouc: Univerzita Palackého v Olomouci.

Walczak, R. (2016). WAGE LEVEL OR INTERNAL DISPOSITIONS – WHAT IS MORE IMPORTANT IN DETERMINING THE SATISFACTION OF EMPLOYEES ON DIFFERENT POSITIONS? In P. Slavíčková (Ed.), *Knowledge for Market Use 2016: Our Interconnected and divided world*. (pp. 580–587). Olomouc: Univerzita Palackého.

Walczak, R. B., & Derbis, R. (2015). The role of the happiness philosophy and core self-evaluations in defining job satisfaction as seen by the self and the significant other. *Polish Journal of Applied Psychology*, 13(4). <https://doi.org/10.1515/pjap-2015-0042>.

Walczak, R. & Derbis, R. (2017) Podstawowe samowartościowanie – walidacja polskiej wersji skali do pomiaru Core Self-Evaluations. (en: Core self-evaluations. Validation of the polish version of the CSE scale). *Czasopismo psychologiczne - psychological journal*, 23(1).

Zalewska, A. (2003). *Skala Satysfakcji z Pracy–Pomiar poznawczego aspektu ogólnego zadowolenia z pracy*. Retrieved from <http://repozytorium.uni.lodz.pl:8080/xmlui/handle/11089/3708>.

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E-COMMERCE IN CUSTOMER RELATIONSHIP MANAGEMENT – RESULTS OF THE STUDY

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Abstract: *The main objective of this paper is to attempt to characterize the impact of modern e-commerce techniques to create long-term relationships with customers. The paper includes the main tools of contemporary e-commerce used by enterprises in order to maximize the value for the consumer. Moreover, the value of a virtual market in Poland is characterized and its trends of development. The deduction is also presented as well as the results of an empirical study on the use and impact of different types of e-commerce techniques to create long relationships with customers who nowadays form the basis of companies' resource.*

Keywords: *CRM, relations, management, customer, e-commerce.*

JEL classification: *M12, F14, D12*

Grant affiliation:

1. Introduction Chapter

In today's business relationships, where emotions play a very important role, getting to know customer satisfaction is a major challenge for 21st century enterprises. Growing competition forces businesses to constantly seek new success factors. Apart from the existing tools for building a competitive position – such as cost reduction or differentiating the product offer, customer satisfaction and loyalty relationships are of crucial importance. Thus, the most important objective for businesses is to keep the already-gained customers, as they are the most valuable resource a company has. Company logistics should be organized in a way that would minimize the functioning-related costs and allow for the continuity of production and sales (Zimon G., Zimon D., 2016, p. 567). The starting point for such attitude is understanding for customer expectations and offering them a possibility to make purchase transactions through diversified sales channels.

Consequently, the key issues for supply and demand synchronization in businesses are all issues related to virtual markets. The optimal use of particular tools in e-commerce processes has impact on added value creation, at the same time makes customers more loyal to the company.

2. E-commerce on the market

Currently, the fastest-growing segment of the global economy is e-commerce. It is conditioned not only by the technical aspects that make it easy to communicate via the Internet, but also by the relationship between the customer and the seller. Additional factors affecting the development of trade are: market orientation, economic freedom, freedom of choice, independence, integration of objectives, competition, financing, equal opportunities and the emergence of the consumer market (Gosik, 2016, p. 111). Relationality in e-commerce is expressed in terms of subjectivity, where the most important ones are B2B and B2C. Transactions in these markets in most cases are made in the traditional form using the so-called. Internet nodes, whose main purpose is to allow interaction between the seller and the buyer. That is why, the most popular method of e-commerce are transactions made through the World Wide Web. In the aspect of virtual goods trading, such activities cover four main business processes: promotion and marketing, procurement, payment and delivery – all this, of course, only as regards digital products (Cellary, 2000, p. 7).

Another breakthrough in e-commerce is offering products in the digital format, which increasingly dominates the software market. At present, most of the products will be delivered electronically, which undoubtedly has a significant effect on the reduction of distribution costs and the shortening of delivery time (Karwatka, Sadulski, 2011), also contributing to lower transaction costs achieved via the elimination of indirect links, reduction of retail outlets, warehouses, personnel, elimination of some traditional documents and invoices, and finally – allowing for increased quality and convenience of purchase for the customer. These actions also help to create benefits for the customer. The main advantages of e-sales are (Cellary, 2005, p. 51): time savings, convenience of purchase, easy and fast access to offers and easy comparability, access to a broader range of goods, access to international stores across the globe, low cost purchase possibilities. The prevalent benefits of e-commerce allow for its permanent growth. Compared to Western European countries, Polish e-commerce market is small, though constantly growing at a rate of about 25% per year (for comparison, the German or British market is about 10% per year). The largest share of this development is auction platforms - it is estimated that about 50% of the share in e-sales belongs to Allegro.pl (Karwatka, Sadulski, 2011, p. 32).

The consequence of such dynamic development is the emergence and evolution of e-commerce models used by businesses to maximize value for the customer. The emergence of virtual markets or networks where producers and consumers connect dynamically, often in short-term relationships, for the duration of a business transaction, or for achieving other business goals, influences the creation of long-term beneficial partnerships. This also applies to relationships between other e-business entities: suppliers or co-operators (Nojszewski, 2006). Examples of such business models include: (Gregor, Łaskiewicz, 2003) e-shops, e-procurement, e-auction, e-mall, Virtual community, value-chain integrator, collaboration platform, and application service provider (ASP). As per data for Poland, in 2014, there were between 15,000 and 20,000 internet shops, reaching over PLN 30 billion this year (Forbes, 2014). More than 70% of companies report sales via electronic channels as an additional form of sales, and about 40% of companies declare that they sell via the Internet only [Shopper, 2017, p. 4].

Each of these e-commerce systems operating on inter-linked markets implies communication with suppliers and subcontractors. The primary purpose of e-communication applied in e-commerce is to reduce the fluctuations and retention of customers, to acquire new ones, and to streamline products offering by reducing the cost of direct communication (Walasek, 2012, p. 27). Besides, this type of solution allows for interactive enhancements in communication, previously offered by call center services.

3. E-commerce tools in customer relationship

Nowadays, actions aiming at introduction of innovative e-commerce techniques allow companies to reduce costs while optimizing their operations throughout the supply chain. Examples of such activeness are businesses operating in the Lodzkie Voivodship, seen as highly competitive, with access to modern solutions created by scientific centers and driven by economic practice.

The conducted survey as an attempt to determine the level of implementation and use of e-commerce tools, communication methods, benefits, and their impact on creating long-term customer relationships. The sample selection was a deliberate choice. The study covered 54 logistics companies from the Lodz Region, which declared the use of modern network-based sales forms. The research method was a survey, a tool of which was a questionnaire. The questionnaire survey was conducted at the turn of October and November 2016, using the direct interview method. The structure of the sample in terms of enterprise characteristics (period of operation, origin of the capital, ownership, number of employees and nature of the activity is presented in TAB. 1).

TAB. 1: Sample structure in cross-section of studied enterprise characteristics

Period of functioning on the market ³		Business capital	
below 5 yrs	17,9%	foreign	36,2%
5 - 10 yrs	28,6%	polish	45,2%
over 10 yrs	53,5%	mixed	18,6%
Form of ownership of the enterprise ⁴		Number of people employed	
state-owned	1,3%	below 50	47,8%
Private	94,2%	50-250	34,9%
Mixed	4,5%	above 250	17,3%
Nature of business activity			

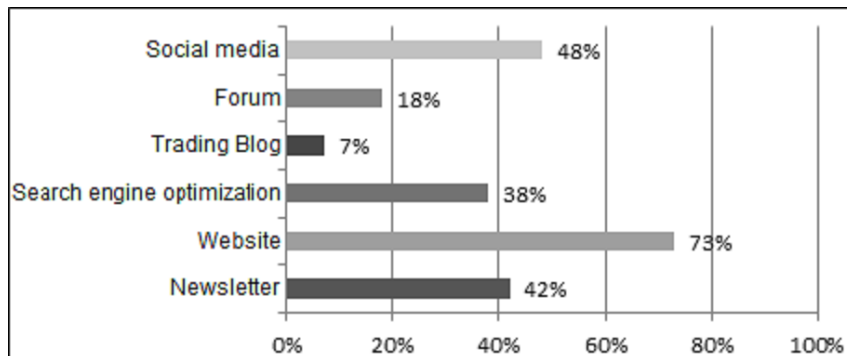
³Due to the asymmetric distribution of enterprises, in terms of this variable, the division into two categories is applied in further analyzes: the period of operation up to 10 years and over 10 years.

⁴As a subjective feature, this variable was not included in further analyzes (due to the strong domination of private ownership).

commerce 38%	services 32%	production 30%
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The ability to use modern communication channels allows companies to diversify their sales offerings while maximizing added value for both the customer and the business itself. The structure of answers is shown in FIG. 1.

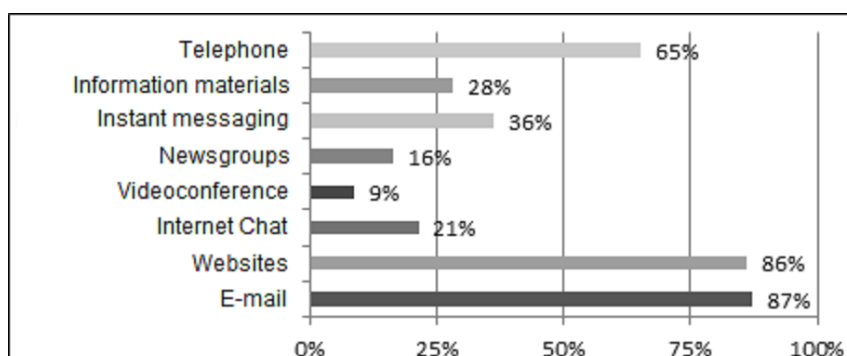
FIG. 1: Types of technologies and techniques supporting e-commerce



Practically for all surveyed enterprises (over 70%) the most commonly used trading technique is via a website. The least used e-sales method for most of the surveyed companies (applied by just over 5% of respondents) appeared to be trade blogging.

Offering modern e-commerce techniques is very closely associated with the use of modern e-communication tools. Their primary purpose is to reduce the fluctuations and retention of existing customers, acquire new ones, and to streamline product offerings by reducing the cost of direct communication. The structure of answers is shown in FIG. 2.

FIG. 2: E-communication channels used in e-commerce



Most companies employing more than 50 employees, commercial ones in majority, are privately owned, no matter how long they operate on the market. Virtually the same population has declared that electronic mail is a modern channel used in their relationships with partners. To the smallest extent companies use video conferencing (only less than 10% of respondents indicated this response), which the author's previous assumptions.

Effective use of the right techniques and tools throughout the logistics chain contributes to the improvement of e-commerce, at the same time making the customer more loyal to the company. Therefore, the benefits derived from using these techniques can be presented as the sum of the desired attributes: service and product quality, usability and functionality, time and cost optimization, reliability and timeliness of flows in the logistics chain. The structure of answers is shown in FIG. 3.

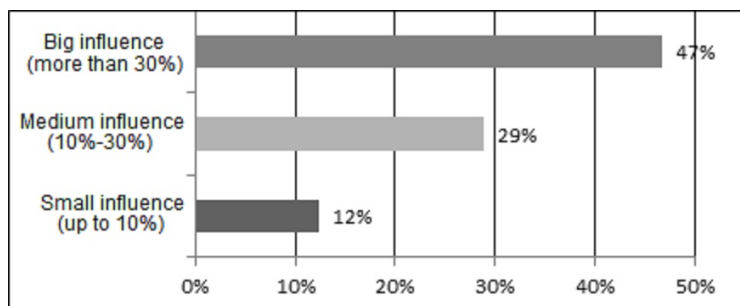
FIG. 3: Business benefits achieved through e-commerce



For over 70% of respondents, the most important benefit of e-commerce was customer satisfaction after the transaction process. Less profitable or expiring relationships can be removed from the company databases, and the resources thus obtained are transferred to improve those relationships that are profitable to the business. Other visible benefits (indicated by above 40% of the respondents) were as follows: organized discount policy and the ability to present the full offer of the company. These benefits, first and foremost, have been pointed out by medium and large companies, with longer market experience, with Polish capital, operating in commercial and service sectors. Only slightly more than 15% of respondents indicated that, to them, the greatest benefit was micro-segmentation and the possibility to send the product offer via this channel.

The last issue raised concerning the implementation and use of modern e-commerce tools was the question of impact of this sales form on creating long-term customer relationships. This question was to provide additional view and a summary of previous analyzes. The structure of answers is shown in FIG. 4.

FIG. 4: The impact of e-commerce tools on customer relationships



According to nearly half of respondents, the use of an additional form of sales such as virtual sales significantly contributes to the creation of long-term relationships with customers. Thus, the indications of the respondents show that e-commerce tools, in combination with traditional sales patterns, effectively influence the creation of positive relationships with buyers and contribute to increasing the competitiveness of businesses, when compared to other operators from the same markets.

4. Conclusion

In today's business world, a company needs to deliver superior value created using different sales techniques to meet customer expectations.

Getting in touch with a customer, encouraging them to purchase, branding, keeping them for longer, or taking them over from a competitor is a key element in ensuring the survival of your business in increasingly-consumerised markets. Decreasing customer loyalty along with the growing diversity of players offering the same or similar products, boosts competition and forces companies to fight not only for the customer and industry but also for suppliers, contractors and distribution channels. This approach is reflected in the research conducted, where the analysis shows that most of the companies that operate on the virtual markets have managed to achieve the intended benefits, which was closely related to the ordering of customer discount policies and the creation of new information channels necessary to present individual product offerings.

Treating the Internet as an e-commerce tool for information exchange between the market and the customers makes it possible to fully exploit its capabilities and contribute to consumer satisfaction. The benefits thus obtained are enormous resource potentials in which companies can appropriately create their business policies aimed at maximizing customer value.

In conclusion, it can be stated that to invest in the purchase and use of modern e-commerce techniques, enterprises must first define their implementation goals, target markets and implementation channels. The subsequent tasks are: introducing the necessary changes in the overall strategy, selecting and implementing appropriate e-communication tools that will contribute to the achievement of specific organizational objectives, at the same time boosting competitiveness of the modern enterprise.

Literature:

Cellary, W. (2005). *Techniki internetowe*. Wydawnictwo AE w Poznaniu.

Cellary, W. (2000). *Elektroniczny biznes, Bezpieczna gospodarka elektroniczna*. Wydanie specjalne Net Forum.

Karwatka, T., Sadulski, S. (2011). *E-commerce proste odpowiedzi na trudne pytania*. Oficyna Wolters Kluwer.

Nojszewski, D. (2006). *Przegląd modeli e-biznesowych*. E-mentor – SGH.

Raport z polskich sklepów internetowych 2017. Shoper, (2017). Retrieved July 18, 2017, from <https://static.shoper.pl/raporty/raport-shoper-2017.pdf>.

Gosik, B. (2016). *Wpływ międzynarodowych sieci na przekształcenia handlu detalicznego w Polsce*. Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego. Geograficznego 30(1).

Gregor, B., Łaskiewicz, A. (2003). *Rynek elektroniczny – modele e-biznesu*. Electronic market – e-business models. Wydawnictwo Uniwersytetu Zielonogórskiego w Zielonej Górze 2003.

Walasek, R. (2012) E-komunikacja jako narzędzie tworzenia konkurencyjności przedsiębiorstw – na podstawie badań w firmach logistycznych. In: *Studia Ekonomiczne Regionu Łódzkiego konkurencja, konkurencyjność przewaga konkurencyjna w rozwoju współczesnych organizacji*, F. Sitkiewicz (Ed), Wyd. PTE O/Łódź.

Zimon G., Zimon D. (2016). Influence of logistics on profitability of commercial companies. Carpathian Logistics Congress (CLC) Location: Jeseník, Czech Republic Date: NOV 04-06, 2015, CLC 2015.

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SOME NOTES ABOUT UNDERSTANDING OF AND MISLEADINGS IN ECONOMIC CHARTS

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Abstract: Nowadays is a period of an information revolution. Information is bombarding us every minute. A lot of economic information is given in form of charts. Are they always clear and correct? Have they an expressing power? The ability of understanding graphically presented data is usually called graphic literacy. The aim of our paper is to show and explain some possible distortions in graphs of everyday's life and outline principles that lead to creation of correct charts.

Keywords: Chart, misleading graph.

JEL classification: A20

Grant affiliation: This paper is an output of the science project VEGA 1/0696/16.

1. Introduction

Well-known proverb states that one picture is worth a thousand words. Graphics are an important means of communicating economic data and results. Graphic can serve many purposes and audiences. It can convey quantitative concepts to persons with limited education, can be an eye-catching advertisement that overstates the sponsor's message through distortion of truth, or can present detailed data to a sophisticated scientific audience (Schriger & Cooper, 2001). However, many of the charts presented in newspapers, journals and on TV contain errors, redundancies and lack clarity. Perhaps, in the absence of standards for graphical style (the visual equivalent of the grammar rules), authors feel no pressure to improve their graphics. Another situation is an intentional or unintentional distortion of information by incorrect graphical representation. Inspiration for writing of this article was well-known and discussed "Kažimír's graph" ("Richard Sulík vs. Peter Kažimír", 2011). The graph refers to the average price development of a gas unit. According to this chart the price decreased from about 45 cents to 5 cents between 2007 and 2008. The root cause of the error was a change of pricing unit (from one cubic meter valid until the end of 2007 to one kilowatt-hour since the beginning of 2008) and subsequent failure to recalculate the price to a

common base unit. In fact, the price did not change in this period. What are general principles of a good graph? What may cause misleading charts?

2. General principles for a good chart

The correct chart is a very useful tool that helps to recognize quantitative characteristics of compared or described entities. It is much more intuitive and friendly than precise numeric description in some table. This is the main reason for wide spread and high popularity of charts. In order to make accurate conclusions from data, the data must be reliable and presented appropriately. Data can be presented in many different ways: picture graphs, histograms, line graphs, scatter plots, bar graphs, and so on. When we see a graph, we should look carefully to make sure that the graph is a fair one that accurately tells the story of the data. The first and very important decision is to choose the correct type of a chart according to the represented set of data. Some charts are more specific and therefore they can be used for specific set of data, while some are more universal like column or bar charts. Selection of the correct chart influences and simplifies other important decisions connected with chart design. It is common to use the horizontal axis for an independent variable and the vertical axis for results alias for values of the dependent variable (bar chart uses an inverted configuration). An axis should have a correct caption and it should be clear which unit is used for depicted values. Indications, advantages, and disadvantages of some common graphic formats can be found in some guidelines, for example in one presented by Schriger & Cooper (2001). Complete information about using graphs and visuals to present financial information is given by Kelley (2002).

3. Charts distortions

Data may be misrepresented (intentionally or unintentionally) if one or more of the following occurs:

- the graph's axes are scaled improperly;
- origins on the graph are excluded;
- three-dimensional pictures are used inappropriately;
- numbers that should not be compared are compared;
- pictures that do not fit the numbers are used.

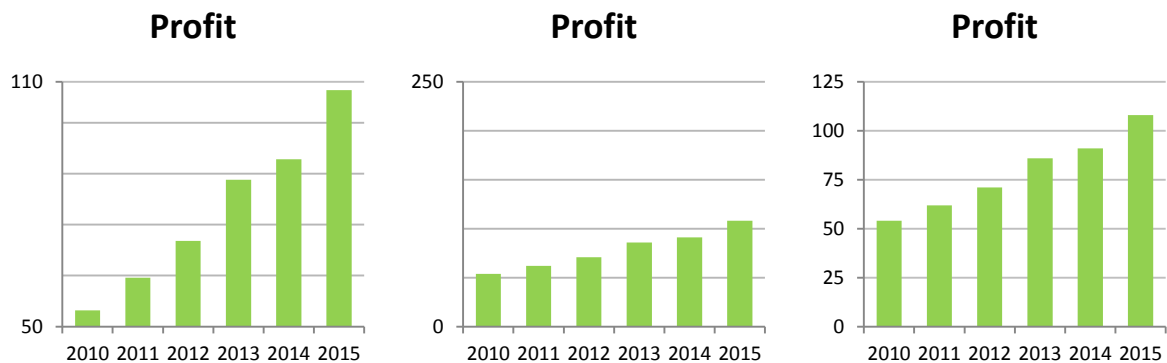
3.1. Scale misleadings

The most common distortions originate in the incorrect scale of axis for the dependent variable (vertical axis in column chart). In this case the axis for dependent variable is shortened by moving of the axis for independent variable from zero to a higher value (FIG. 1, left). Another option is to set up the maximum for the scale much higher than required (FIG. 1, middle).

The main aim of an axis shortening is to present bigger differences among described entities as it is in reality (FIG. 1, left). On the other hand, when scale maximum is much higher than needed, the aim is

to present smaller differences among described entities as it is in reality (FIG. 1, middle). The correct chart for the dataset is in FIG. 1, right.

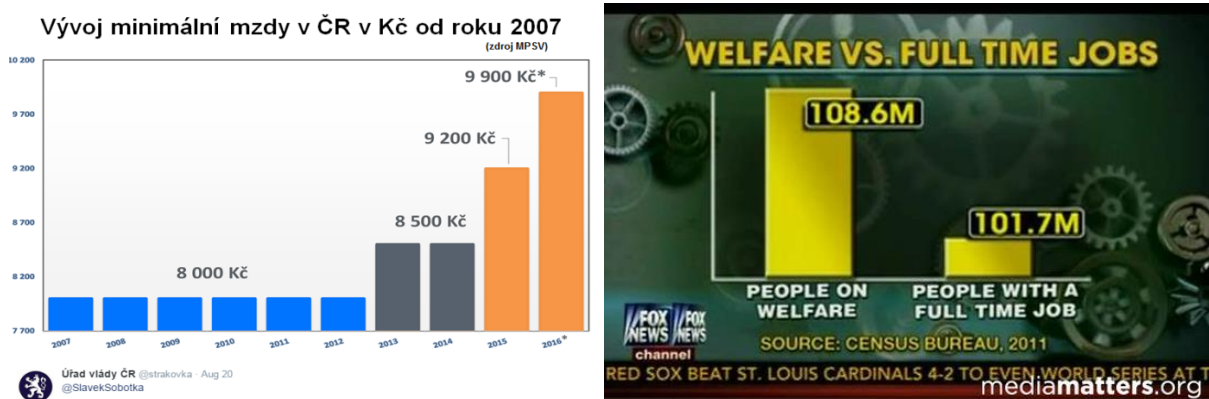
FIG. 1: Examples of distortions on the vertical axis



Source: authors

Two examples of a real-life axis scale manipulation are in FIG. 2. On the left-hand side, there is a chart of the minimum wage development in Czech Republic publicized by the Government office (Kasík, 2015). On the right-hand side, there is a chart of the Obamacare enrollment presented by the Fox News Channel (“Misleading Graphs: Real Life Examples”, 2014). The second example is even missing a scale on the axis for the dependent variable.

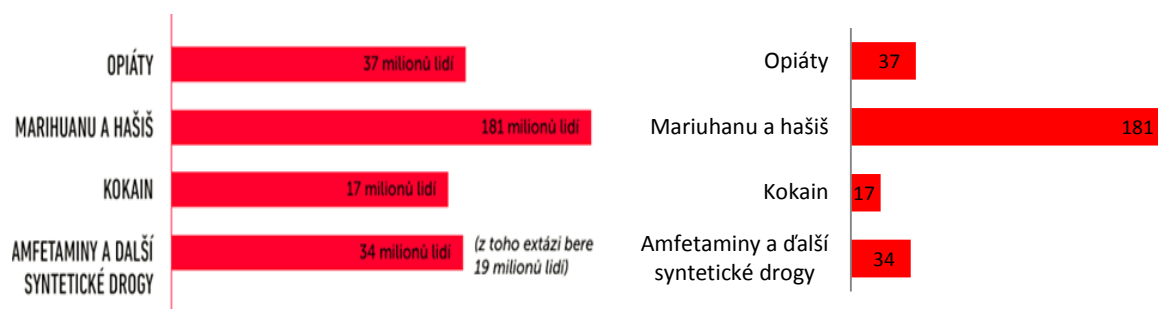
FIG. 2: Examples of manipulation of axis



Source: Kasík (2015) & “Misleading Graphs: Real Life Examples” (2014)

Another case of the axis scale manipulation that is much more obvious is a usage of a logarithmic scale for the dependent variable axis.

FIG. 3: Misleading chart and right chart



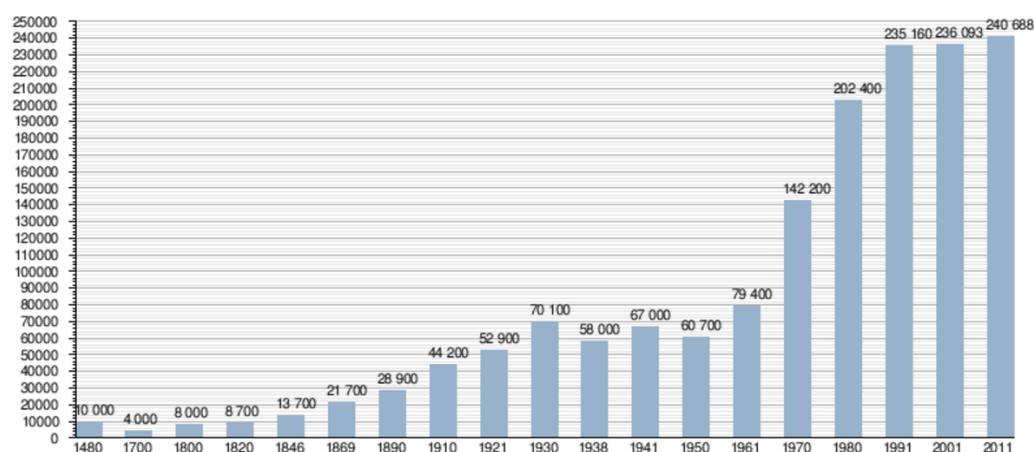
Source: Kasík (2015) & authors

If this is needed because of the dataset that involves large range of quantities, it should be appropriately indicated and the scale (that is nonlinear) with its axis should be shown. The example (FIG. 3, left) of such a chart was presented by the weekly magazine Dotyk (Kasík, 2015). The same dataset with a linear scale of axis for the dependent variable is shown in FIG. 3, right (horizontal axis in bar chart).

In some cases, the scale of the axis for the independent variable can be also misleading. The historical population development in the Košice city is described in FIG. 4 (“Košice”, n. d.). Progression of values at horizontal axis is non-linear and there are various gaps in years, sometime one hundred years (1700, 1800), another time 3 years (1938, 1941). Reader of the chart doesn’t get a real representation of the trend of the historical population development.

FIG. 4: Example of bad scaling on horizontal axis

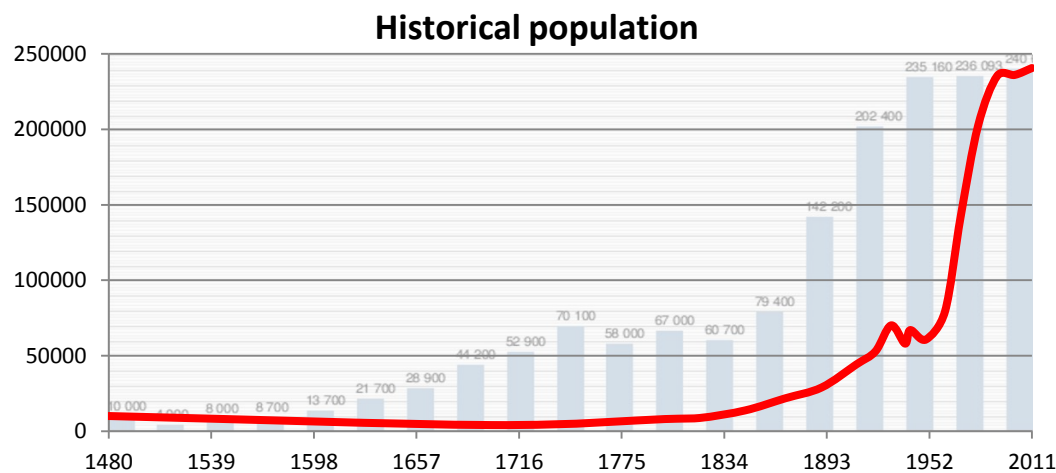
Vývoj počtu obyvatel'stva [upravit' | upravit' zdroj]



Source: “Košice” (n. d.)

The relevant development trend (the original chart from previous picture is used as the background picture) is shown in FIG. 5.

FIG. 5: Relevant development trend

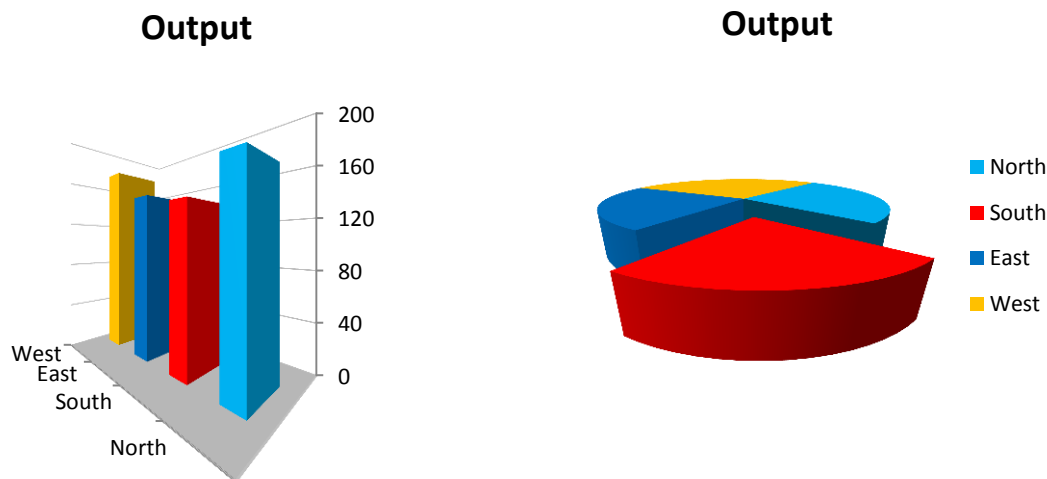


Source: authors & “Košice” (n. d.)

3.2. Inappropriate chart or inadequate perspective in 3D charts

It is highly advisable to use a 2D chart instead of a 3D chart whenever possible. Of course, except for the case when a misleading is the main target of the chart. Even though a 3D variant may look more attractive, it is much harder to read correct values from it. Thickness of objects can mislead the reader and objects closer to the reader may look bigger, especially in a 3D pie chart (FIG. 6). Both charts are based on the same dataset and both of them are incorrect and misleading. The real order of regions is as follows: 1th West (171); 2nd North (158); 3th East (142); 4th South (134).

FIG. 6: Inappropriate 3D charts



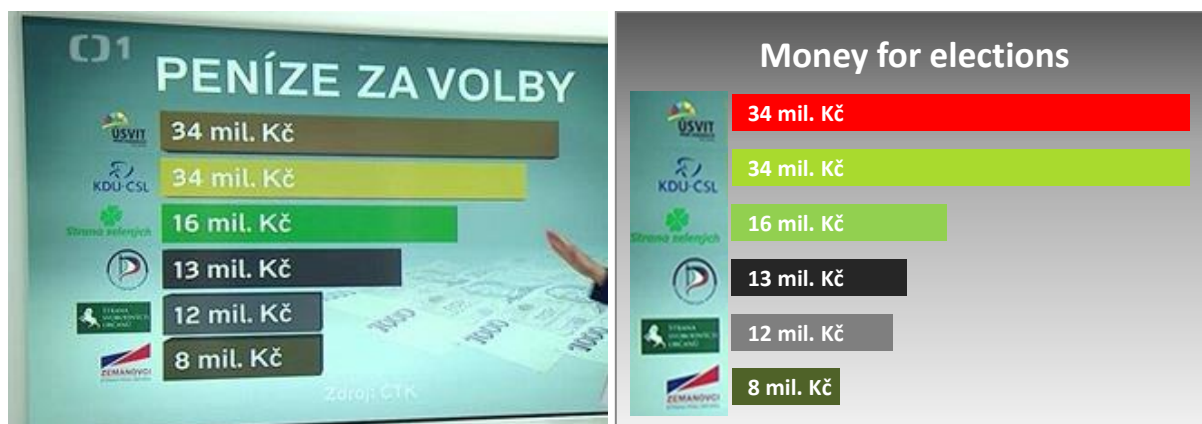
Source: authors

3.3. Intentionally manipulated charts

All listed misleading charts, in the forms as they are shown, were probably made without an intention to lie. But a creator of such a chart can give an excuse that the misleading character of his chart was caused by his ignorance. Other type of creations exists in a real life where the intention

cannot be doubted. In both charts bellow (FIG. 7 & 8), the creator had to manually overwrite chart labels or manipulate with them.

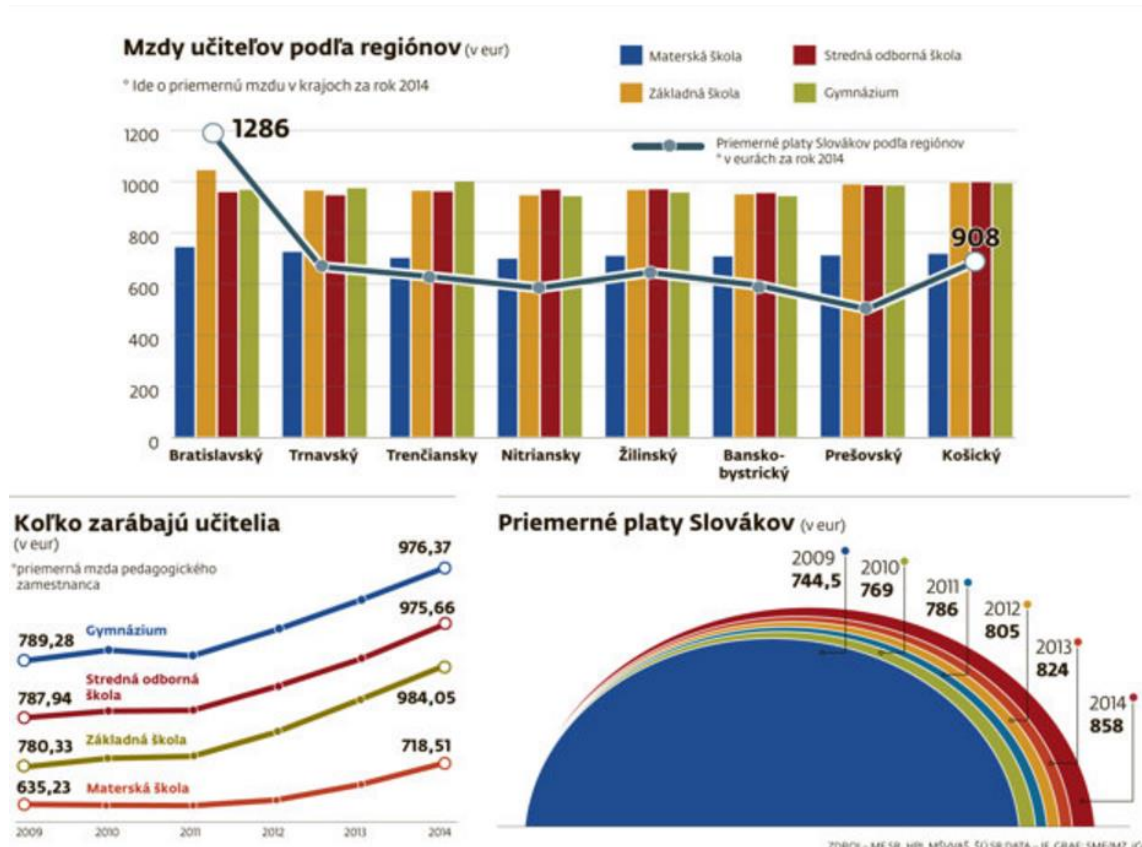
FIG. 7: Misleading chart and correct chart



Source: Kasík (2015) & authors

The picture (FIG. 7, left) is taken from broadcast on TV channel ČT 1 (Kasík, 2015). The chart as it should look according to the dataset is on the right-hand side. The set of charts in Fig. 8 is taken from e-newspaper Sme.sk (Matkovská, 2016) and it deals with Slovak teachers' salaries. The upper part of the picture uses combined chart. There is a column chart for teachers' salaries and a different chart type (line chart) for the average salaries in economy. Obvious reason for this trickery is to use a secondary axis with a manipulated scale that is even deleted in this case. Thus, the label of the line chart with the value of 1286 is little lower than the level 1200 on the left-hand axis, and the second label with the value of 908 is somewhere around the level 700. The values of the left and right-hand sides of the lower part of the picture show discrepancies and most of all another type of chart is used for description of the same subject.

FIG. 8: Example of a bad understanding and mistaken chart



Source: Matkovská (2016)

4. Conclusion

Good graphs are extremely powerful tools for displaying large quantities of complex data; they help to turn the realms of information available today into knowledge. Often, a visual promotes a unique way of thinking about information because we're able to perceive new relationships, improve our analysis and form different interpretations. But, unfortunately, some graphs deceive or mislead. This may happen because the designer chooses to give readers the impression of a better performance or results than the actual. In other cases, the author may want to be accurate and honest, but may mislead a reader by a poor choice of a graph form or poor graph construction.

Literature:

Kasík, P. (2015, October 27). Věříte grafům? Podívejte se, jak jednoduché triky používají manipulátoři. *Technet.cz*. Retrieved December 15, 2016 from http://technet.idnes.cz/manipulace-grafy-statistika-dgj-/veda.aspx?c=A151023_164547_veda_pka.

Kelley, J.T. (2002). *Using Graphs and Visuals to Present Financial Information*. Retrieved June 22, 2017 from http://home.xnet.com/~jkelley/Publications/Using_Graphs.pdf.

Matkovská, Z. (2016, January 25). Štrajkujúci učitelia: Vydržíme dni, týždne, aj mesiace. *SME*. Retrieved June 22, 2017 from <https://domov.sme.sk/c/20079658/strajkujuci-ucitelia-vydrzime-dni-tyzdne-aj-mesiace.html#axzz4keKn0Qbo>.

Schriger D.L., Cooper R.J. (2001). Achieving Graphical Excellence: Suggestions and Methods for Creating High-Quality Visual Displays of Experimental Data. *Annals of Emergency Medicine*, 37(1), 75-87.

Richard Sulík vs. Peter Kažimír. (2011, April 10). *Demagog.sk*. Retrieved December 15, 2016 from <http://www.demagog.sk/diskusie/140/richard-sulik-vs-peter-kazimir>.

Misleading Graphs: Real Life Examples. (2014, January 24). *Statistics How To*. Retrieved November 20, 2016, from <http://www.statisticshowto.com/misleading-graphs/>.

Košice. (n.d.). Retrieved November 20, 2016 from the Wikipédia: <https://sk.wikipedia.org/wiki/Ko%C5%A1ice>.

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ECONOMIC AND SOCIAL ASPECTS OF HOUSING POLICY IN THE SLOVAK REPUBLIC

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Abstract: *In this paper we evaluate housing policy through selected indicators. Slovakia's entry into the European Union has an impact on many areas. Housing policy and housing construction is one of it and is evaluated based on several indicators, ownership of residential property, the extent of overcrowding, the number of dwellings per 1000 inhabitants, the share of housing loans to disposable household income. With regard to trends in the European Union, it underlines this fact situation whereby the share of ownership of real estate increased by poorer the country. Increasing intensity of household investment in Slovak real estate put households into debt, and also has an influence to the amount of their wealth. In the Slovakia is one of four households indebted.*

Keywords: *Housing, housing construction, intensity housing construction, debt, mortgage loans.*

JEL classification: *H31, D13, O13, O14*

Grant affiliation: *Contribution is output of VEGA 1/0002/16 Socio-economic aspects of housing policy in the context of labour migration.*

1. Housing policy and theoretical background

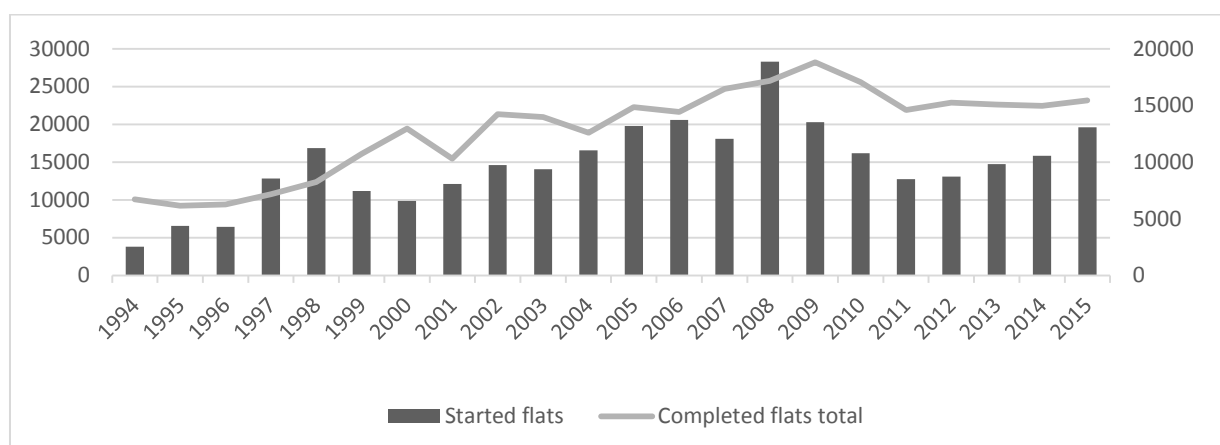
Housing policy of the state deals with relations between subjects and processes related to housing needs (Labaj, 1993). Housing policy is also a combination of economic, social, legal and technical contexts of housing, being directly dependent on the country economic conditions. The basic criterion for the success of housing policy is to ensure long-term housing availability for all social groups of the population, because at the present stage of the country's development, only some are able to pay the costs of new construction from their own resources. (Labaj, (1993), Omoniyi & Jiboye, (2011), Holková, (2013)). Since 1970 and 1980 there has begun a process of deregulation, privatization and private sector growth, and housing policy has led to the support of housing owners and the tendency to move from the supply side of the housing offer to housing demand (Balchin, (1996), Harloe, 1995); Donnison and Ungerson, (1982), Lowe, (2004), MacLean et al., (1998)). Integration in the EU has brought about a change in housing, even though housing policy has no uniform guidelines. We define four types of housing policy according to the traditions and the

different involvement of the state's role in the economy. The first type is perceived as a socio-democratic, based on the use of civic solidarity by the provision of social services. It supports the equal access of all citizens to housing and intervenes in the housing market. This type of housing policy is applied by Scandinavian countries. The second type is based on the corporatist understanding of the welfare state, which is based on citizens' work activity, but at the same time perceives the social differentiation of the population. It relies on the market to also apply strong state intervention to the benefit of socially weaker citizens. Applied in France, the Netherlands and Austria. The third type is based on the liberal understanding of public social services, focusing on individual activity. The state is interested only in those groups of people who are in material need and are unable to solve the situation themselves. Emphasis is placed on addressed assistance. Applied in the UK. The fourth type of housing policy leaves housing to the citizen - the individual. The state is engaged only minimally, through the social safety net. Applied in Greece and Portugal (Stanek, (2011), Holková, (2013)). This is the role of establishing relationships between entities to meet the changing needs of housing populations at a quantitative level, creating the conditions for the capital market to have sufficient funds for housing construction, in particular tax policy, as well as conditions for effective competition of private companies in the performance of their duties. It is necessary to organize housing policy in an institutional way, to strengthen the connection between housing policy, job creation, environmental protection, the mobilization of resources, and their effective use, to strengthen housing-related information systems. MacLean et al. (1998) argue that despite the convergence pressures, the housing and financial market disparities in all EU member states are still huge. However, many EU member states resolve similar problems, in particular re-housing, urban sprawl, promoting sustainable development, helping young and disadvantaged groups to enter the real estate market or to promote the energy efficiency of housing.

2. Housing Policy in the Slovak Republic

Housing policy in Slovakia after 1989 has significantly influenced the housing construction and its intensity, which can be seen mainly through the number of started and the number of completed dwellings. More than 33,400 dwellings were built in the Slovak Republic in 1989 and gradually declined as a result of the decline in collective housing construction since 1991 (FIG: 1). In order to be able to solve the housing problem of the inhabitants, in the construction of new flats in order to solve the personal needs of citizens in 1991, preferential loans with a reduced interest rate and maturity of up to 30 years began to be provided.

FIG. 1: State of Beginning and Finished Flats in the Slovak Republic



Source: own graph base on MTDR, SO SR

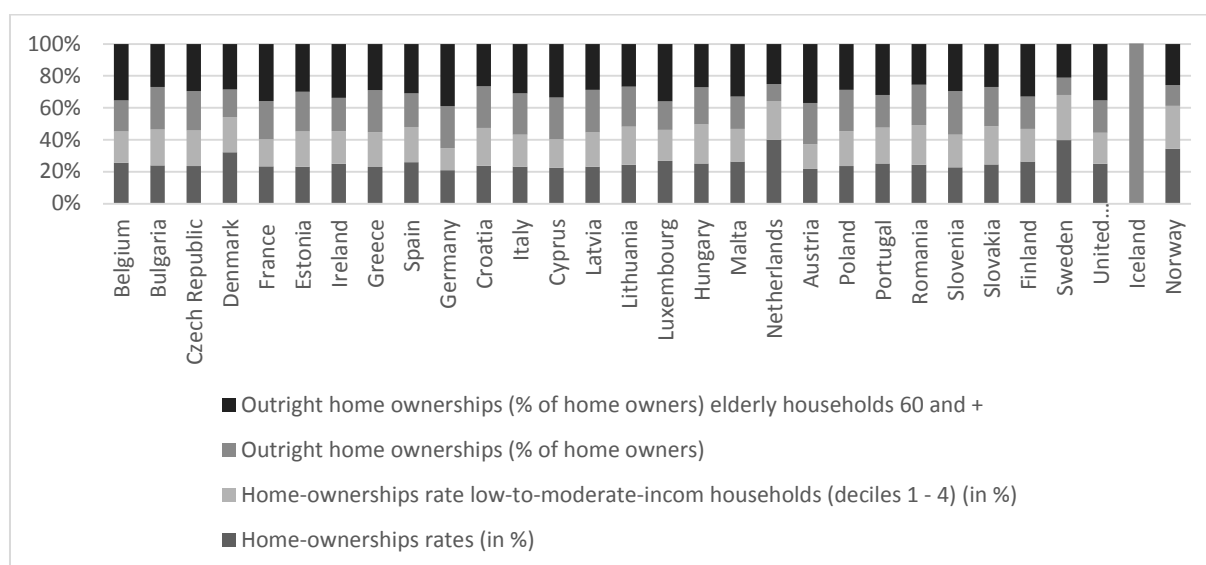
Gradually, new housing support, construction savings, state housing development funds and mortgage loans were also introduced. These supportive tools have made it easier for citizens to obtain their own housing, as households have insufficient funds to secure their housing, and as the number of people of the age when they need to secure their housing has increased. (Vidová, 2015).

The result was a significant change in the ownership structure of the housing stock and today there are almost 90.5% of the dwellings owned by households, 3% are the dwellings in the public sector, 3.5% are cooperative dwellings, and 3% are private rental dwellings.

Among countries with the highest share of property ownership, and we are moving away from developed countries where the share of apartments is 40-60%. Ownership housing in the Slovak Republic is considered a natural phenomenon and most people consider investing in property housing as the largest and at the same time "most valuable" investment in life.

In Slovakia rental housing is classified as a "social housing" for the socially disadvantaged population, so this attitude is also why people are more likely to be indebted, only to "do not indulge" that they are living in a rented flat. And in what homes their parents are living up to now. In economically advanced countries, house ownership is less preferred, and rental housing is used by all social strata. It is no shame that a household with over-standard income is living a rented flat. (FIG: 2).

FIG. 2: Owned apartments in EU countries (in %)

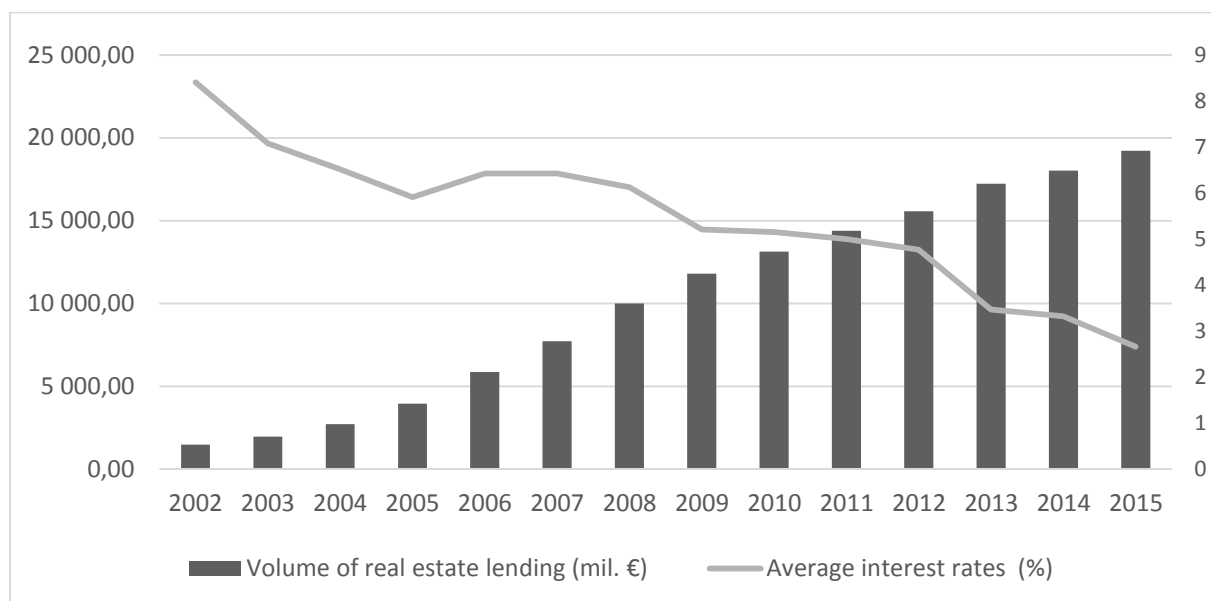


Source: Eurostat

3. Investments in Real Estate and Their Positive and Negative

The increasing intensity of household investment in real estate brings a positive but also a negative. On the one hand, by investing in the real estate, Slovak households are indebted to what the volume of lending is also evidenced (FIG: 3). Slovakia is the only country in the European Union where household indebtedness has been steadily rising since 2003. At the end of 2016, the debt totalled 1.4 million people, accounting for up to 35% of GDP. Household debt is centred on age groups from 16 to 44 years. In euro area countries, in debts are mainly households aged 55 and over. As household indebtedness is rising, a high share of property ownership also raises the state's spending on the need to live in, creating financial demands on the state budget and the need to earmark funds for subsidies to the state premium in the framework of building savings, support for mortgage loans of 2 % For young people under the age of 35, as well as for creating a reserve for the payment of loans for low-income households from the State Housing Development Fund. This reality reflects the absence of a functioning public rental market.

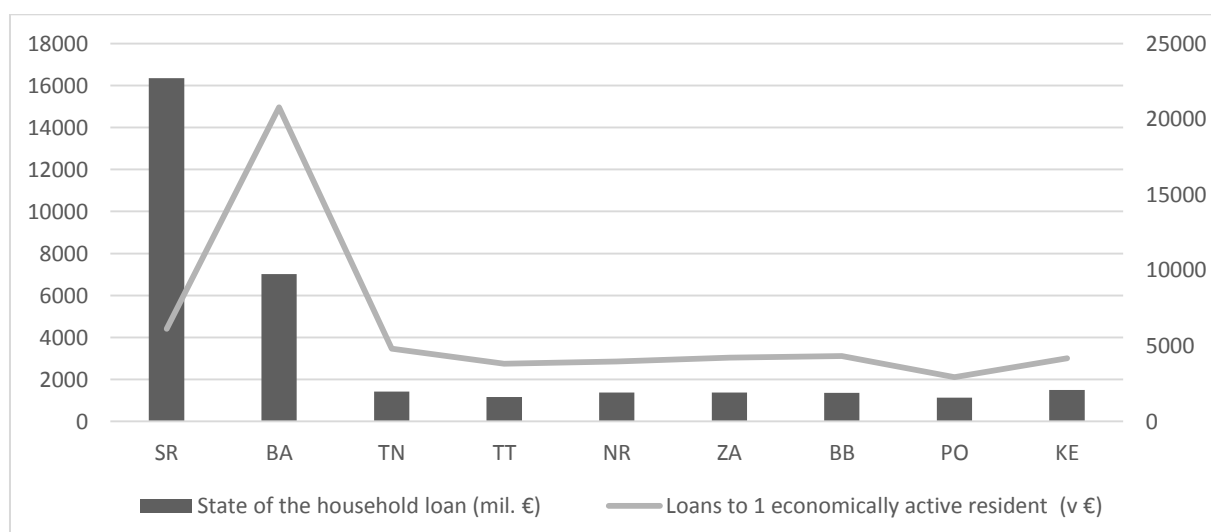
FIG 3: The volume of provided loans for real estate versus the average interest rate on loans in the Slovak Republic



Source: graph based on data of NBS

As regards the total loans from the regional point of view, the most indebted inhabitants 43% are in the Bratislava region with a debt to one economically active person of € 20,780. Differences in indebtedness are mainly due to high real estate price differences in Bratislava, the real estate prices over the past 10 years were on average 100-160% higher than in other regions. (FIG: 4).

FIG 4: Loans and indebtedness in the Slovak Republic and regions of the Slovak Republic



Source: graph based on data of NBS

Although income in the Bratislava region is higher than in other regions, the length of saving for housing is much longer, which is 124.5 months and therefore housing is only possible through loans, which affects the indebtedness of households. The inhabitants of the Bratislava region have loans five to six times higher debts than the population in other regions of the Slovak Republic. In figure 4 we present the state of loans of the inhabitants by region and also the state of loans per 1 economically active inhabitant.

The rapid indebtedness of Slovaks cannot have a negative impact on economy and the social sphere. Of course, increasing indebtedness puts greater pressure on family budgets of households and the emergence of social and psychological problems of the population. Banks are seeing an additional room for increasing the indebtedness of the Slovak population and thus have adapted the credit policy, on the one hand declining interest rates, on the other hand, the release of criteria for the approval of loans. This bank policy can be very dangerous in the future and cause major economic, social and ethical problems.

4. Conclusion

As we mentioned housing is a fundamental human need and these people satisfy the acquisition. Acquisition of property is a subject to the conditions of the housing market. Investment property represents an enormous financial burden on families, depending on the regions where these homes are located. The functioning of the housing market is the mobility of housing, which is closely linked with the desired and undesired labour mobility. Many people have become "prisoners" of their homes, whether rented or own housing due to lack of offers or for economic reasons, or in terms of the conditions for obtaining loans. Currently, the focus is on an increased requirement to ensure the mobility of housing, which is a prerequisite for greater labour mobility and thus better opportunities for its application in the labour market.

Literature:

Balchin, P. (1996). *Housing Policy in Europe*. London, Routledge.

Donnison, D., & Ungerson, C. (1981). *Housing Policy*. London, Penguin.

Harloe, M. (1995). *The People's Home*. Oxford, Basil Blackwell.

Holková, V. et al. (2013). *Spotreba a kvalita života domácností SR vo väzbe na ich spotrebiteľské rozhodovania v európskom kontexte*. Bratislava, Ekonóm. ISBN 978-80-225-3787-2.

Labaj, J. (1993). *Byty, bývanie a bytová politika v trhovom hospodárstve*. Bratislava, Elita. ISBN 80-85323-28-1.

Lowe, S. (2004). *Housing Policy Analysis: British Housing in Cultural and Comparative Context*. Basingstoke: Palgrave Macmillan. ISBN 9780333801796.

MacLennan, et al. (2008). *Housing for the Toronto Economy*. Research Paper 212, Cities Centre, University of Toronto, July 2008.

McCormick, B. (1997). *Regional Unemployment and Labour Mobility in the UK*. European Economic Review, 41 pp. 581-589.

Omoniyi, S., & Jiboye, A. D. (2011). Effective housing policy and sustainable development in Nigeria. *International Journal of Development Studies*. 6(1), 129-135.

Vidová, J. (2015). *Investičné procesy a ich vplyv na investície do bývania*. Bratislava: EKONÓM, 2015. 182 s. ISBN 978-80-225-4090-2.

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TRENDS IN THE DEVELOPMENT OF THE EDUCATION SYSTEM OF THE VISEGRAD FOUR

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Abstract: *The contribution is aimed at comparing the achieved level of the education system (respectively basic education) in the Visegrad Group with the Finnish education system, which has long been in favor of countries with an excellent level of education. The comparison uses the results of the OECD PISA research studies over the period 2003-2015 (measuring the level of literacy in the field of mathematics, science and reading) and the GCI index of the World Economic Forum, which can measure the competitiveness of the country. The contribution also includes a comparison of selected determinants of the knowledge economy, which affect the level of the education system in individual countries.*

Keywords: *Knowledge economy, competitiveness, pupil literacy, the PISA project, index GCI.*

JEL classification: *E 62, I 21, I 23*

Grant affiliation: *This work was supported by Grant Agency Vega of the project no. 1/0393/16 called the European Union in the post-crisis period - macro and micro aspects.*

1. Introduction

The issue of competitiveness is a constantly debated issue in the current era of globalization. Competitiveness is directly linked to the development of the knowledge economy, with education being one of the basic units of the knowledge economy.

The well-educated and qualified population is a prerequisite for the effective creation, acquisition, dissemination and use of relevant knowledge, which enables the growth of overall productivity and thus economic growth.

2. Analysis of pupil literacy levels in selected countries

Since 2000 the Organization for Economic Cooperation and Development has been presenting the international PISA (Programme for International Student Assessment) project at three-year intervals.

The OECD PISA study identifies learning outcomes in terms of labor market requirements (i.e. functional literacy of pupils in terms of lifelong learning) and focuses on pupils in recent years of compulsory school attendance. All 35 OECD member countries are currently involved in the PISA project. The latest study involved 72 countries and 25 regions of the world.

The main objective of the PISA project is the regular discovery of knowledge and skills that are a prerequisite for the successful implementation of young people in the real competitive environment of the New Millennium Society.

Overall, around 540,000 pupils from around the world participated in the test. The project aims at detecting the level of functional literacy of 15-year-old pupils in the field of reading, mathematics and science. Its aim is to explore how pupils can use the lessons learned in the various situations of ordinary life. Research thus provides education policy makers in each country with important information on the functioning of their school systems.

TAB. 1: Results of the V4 countries and Finland in the individual cycles of the PISA study - mathematical, reading and natural literacy (point assessment)

	2003			2006			2009			2012			2015		
	M	R	S	M	R	S	M	R	S	M	R	S	M	R	S
Ø OECD	500	494	500	496	493	501	496	493	501	494	496	501	490	493	493
FIN	544	543	548	548	547	563	541	539	554	519	524	545	511	526	531
CZ	516	489	523	510	483	513	493	478	500	499	493	508	492	487	493
SK	498	469	495	492	466	488	497	477	490	482	463	471	475	453	461
H	490	482	503	491	482	504	490	494	503	477	488	494	477	470	477
PL	490	497	498	495	508	498	495	500	508	518	518	526	504	506	501

M – Mathematics, R – Reading, S - Science

Source: Own processing according to OECD from www.oecd.org/pisa/

PISA analyzes show that the best results of the education system are achieved by Finland, which at every three year intervals since 2003 shows above average performance in all categories of literacy compared to the average of the OECD countries. It should be noted, however, that in the category of natural sciences, Finnish pupils in 2015 significantly fell below the score of the past years.

Within the V4 countries, the Polish pupils in 2012 reached, in all the categories of literacy considered, above average results compared to the average performance of OECD countries. Readings were above average in 2006 and 2015. Otherwise, the results were statistically significantly different from

the OECD average. In all categories of literacy, however, Polish pupils improved in 2015 compared to 2003.

Even Czech pupils achieved comparable results with the average of OECD countries at all three-year intervals (excluding 2009 in reading literacy). In 2003 and 2006 even significantly exceeded the OECD average in literacy, and mathematical literacy in 2003. However, the warning signal should be that the Czech Republic belongs to a group of 11 OECD countries, which average performance in the field of mathematical literacy and scientific literacy has deteriorated considerably since 2003 - by 24 points, respectively 30 points).

The Slovak Republic belongs to the worst in the monitored group of countries in terms of mathematical literacy (except 2003 and 2009) and from 2012 achieves sub-average results in all tested areas of literacy compared to the OECD average. In 2015, Slovakia lost up to 36 points compared to Finland in mathematical literacy, and compared to 2003, Slovak students worsened in mathematics by 23 points and in science by 34 points. For the performance of Finnish pupils in 2015, Slovak pupils were, for example, in reading, up to 73 points, which is a statistically significant figure. Slovakia has placed itself on the bottom of the tested areas of literacy not only within the V4 countries but also within the EU countries.

In 2015, Hungarian pupils also lagged behind the average of the OECD countries in all areas of literacy. Compared to 2003, the worst worsened in natural sciences, by 26 points. Hungary is also associated with Slovakia in countries that are very lagging behind Finnish scores - the biggest difference is in reading literacy (by 56 points) and scientific literacy (by 54 points).

FIG. 1: Performance in mathematical literacy of monitored countries

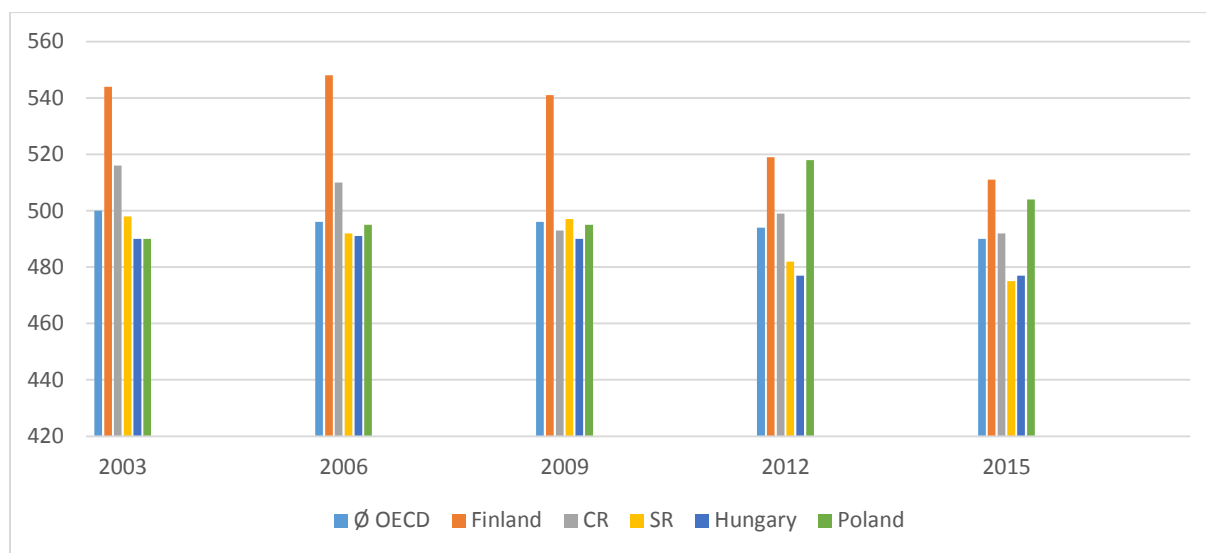


FIG. 2: Performance in reader literacy of monitored countries

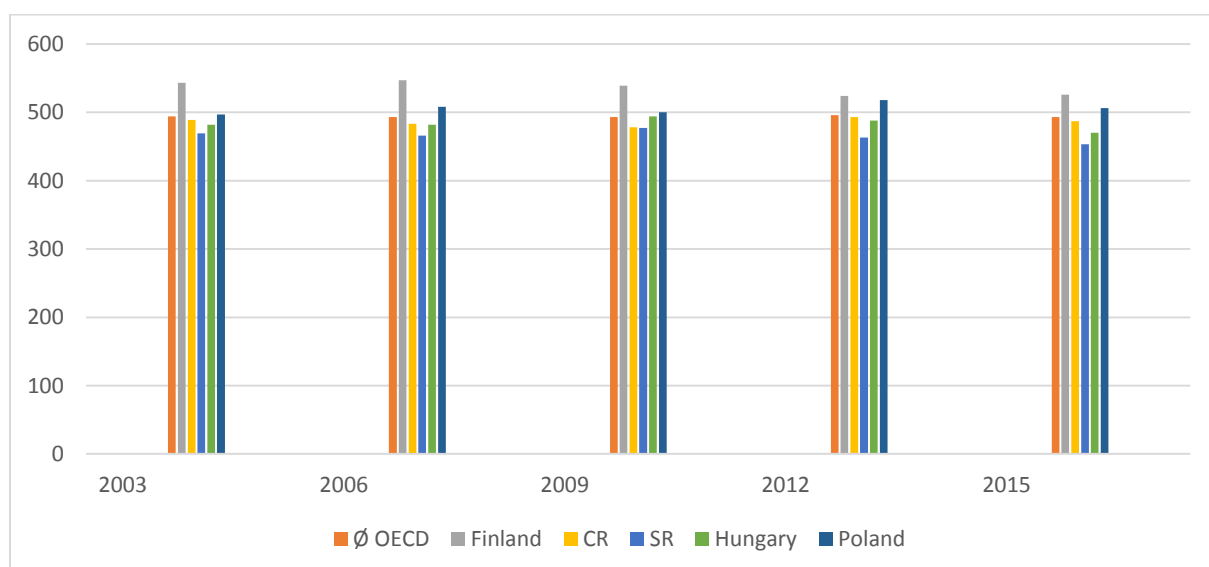
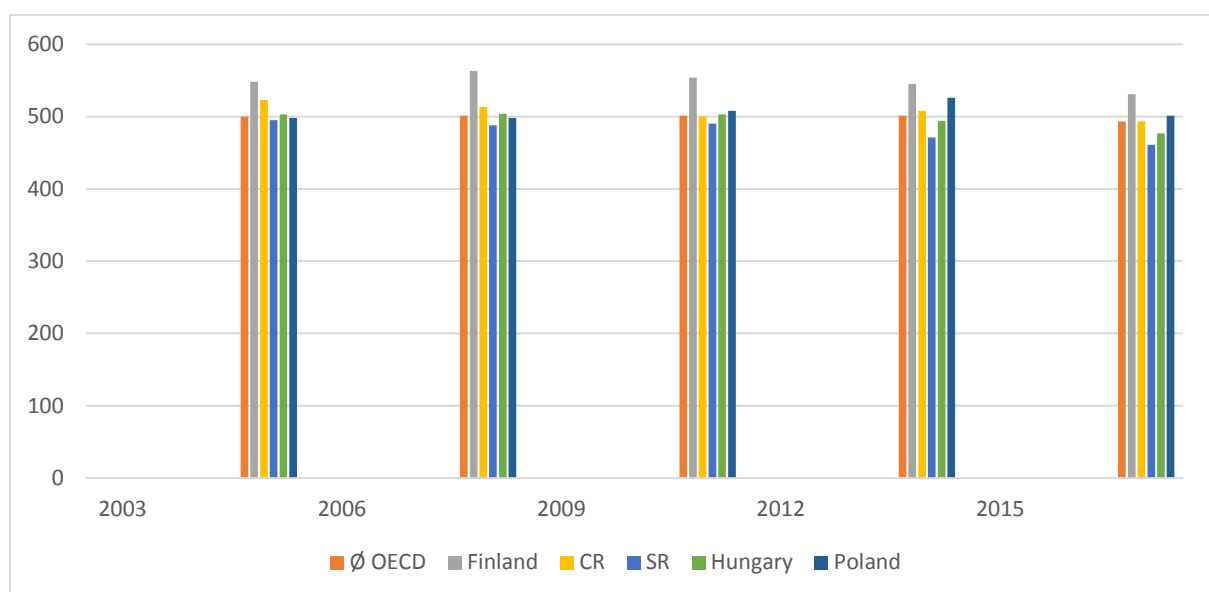


FIG. 3: Performance in the natural literacy of the countries surveyed



3. Selected factors affecting the level of the education system

Issues related to the financing of education are the subject of simultaneous discussion, as well as the search for an optimal model. The indicator, which shows how rich resources are funded by education in each country, is the gross domestic product per capita, but does not directly express the real money invested in education. It is better to tell them about the amount of money spent in a given period of time on the education of one pupil.

It is obvious that the country's average results are rising with rising spending on education. However, this pattern is only common, for example, two countries with the same result in the mathematical

literacy test issue a totally different amount of money for the education of one pupil (e.g. Slovakia 53,000 USD and United States 116,000 USD).

According to the OECD, average pupil outcomes are rising with the country's rising spending on education. This pattern, however, is only general, and it appears that lower spending per pupil does not automatically equal the weak result. The result of Czech pupils is better in the context of OECD countries than would be the cost of their education. Lower costs, however, are mainly due to relatively low teachers' salaries in Czech education.

TAB. 2: Comparison of GDP, education expenditure and teachers' salaries

	GDP per capita, USD, 2015	Expenditure on education, % of GDP, 2013	General government spending on education, % of GDP, 2015	Primary teachers' salary, 15th year of practice, 2014	Expenditure on primary education (USD / pupil), 2013	Expenditures for tertiary education (USD / student), 2013
Ø OECD	41 059	1,5		42 675	8 477	16 199
Finland	42 268	1,8	6,2	39 445	8 519	17 868
Czech Republic	33 753	1,3	4,9	18 324	4 730	10 417
Slovak Republic	29 915	1,1	4,2	16 663	5 942	10 370
Poland	26 529	1,4	5,2	24 828	6 919	8 918
Hungary	26 446	1,3	5,2	19 181	5 435	10 221

Source: Own processing according to OECD from <https://oecd.org>

Another factor that affects pupils' results is, for example, the level of adult education that pupils influence. The PISA project therefore maps and analyzes the level of education reached in the adult population aged 35-44, which is the group where the majority of the parents of the tested 15-year-old pupils are located.

TAB. 3: Population with tertiary education aged 35-44 years versus literacy, 2015

Population with tertiary education, %		Mathematics	Reading	Science
Ø OECD	39,6	490	493	493
Finland	50,3	511	526	531

		above average results	above average results	above average results
Czech Republic	22,8	492 average results	487 average results	493 average results
Slovak Republic	22,3	475 under-average results	453 under-average results	461 under-average results
Poland	33,4	504 above average results	506 above average results	501 above average results
Hungary	26,8	477 under-average results	470 under-average results	477 under-average results

Source: Own processing according to OECD from <https://oecd.org>

4. The quality of the education system as a sub-index of the country's competitiveness

As mentioned above, competitiveness is inextricably linked to the quality of the education system. One of the ways to measure the competitiveness of the country is the index GCI (The global competitiveness index), which is implemented by the World Economic Forum. It is a pooled indicator and is generated by the weighted aggregation of several individual indices (sub-index). The results of the various indicators are derived from publicly available statistics and public opinion surveys, where countries are ranked gradually from the highest score to the lowest. The exceptional feature of this index is that it explores different variables and can therefore be called the most complex method of measuring global competitiveness. Currently it is a method that brings together the most variables, of different kinds, and thus assesses the competitiveness of the landscape from different perspectives. One of the individual indicators that this index brings together is also the quality of the education system, respectively quality of basic education.

It is clear from the table that Finland is one of the leaders not only in the quality of the entire education system (under the basic education sub-index, it even occupied the 1st level), but also achieves an overall high level of competitiveness. Slovakia, on the other hand, is in the middle of the ranking.

TAB. 4: Country Competitiveness by GCI, 2015

index GCI (138 countries)			Quality of primary education		Quality of the education system	
	order	value (top 5,8)	Order	value (top 6,9)	order	value (top 6,3)
Finland	10	5,4	1	6,9	2	6,2

Czech Republic	31	4,7	25	6,3	27	5,2
Slovak Republic	36	4,6	38	6,2	37	5,0
Poland	65	4,3	55	6,0	61	4,5
Hungary	69	4,2	78	5,6	72	4,4

Source: Own processing according to OECD from <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>

5. Conclusion

The best results of the education system are achieved by Finnish students. Within the V4 countries, Poland is at the forefront. The unsatisfactory results in literacy from the selected countries are mainly the Slovak Republic, which, with its under-performing results, occupies the last bars in the EU countries, respectively Visegrad Group (Hungary may also be mentioned here). But even the Czech Republic can't be satisfied, because with above-average results from 2003 (mainly in the science and mathematics) it has fallen to the OECD average. Knowledge is an essential pillar for the development of most competitive components. According to the OECD PISA study and the GCI index of the World Economic Forum, Finland is a country that achieves excellent results and so many European Union countries can draw inspiration right there.

Literature:

Eurostat: European Commission (2016). Retrieved from <http://ec.europa.eu/eurostat/data/database>.

OECD (2003). *First results from PISA 2003 Executive Summary*. Retrieved from <https://www.oecd.org/edu/school/programme-for-international-student-assessment/pisa/34002454.pdf>.

OECD (2009). *PISA 2009 Results: Executive Summary*. Retrieved from <https://www.oecd.org/pisa/pisaproducts/46619703.pdf>.

OECD (2013). *PISA 2012 Results: Ready to Learn: Students' Engagement, Drive and Self-Beliefs* (Volume III), PISA, OECD Publishing. ISBN 978-92-64-20117-0 (PDF). Retrieved from <https://www.oecd.org/pisa/keyfindings/PISA-2012-results-volume-III.pdf>.

OECD (2014). *Education at a Glance 2014: OECD Indicators*, OECD Publishing. ISBN 978-92-64-21505-4 (PDF). Retrieved from <https://www.oecd.org/edu/Education-at-a-Glance-2014.pdf>.

OECD (2015). *PISA 2015 Results in Focus*. Retrieved from <https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf>.

PISA. NÚCEM: Národný ústav certifikovaných meraní vzdelaní. Retrieved from http://www.nucem.sk/sk/medzinarodne_merania/project/5

Veselková, A. (2016). *Education as the cornerstone knowledge-based economy*. In Pavla Slavíčková (ed.), *Knowledge for Market Use 2016: Our Interconnected and Divided World* (pp 562 – 568) Olomouc: Societas scientiarum Olomucensis II 2016. ISBN 978-80-87533-14-7.

World Bank Report. (2003). *Lifelong Learning in the Global Knowledge Economy: Challenges for Developing Countries*. Washington, D.C., 2003, 141 p. ISBN 0-8213-5475-2. Retrieved from http://siteresources.worldbank.org/INTLL/Resources/Lifelong-Learning-in-the-Global-Knowledge-Economy/lifelonglearning_GKE.pdf.

World Economy Forum (2017). *The Global Competitiveness Report 2016–2017*. Retrieved from <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>.

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COMPARATIVE ANALYSIS OF FINANCIAL DISTRESS PREDICTION MODELS FOR SLOVAK COMPANIES

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Abstract: *Analysis of financial state of the company and prediction of its future development or the risk of imminent bankruptcy is very important not only for company management, but also for its creditors, employees and other company stakeholders. For this reasons are nowadays bankruptcy prediction models in the center of attention of economists all over the world. In the paper we focus on verification of prediction ability of bankruptcy models created in countries of V4. We analyze the most used models from these countries and compare the accuracy of their prediction of financial distress for several selected companies using real data from last years.*

Keywords: *Prediction models, Bankruptcy prediction model, Multivariate discriminant analysis, Logit model.*

JEL classification: C38, G33

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1. Introduction

In today's market economy, business failure occurs quite often. Business failure has a negative impact on all entities entering into business relationships with a company. Thus, assessing credit risk and predicting the financial situation of a company is useful not only for creditors, but also for investors and business owners, business management or employees. On the basis of the credit risk assessment and the forecast of company's financial health, the company may in case of financial difficulties treatment indication take the necessary measures in time. Bankruptcy models can predict the probable bankruptcy in advance. As this prediction is needed for every company, economists around the world are creating predictive models that can indicate the company's financial problems. Over the last few years, a large number of bankruptcy models have been created in conditions of the country or the sector of the economy for which they were created. Most bankruptcy models

originated in the US and were therefore developed for US companies. (Kollar et al., 2015). But bankruptcy models were created in other countries around the world. (Kliestik et al., 2017) In the Slovak Republic, Chrastinová in 1998, Binkert in 2000, Gurcik in 2002, Hurtošová in 2009 and Gulka in 2016 designed bankruptcy models. Various bankruptcy models have been proposed in other V4 countries, such as Virág and Hajdu in Hungary (1996), Poznański in Poland (2004), Neumaierová and Neumaier in the Czech Republic in 1995, 1999, 2001 and 2005 as well as Jakubík and Teplý in 2006. (Kral & Janoskova, 2016)

Prediction models are created using various multidimensional statistical methods. One of the most commonly used methods of predicting bankruptcy is the Multidimensional Discrimination Analysis (MDA) method. Its objective is to include the analyzed enterprise in a group of prosperous or non-prosperous ones based on the values of financial ratios of the company. The prediction ability of the model is evaluated as the ratio of well-identified companies. Using the MDA method, a discriminatory function is created as a linear combination of values of financial ratios, setting limit values for this function, for which we consider the company to be a non-prosperous one. However, it is possible that the model include the company only into the so-called gray zone, where it is not decided whether an enterprise belongs to a prosperous or non-prosperous group. Another often used method for creating prediction models is the logistic regression method (LOGIT models). The purpose of the LOGIT model is to determine the probability that a company belongs to a group of companies threatened by bankruptcy. Recently, other methods, such as neural networks, decision trees, or genetic algorithms, or combinations of these, are often used in predictive models.

An important question in the application of bankruptcy models is the choice of models that would best predict the possible failure of the analyzed company. In this article, we focus on several selected models developed in the V4 countries over the last decades and analyze their prediction ability for a sample of Slovak companies.

2. Methodology and data

In Slovakia, as well as in other countries, prediction models created in other economic conditions are commonly used. It is used, for example, the Altman or Ohlson model, which was created in US conditions several decades ago. But much more effective is the use of local models reflecting local economic conditions. We have focused on the analysis of the prediction ability of some commonly used bankruptcy models from the V4 countries for Slovak companies. We chose these nine models: Poznański, Virág-Hajda MDA, Virág-Hajdu LOGIT, Jakubík-Teplý, Chrastinová, Binkert, Gurčík, Hurtošová and Gulka model. These models were created using MDA or logistic regression. Even though these approaches have certain limitations, they are still widely used to predict bankruptcy.

The Poznański model was published in 2004. It has been created using 100 Polish companies in the years 1999-2002. It is based on 4 financial ratios using MDA method and the predictive accuracy of this model is 92.98%. (Spuchlakova, 2016)

The Hungarian bankruptcy model was developed by Virág and Hajdu in 1996, based on a database of 154 enterprises (77 bankrupt and 77 non-bankrupt ones) from 1990 to 1991 using MDA method, as well as logistic regression, examining the original 17 indicators. (Virág & Kristóf, 2005)

In 2004 Jakubík and Teplý analyzed a sample of 757 Czech companies (606 prosperous and 151 non-prosperous). They created a bankruptcy model, JT index, using logistic regression. The model uses 7 ratios. The authors report the prediction accuracy of the JT index of 80.41%. In 2006, the Czech National Bank included the model in its quantitative apparatus for evaluating the financial stability of non-financial companies. (Jakubík & Teplý, 2011)

The model referred as CH-index is the first Slovak model published in 1998 by Zuzana Chrastinová. The author used MDA to design and tested 1 123 enterprises. The CH-index took into account the specifics of the agriculture companies. (Chrastinová, 1998)

Christian Binkert used data of Slovak (80 prosperous and 80 non-prosperous) joint-stock companies from different sectors. He drew data from the financial statements for three consecutive accounting periods. With MDA, he developed models with 8 indicators of the original 72. (Vlkolinský, 2013)

Gurčík built his G-index with MDA to distinguish agriculture companies on prosperous and non-prosperous. Based on the random selection of 60 Slovak companies, the model was designed with 5 indicators, from the original 35. (Gurčík, 2002)

In 2016, Martin Gulka was awarded the prize of the Governor of the National Bank of Slovakia for developing a bankruptcy model using logistic regression. He analyzed a sample of 120,854 business companies operating in the SR (120,252 healthy companies and 602 bankrupt companies). The model contains 7 indicators, from original 25, and is able to predict the default one year ahead. (Gulka, 2016)

In our research, the prediction ability in SR conditions was verified on a sample of carefully selected 5 pairs of companies. Each pair consists of non-prosperous and prosperous company with the same SK NACE, the same legal form and the same size category. We have identified the company as non-prosperous on the basis of currently valid legislation.

We analyzed real data from the financial statements of selected companies, balance sheets and profit and loss accounts for 2013, 2014 and 2015 obtained from the Register of Financial Statements of the Ministry of Finance of the Slovak Republic.

We have calculated the values of all financial ratios for each company that is required for analyzed models. For each company and each model, these values were put into the appropriate discriminatory or logit functions. Then the results are compared with the boundary values and then the decision is made whether the given model considers the company to be prosperous or not. The quality of the models is judged by the number of well-identified enterprises.

3. Results

Five non-prosperous and five prosperous companies were included in the analysis. Ex-post analysis of non-prosperous companies confirmed that enterprises were in a state of financial distress as the value of the liabilities exceeded the value of the assets in the review years, the financial independence factor assumed negative values in all cases, and companies have negative liquidity. To these 5 non-prosperous companies, 5 prosperous companies were included in the analysis. These

companies have positive liquidity and are not in risk of bankruptcy. The value of their assets exceeded the value of the liabilities. So they were financially independent.

The financial ratios of all enterprises were assigned to the selected models. Complete results of bankruptcy prediction through selected models are summarized in the following table. Companies that have been identified by the model as non-prosperous are signed N. Prosperous companies are marked by P. The models have some companies rated as average, located in the gray zone (GZ). Sometimes the result could not be calculated (NaN) due to zero division.

TAB. 1: Selected models bankruptcy prediction

Model	Non-prosperous companies					Prosperous companies				
	1	2	3	4	5	1	2	3	4	5
Poznański	N	N	N	N	N	P	P	P	P	P
Virág-Hajdu MDA	N	P	N	N	P	P	P	P	P	P
Virág-Hajdu LOGIT	N	N	N	N	N	P	N	P	P	P
Jakubík-Teplý	N	NaN	N	N	N	NaN	NaN	P	NaN	P
Chrastinová	N	N	N	N	N	GZ	GZ	N	N	N
Binkert	GZ	NaN	P	P	GZ	GZ	P	P	NaN	GZ
Gurčík	N	GZ	N	N	GZ	GZ	P	P	GZ	GZ
Hurtošová	P	P	P	P	P	P	P	P	P	P
Gulka	N	N	N	N	N	P	P	P	P	P

The Polish Poznański model and the Slovak Gulka model have been able to correctly differentiate all companies. Both the Virág-Hajdu models (including MDA and LOGIT) have also been well ranked. If the result could be calculated, the Jakubík-Teplý model has ranked businesses flawlessly. The Gurčík model has ranked half of the businesses correctly, and half placed in the gray zone. The worst results were Chrastin model, Binkert model and Hurtoš model. The Chrastine model has ranked nearly all businesses into a non-prosperous group (two in the gray zone). The Binkert model has mistakenly placed two non-prosperous businesses in a prosperous group. In only six cases this model gave the indeterminate result or the result could not be calculated. The Hortus model was not able to predict the company's lack of prosperity. All non-prosperous businesses were marked as prosperous.

TAB. 2: Correct and incorrect classification and Type I and Type II error of applied models

Correct classification (%) of all companies)	Incorrect classification (%) of all companies)	Type I Error (% of non-prosperous companies)	Type II Error (% of prosperous companies)
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Model				
Poznański	100	0	0	0
Gulka	100	0	0	0
Virág-Hajdu LOGIT	90	10	0	20
Virág-Hajdu MDA	80	20	40	0
Jakubík-Teplý	60	40	0	0
Gurčík	50	50	0	0
Chrastinová	50	50	0	60
Hurtošová	50	50	100	0
Binkert	20	80	40	0

The Table 2 lists the percentages of the correctly and incorrectly classified companies, as well as Type I and Type II error (as a percentage of non-prosperous or prosperous companies). As a correct result we consider such a model that the non-prosperous company rightly identified as non-prosperous and prosperous rightly as prosperous. Incorrect classification was such a result where model sing a non-prosperous company as being prosperous or prosperous as being non-prosperous. Moreover, results that included a company into a gray zone, or the result could not be calculated, were included in this group, too. The Type I error is the case where the bankruptcy model incorrectly described the non-prosperous enterprise as prosperous. Similarly, Type II error occurs when a prosperous company has been by a model identified as non-prosperous. Thus, these mistakes mean an incorrect business classification, therefore, the "irrelevant" model results are not considered (inclusion into the gray zone and the case when model result cannot be calculated).

As we analyze the financial health of companies under the conditions of the Slovak economy, it is interesting to see if the health of these companies better identifies Slovak bankruptcy models. The following table compares models created in Slovakia with models created in other V4 countries. As we can see, there is one Slovak and one foreign model that discriminates the enterprises completely accurately. Other Slovak models have a prediction accuracy of only 50% or 20%. By contrast, foreign models have more than 50% prediction power.

TAB. 3: Comparison of Slovak and foreign bankruptcy models

	Correct classification (%) of all companies)	Incorrect classification (%) of all companies)	Type I Error (% of non-prosperous companies)	Type II Error (% of prosperous companies)
Model				
Foreign bankruptcy models				

Poznański	100	0	0	0
Virág-Hajdu LOGIT	90	10	0	20
Virág-Hajdu MDA	80	20	40	0
Jakubík-Teplý	60	40	0	0
Slovak bankruptcy models				
Gulka	100	0	0	0
Gurčík	50	50	0	0
Chrastinová	50	50	0	60
Hurtošová	50	50	100	0
Binkert	20	80	40	0

4. Conclusion

Early anticipation and possible avert of bankruptcy is one of the main tasks of the management of every company. For this purpose, bankruptcy models have been designed all over the world. We have focused on the analysis of the prediction ability of the models used in the V4 countries under the conditions of the current post-crisis economic situation in Slovakia. We analyzed the financial situation of 5 selected prosperous and 5 non-prosperous companies. For the analysis we used 5 Slovak models and 4 models from other V4 countries.

Based on the results of the comparative analysis, we can conclude that the most suitable model for predicting the financial difficulties of Slovak companies is the Gulka model from 2016 and the Poznański model from 2004. Both models correctly identified all non-prosperous and all prosperous companies. The Virág-Hajdu models created in Hungary and the Czech Jakubík-Teplý model have achieved a higher prediction accuracy than the Slovak models that correctly identified at most 50% of the companies. Gurčík model, Chrastinová model, Hurtošová model and especially Binkert model do are thus not recommended for the financial health forecasting of Slovak companies. Therefore, for ex-ante analysis of bankruptcy threat for Slovak companies, we recommend using Gulka or Poznański bankruptcy prediction models.

Literature:

Chrastinova, Z. (1998). *Metódy hodnotenia ekonomickej bonity a predikcie finančnej situácie poľnohospodárskych podnikov*. Bratislava : VÚEPP. ISBN 80-8058-022-7.

Gulka, M. (2016). Predictive Model of Corporate Failure in the Slovak Business Environment. *Forum statisticum Slovaca*, 12(1), 16-22.

Gurčík, Ľ. (2002). G-index – the financial situation prognosis method of agricultural enterprises. *Agricultural Economics*, 48, 373-378.

Jakubík, P., & Teplý, P. (2011). The JT Index as an Indicator of Financial Stability of Corporate Sector. *Prague Economic Papers*, 20(2), 157-176. doi:10.18267/j.pep.394.

Kliestik, T., Siekelova, A., & Misankova, M. (2017). Financial Health Prediction of Company's Business Partners Based on Selected Quantitative and Qualitative Indicators. *Journal of Economics, Business and Management*, 5(3), 143-147.

Kollar, B., Kramarova, K., & Valaskova, K. (2015). The financial distress analysis of the stated-own company by applying chosen default prediction models in condition of Slovakia. In *3rd international conference on economics and social science (ICESS 2015)* (Vol. 86-87, Advances in education research, pp. 160-167). Paris, France: Information Engineering Research Institute.

Kral, P., & Janoskova, K. (2016). Comparison of the selected bankruptcy models. In H. Zhang (Ed.), *ISSGBM international conference on information, communication and social sciences (ISSGBM-ICS 2016)* (Vol. 66, Lecture notes in management science, pp. 15-20). Singapore: Singapore Management and Sports Science Institute.

Spuchlakova, E. (2016). Comparison of the selected bankruptcy models. In H. Zhang (Ed.), *2016 ISSGBM International Conference on Information and Business Management (ISSGBM-IB 2016)* (Vol. 61, Lecture notes in management science, pp. 15-20). Singapore: Singapore Management and Sports Science Institute.

Virág, M., & Kristóf, T. (2005). Neural Networks in Bankruptcy Prediction - A Comparative Study on the Basis of the First Hungarian Bankruptcy Model. *Acta Oeconomica*, 55(4), 403-426. doi:10.1556/aoecon.55.2005.4.2.

Vlkolinský, P. (2013). Prehľad vývoja ratingových modelov vo vybraných krajinách (5th part). *Finančný manažér*, 13(3), 26-35.

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DECISIONS ON MUNICIPAL WASTE MANAGEMENT IN EUROPE

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Abstract: According to Directive 2006/12/EC of The European Parliament and of The Council of 5 April 2006 on waste, term 'waste' shall mean any substance or object in the categories set out in Annex I which the holder discards or intends or is required to discard. In practice, this means that the decision about what is municipal waste, is taken by the residents. The amount of municipal waste generated by residents shows their level of environmental awareness and behaviours they choose. Differentiation of the amount of waste generated per capita in the EU countries is very high, which has a direct impact on the waste management. In the case of municipal waste it is also extremely important to examine how they are developed. The concept is to collect, transport, recover and dispose of waste, and to supervise these activities and places of waste disposal. Depending on the adopted waste management model, there will be other economic consequences and other costs for the environment. The paper presents the research on the decision on way of managing municipal waste on the example of European countries.

Keywords: Municipal waste, recycling, waste management, landfill, European Union.

JEL classification: M20, O10, Q01

Grant affiliation:

1. Municipal waste in Europe

Directive 2006/12/EC of The European Parliament and of The Council of 5 April 2006 on waste introduces a number of waste disposal procedures.. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives introduced a hierarchy of management of municipal waste. The order of behavior of municipal waste management is as follows:

1. prevention,
2. preparing for re-use,

3. recycling,
4. other recovery, e.g. energy recovery,
5. disposal.

Applying the above hierarchy, EU Members States are to take measures to encourage the options that deliver the best overall result for the environment (Grabas, 2015). In some cases, this may mean departing from the suggested hierarchy. This is the case where technology is required, or it forces the product life cycle (Pańkowska & Sołtysik-Piorunkiewicz, 2013). The general idea is to apply the above hierarchies, but when it is justified, the negative impact on the environment and respect for the principles of sustainable development should be minimized (Biadacz & Szydełko, 2016). It is also necessary to create and align national laws in such a way that they are consistent with Directive 2008/98/EC.

EU Member States should also engage citizens in the process of aligning and best practices (Budică, Buşu, Dumitru, & Purcaru, 2015). Such a process will facilitate the enforcement of new obligations from the society such as waste segregation.

2. Solutions used in waste management

Today, for the people of the developed countries, solutions that are in accordance with sustainable development are becoming increasingly important. However, residents of European countries, appreciate the convenience and the opportunity to use the facilities. They expect the same solutions from waste management.

Certainly all IT solutions supporting waste management are important. Among the most frequently used may be mentioned the possibility of contact through the Internet to contact the organizer of the waste management system or checking the date of receipt of individual waste fractions. More and more mobile applications are also being used for this purpose (Stefko, Nowak, & Ulfik, 2015).

Increasingly, attention is also drawn to reduce nuisance waste. For this purpose, the frequency of collection of biodegradable waste is changed in the summer months when the waste is fermented more quickly, causing nuisance for the inhabitants (Bajdor, Starostka-Patyk, & Lis, 2016).

3. Study of municipal waste management in Europe

To examine the level of management of municipal waste management in Europe, it is necessary to look at real numbers. The author of the study decided to analyze the data from EUROSTAT on municipal waste from 2015, because in the course of the study, more recent data was not available.

In tab. 1 we can see the amount of waste generated in kg per capita in selected European countries in 2015. Data is sorted by size. We see that most of the municipal waste is generated by residents of Denmark (789 kg), Switzerland (725 kg), Cyprus (638 kg), Germany (625 kg), Luxembourg (625 kg) and Malta (624 kg). Inhabitants of Slovakia (329 kg), Czech Republic (316 kg), Poland (286 kg), Serbia (259

kg) and Romania (247 kg) generate the least waste. As the research shows, often the amount of waste generated is correlated with GDP.

These are very significant differences, because every inhabitant of Romania produces only 31% of the waste generated by the resident of Denmark, and every inhabitant of Denmark produces more than 319% of the waste produced by the resident of Romania each year. These differences are not appreciated by the EU requirements for at least reduce the amount of waste deposited in landfills. These requirements are expressed as a percentage of the volume of waste produced and the Member States must meet them or they will receive a fine. Because of the differences in the amount of waste produced, some countries may receive penalties, although in reality they have better results in absolute terms.

TAB. 1: Municipal waste generation and treatment, by type of treatment method in 2015 in chosen European countries

	Waste generated [kg per capita]	Total waste treatment	Landfill/ disposal	Total incineration (including energy recovery)	Material recycling	Composting and digestion
EU (28 countries)	476	97,1%	25,6%	26,5%	28,6%	16,4%
Denmark	789	100%	1,1%	52,6%	27,2%	19%
Switzerland	725	100%	0%	47,3%	31,9%	20,8%
Cyprus	638	92,5%	74,5%	0%	13,3%	4,7%
Germany	625	97,6%	0,2%	31,4%	47,8%	18,2%
Luxembourg	625	100%	17,6%	34,1%	28,5%	19,8%
Malta	624	96,3%	89,4%	0,3%	6,7%	0%
Iceland	583	89,2%	58,7%	3,1%	20,2%	7,2%
Austria	560	97,9%	3%	37,9%	25,7%	31,3%
Montenegro	533	97,2%	91,6%	0%	5,6%	0%
Netherlands	523	100%	1,3%	46,8%	24,7%	27,2%
France	501	100%	25,7%	34,7%	22,4%	17,4%
Finland	500	100%	11,4%	47,8%	28,2%	12,4%
Italy	486	88,9%	26,5%	18,9%	25,9%	17,7%
Greece	485	100%	84,3%	0,4%	12,8%	2,5%

United Kingdom	485	97,3%	22,5%	31,3%	27,2%	16,3%
Slovenia	449	93,8%	22,7%	17,1%	46,3%	7,6%
Lithuania	448	98,7%	54%	11,6%	23,0%	10,3%
Sweden	447	100%	0,9%	51,2%	32,4%	15,7%
Spain	434	100%	55,1%	11,5%	16,8%	16,4%
Norway	421	98,6%	3,3%	52,5%	26,1%	16,6%
Bulgaria	419	98,3%	66,3%	2,6%	19,1%	10,3%
Belgium	418	97,6%	1%	43,3%	34,2%	19,1%
Latvia	404	90,6%	61,9%	0%	22,8%	5,9%
Croatia	393	97,7%	79,6%	0%	16,3%	1,8%
Hungary	377	100%	53,6%	14,1%	26,0%	6,1%
Estonia	359	87,2%	7,2%	51,5%	24,8%	3,6%
Slovakia	329	94,2%	68,7%	10,6%	7,6%	7,3%
Czech Republic	316	100%	52,5%	17,7%	25,6%	4,1%
Poland	286	100%	44,4%	13,3%	26,2%	16,1%
Serbia	259	74,9%	74,1%	0%	0,8%	0%
Romania	247	87,4%	72,1%	2,4%	5,7%	7,3%

Source: own study based on data from EUROSTAT

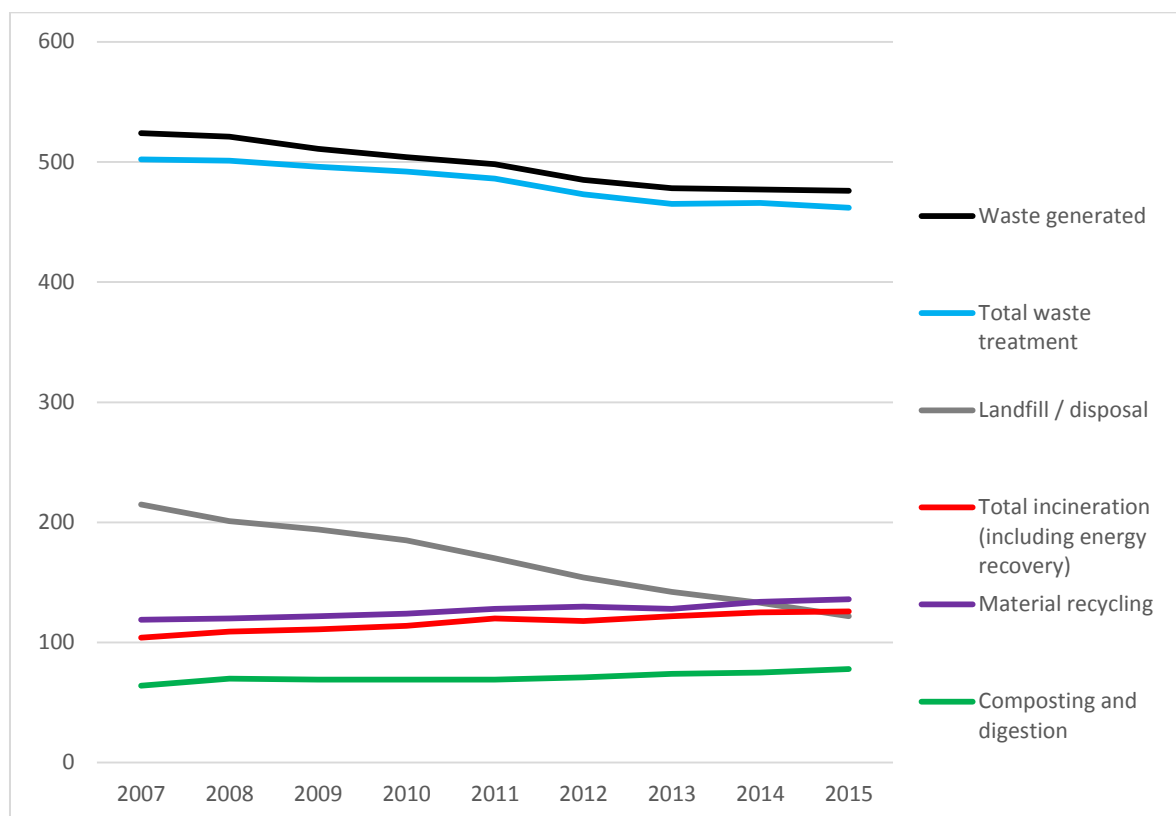
Most of the analyzed countries have a total waste treatment ratio exceeding 90%. Exceptions are Serbia (74,1%), Estonia (87,2%), Romania (87,4%), Italy (88,9%) and Iceland (89,2%).

The least waste is found in landfills in Switzerland, Germany, Sweden, Belgium, Denmark, Netherlands, Austria and Norway. This demonstrates the well-organized waste management system and the investments made in this area. The majority of waste goes directly to landfills in Croatia (79,6%), Greece (84,3%), Malta (89,4%) and Montenegro (91,6%).

In terms of municipal waste incineration, this diversity is enormous. Latvia, Serbia, Cyprus, Croatia, Montenegro, Malta, Greece, Romania, Bulgaria and Iceland practically do not burn waste. The best in this regard are Belgium, Netherlands, Switzerland, Finland, Sweden, Estonia, Norway and Denmark.

The levels of recycling are also varied, and the analysis of the level of recycling over the years 2000-2015 is in tab. 2.

FIG. 1: Municipal waste generation and treatment, by type of treatment method [kg] in 28 European Union countries in years 2007-2015



Source: own study based on data from EUROSTAT.

On fig. 1 we can see municipal waste generation and treatment, by type of treatment method [kg] in 28 European Union countries in years 2007-2015. During the period considered, the average amount of waste generated, total waste treatment and landfill waste decreased considerably. On the other hand, the indicators of the amount of waste incinerated, the levels of recycling and the composting of waste increased.

TAB. 2: Recycling rate [%] of municipal waste in chosen European countries in years 2000 – 2015

	2000 [%]	2005 [%]	2010 [%]	2015 [%]
EU (27 countries)	25,3	31,9	38,5	45,2
Belgium	48,4	53,8	54,9	53,4
Bulgaria	15,5	18,3	24,5	29,4
Czech Republic	0,9	6,2	15,8	29,7
Denmark	37,1	41	45,15	46,3
Germany	52,5	60,9	62,5	66,1

Estonia	2,4	22,5	18,2	28,3
Greece	8,8	11,8	17,1	15,3
Spain	18,4	31,4	29,2	33,3
France	24,5	29,7	34,9	39,5
Italy	14,2	18,5	31	43,5
Cyprus	3	3,7	10,7	17,9
Latvia	0	3,8	9,4	28,7
Lithuania	0	1,9	4,9	33,1
Luxembourg	36,1	43,5	46,5	48
Hungary	1,6	9,6	19,6	32,2
Malta	10,1	8,7	5,2	6,7
Netherlands	44,1	46,7	49,2	51,7
Austria	63,4	58,3	59,4	56,9
Poland	2,1	5,6	21,4	42,5
Portugal	10,5	15,2	18,7	30,4
Romania	0	1,8	12,8	13,1
Slovenia	6	18,6	22,4	54,1
Slovakia	5,1	2	9,1	14,9
Finland	33,6	33,6	32,8	40,6
Sweden	38,3	44,8	48,1	48
United Kingdom	11,1	26,7	40,2	43,5
Norway	30,6	39,3	42,1	42,8
Switzerland	45,3	50,6	50,5	52,7

Source: own study based on data from EUROSTAT

In tab. 2, we can see the dynamics of changes in recycling percentages in each country. The highest level of recycling is achieved today in Germany (66,1%) and Austria (56,9%). One of the biggest changes was recorded in Slovenia: from 6% in 2000 to 54,1% in 2015.

All increases in recycling levels are a symptom of positive changes in this area. However, be aware that they are often associated with large capital expenditures.

4. Conclusion

The purpose of waste management is to ensure a rational waste management and reduce the negative impact of waste on the environment.

As the research shows, often the amount of waste generated is correlated with GDP. Countries for which the regression curves for the amount of waste and GDP are divergent have a growing ecological awareness of society (Hoppe, 2012).

However, EU legislation enforces proper indicators for the management of municipal waste. By 2020 in Poland the recycling rate of paper, metal, plastics and glass is 50% and non-hazardous waste construction and demolition 70% (Ordinance of the Minister of the Environment of 14 December 2016). There is also a need to harmonize waste management systems in individual countries to which Poland also applies (Ordinance of the Minister of the Environment of 29 December 2016).

It is important to remember that there is considerable variation in GDP in Europe. Proper waste management involves large amounts of financial effort and time. The directions indicated by the European Union in the field of municipal waste management are in line with the ideas of sustainable development, but they are not always achievable within the assumed time horizons.

Decision makers should also pay attention to the amount of municipal waste produced by the residents and also make them dependent the requirements for achieving the recycling or landfill disposal.

Literature:

Bajdor, P., Starostka-Patyk, M., & Lis, T. (2016). *The Analysis of Waste Management in Czestochowa City for the Years 2011–2014*. Transportation Research Procedia, 16(March), 16–24. <http://doi.org/10.1016/j.trpro.2016.11.003>.

Biadacz, R., & Szydełko, Ł. (2016). *Corporate social responsibility in environmental protection in enterprises of cement industry*. In P. Slavíčková (Ed.), Knowledge for Market Use 2016: Our Interconnected and Divided World (pp. 42–48). Olomouc.

Budică, I., Bușu, O. V., Dumitru, A., & Purcaru, M.-L. (2015). *Waste management as commitment and duty of citizens*. Polish Journal of Management Studies, 11(1), 7–16.

Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste, *Official Journal of the European Union* (2006).

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives (2008).

Grabas, M. (2015). *Waste management*. Rzeszów: Oficyna Wydawnicza Politechniki Rzeszowskiej.

Hoppe, G. (2012). *Strategia wyboru technologii przetwarzania odpadów komunalnych*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Ordinance of the Minister of the Environment of 14 December 2016. (2016). Rozporządzenie Ministra Środowiska z dnia 14 grudnia 2016 r. w sprawie poziomów recyklingu, przygotowania do ponownego użycia i odzysku innymi metodami niektórych frakcji odpadów komunalnych.

Ordinance of the Minister of the Environment of 29 December 2016. (2016). Rozporządzenie Ministra Środowiska z dnia 29 grudnia 2016 r. w sprawie szczegółowego sposobu selektywnego zbierania wybranych frakcji odpadów.

Pańkowska, M., & Sołtysik-Piorunkiewicz, A. (2013). *Green information technology in logistics enterprise*. Polish Journal of Management Studies, 8, 220–229.

Stefko, R., Nowak, S., & Ulfik, A. (2015). *Selected aspects of use IT in waste management*. Applied Mechanics and Materials, 795, 215–219.

For more see: <http://ec.europa.eu/eurostat/data/database>.

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FOREIGN CURRENCY NAMES IN CHINESE

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Abstract: *The importance of Chinese has grown, particularly recently, as a world language. Despite this trend, sufficient attention has not been paid as yet to its word-formation. This paper consequently asks how the Chinese language, where new words are mainly created by composition, deals with the transfer of foreign currency names. Based on a corpus composed of the currency names of the United Nations member states, this text compares their names in English, as the source language for the transfer of Euro-American reality for Chinese, and in Chinese. A subsequent quantitative analysis demonstrates which of the methods of word-formation is the most productive in relation to foreign currency names in Chinese.*

Keywords: *Currency names, Modern Chinese, morphology, word-formation, phonetic loans.*

JEL classification: E42, Z13

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1. Introduction

Although Western scholars have been studying Chinese for at least two hundred years, they have not managed to eradicate some of the myths that prevail over this language in the Euro-American context. An opinion still prevails within phonology, for example, that Chinese is a tone language, although O. Švarný successfully refuted this claim in his works (vide 2014). According to research by A. A. Dragunov (vide 1962) for modern, respectively by S. Y. Yakhonov (vide 1965) and T. N. Nikitina (vide 1982) for classical Chinese, the syntax of Chinese does not show the features of an isolating language. F. Coulmas (vide 2003, as well as Slaměňíková, 2013) have argued against the idea that the sinograms are an ideographic or pictographic writing system.

J. Packard's book (vide 2001) is regarded as the most representative work on the vocabulary of the Chinese language. This monograph describes, however, only the most significant phenomena and tendencies in Chinese lexicography. Unfortunately, a number of the author's claims are not based on a detailed linguistic analysis. Since the refutation of myths and the filling in empty spaces of knowledge is the task for every serious researcher of the Chinese language (Kane, 2009, p. 9), this

paper should contribute to a better understanding of word-formation, namely the enrichment of Chinese vocabulary.

Polysyllabic words consisting of mostly monosyllabic morphemes, so-called syllabosememe (Švarný, 2014, pp. 24–25), predominate in modern Chinese. Their mutual, structurally often rather complicated relationships, have not yet been satisfactorily described. Words in Chinese are primarily established by composition. Other methods of word-formation, derivation and conversion (Soltsev, 1990, p. 225), are represented in the language less meaningfully. They have not been, however, adequately described in the relevant literature. The question naturally arises as to how a language that does not support the usage of phonetic loans all that much, deals with transfers of foreign currency names.

2. Corpus

To answer this question, I chose a corpus composed of the currency names of the 193 United Nations member states (www.un.org/en/member-states/index.html). Naturally, I omitted the regions that are not members of this organization, such as the Vatican, Taiwan and Kosovo. To achieve greater diversity within the sample, I did not take account of the monetary union acetated by members of the European Union. In this way, I obtained a corpus of 199 items. The higher amount of items than the number of member countries is caused by the fact that six countries, namely Andorra, Bhutan, Kiribati, Panama, Swaziland and Tuvalu, simultaneously use two different currencies. The final number of 198 items was obtained by excluding the currency of the PRC, which is not a foreign one, from the monitored sample.

I subsequently eliminated duplications in the corpus, i.e. some currencies are used by more than one government. I found 166 different currencies with an attribute in the sample, 157 of which (approx. 94.58%) are used in the territory of only one state. This means that only about one-twentieth of the material shows recurrence. Its most significant manifestations are: United States Dollar (9 states): Ecuador, El Salvador, Federated States of Micronesia, Marshall Islands, Palau, Panama, Timor-Leste, USA and Zimbabwe; West African CFA Franc (8 states): Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo; East Caribbean Dollar (6 states): Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines; Central African CFA Franc (6 states): Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon and Chad; and Australian Dollar (4 states): Australia, Kiribati, Nauru and Tuvalu. Frequent usage of the Dollar as the currency in 19 states could be explained by the US position as the world's largest economy. Similarly, the position of Franc in 14 states refers to the colonial past of France and its position as the cradle of world diplomacy.

After removing predominantly toponymical attributes in the English part of the corpus, I obtained 88 different currency names, 69 (approx. 78.41%) of which were present in the sample only once. It can be seen that only one fifth of the monitored material tends to recurrence. In the Chinese part, on the other hand, I found 75 names, 55 (approx. 73.33%) of which appear in the sample only once and a quarter of the studied material tends to be recurrent. The quantitative disproportion in the English and Chinese parts of the corpus will be described in the following table. It is evident, however, from the numerical values that about 15.73% (i.e. 14 items) difference is caused by a tendency towards

simplification, which generally characterizes the transfer from one language to another (Levý, 2012, p. 114). At the same time, it cannot be overlooked that the ratio of recurrent and non-recurrent items varies only slightly in the English and Chinese parts of the corpus.

3. Analysis

The following table is a generalization of my findings: in the first column on the left, I provide the currency names in English, and in the second the number of currencies in the sample. In the third column, the corresponding Chinese equivalents are listed both in the transcription and sinograms, and finally in the fourth column their numerical representations in the Chinese part of the corpus appear.

TAB. 1: Frequency of the currency names in English and Chinese

currency	amount	currency in Chinese	amount
Dollar	20	yuán元	23
Franc	13	fǎláng法郎	13
Dinar	8	dìnà'ěr第纳尔	8
Peso	8	bǐsuǒ比索	8
Pound	8	bàng镑	8
Rupee	6	lúbǐ卢比	8
		kèlǎng克朗	7
Lira	4	lǐlā里拉	4
Shilling	4	xiānlǐng先令	5
Rial	3	lǐyà'ěr里亚尔	5
		mǎkè马克	3

The total number of recurrent items in both parts of the corpus is the same, i.e. 20 currency names. For greater clarity, there are no items in the table that occur in the monitored sample only twice, i.e. Dirham, Escudo, Koruna, Krona, Krone, Kwacha, Leu, Manat, Mark, Riyal, Ruble and Won for the English part of the corpus, respectively dīlāmǔ迪拉姆Dirham, āisīkùduō埃斯库多Escudo, kèwǎchá克瓦查Kwacha, lièyī列伊Leu, mǎnàtè马纳特Manat, lúbù卢布Ruble, yuán圆Won, dùn盾Dong or Guilder, and suǒmǔ索姆Som or So'm for the Chinese part.

The table indicates that the currency names Franc, Dinar, Peso, Pound, and Lira are represented equally in both parts of the corpus. For Dollar, Rupee, Shilling, and Rial, a quantitative increase is

observed in the Chinese part of the corpus. This phenomenon is related to the above-mentioned simplification of the original system when it was converted to the target language: the words Dollar, Euro, (Burmese) Kyat and (Japanese) Yen are all calqued as *yuán*; the words Rupiah and (Maldivian) Rufiyaa are also translated as *lúbǐ* Rupee. The same similarity is found in the terms Shilling – (Austrian) Schilling, Rial – (Qatari or Saudi) Riyal, and Mark – (Finnish) Markka respectively. The most significant examples of simplifications are (Czech and Slovak) Koruna, (Icelandic and Swedish) Kрона, (Danish and Norwegian) Krone and (Estonian) Kroon. These four different currencies of seven states are all translated as *kèlǎng*. The simplification described above is not necessarily symmetrical, however, in the entire system: the Chinese language does not mix homeophonic (Venezuelan) Bolívar with (Bolivian) Boliviano, Dinar with (Macedonian) Denar, Dollar with (Slovenian) Tolar, and (Dutch) Guilder with (Polish) Złoty, both derived from regionally different versions of the words "golden". It is remarkable that the Chinese language is able to maintain the connection between the words *bǐsuǒ* 比索 (South American) Peso and *bǐsāitǎ* 比塞塔 (Spanish) Peseta. In contrast, Chinese mingles completely unrelated words (Vietnamese) Dong and Guilder.

The origin of foreign currency names in Chinese is no less interesting. Before the analysis, there is a need to mention the etymology of the Chinese basic currency unit *yuán*. Without this it would be impossible to understand the reasons for the method of translating (Korean) Won and Yen. The basic unit of the Chinese monetary system was originally written with the sinogram 圓 "circular". Due to its graphic complexity and high frequency of the word in Chinese, the 13-stroke character was replaced by a 4-stroke homophonic sinogram 元 "head" (Cao, 1999, p. 656). This reform of a late date did not affect, however, either Korea or Japan: in the southern part of the Korean peninsula, where – unlike in the Korean People's Democratic Republic – the sinograms are still in use, the word Won is still written with the 13-stroke character. In the PRC, this sinogram was simplified by reforms in the 1950s into a 10-stroke character. The Japanese also simplified it and created a special 4-stroke *kokujī*, i.e. a Japanese character 円, which is not part of either Chinese or Korean writing systems.

The origin of the currency names in Chinese follow: 80 of them (approx. 90.91%) are phonetic loans from foreign languages; 5 (approx. 5.68%) are translations, i.e. calques, namely: *yuán* 元 Dollar, Euro, Kyat, Yen and *yuán* 圓 Won; 3 (approx. 3.41%) are examples of conversion, i.e. broadening of the word's original meaning: *dùn* 盾 "shield" – Guilder, a gold coin with four shields ([zh.wikipedia.org/wiki/ 荷兰盾](http://zh.wikipedia.org/wiki/荷兰盾)); *zhū* 铢 Baht, ancient weight unit (Cao, 1999, p. 703); and *bàng* 镑 Pound, originally "to cut" (Cao, 1999, p. 15), a decision was made to write the word "Pound" in Chinese probably because of the pronunciation similarity of Chinese and English words.

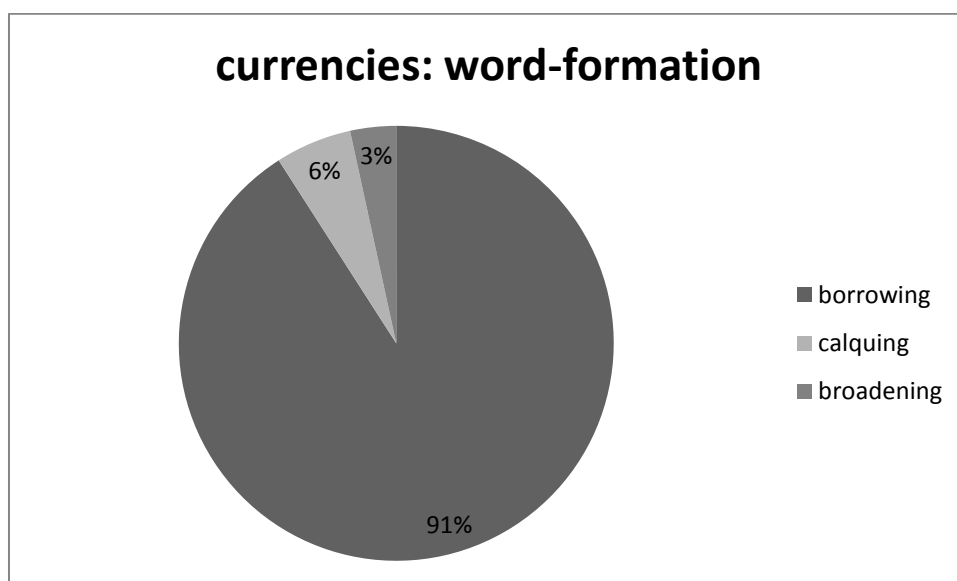
It is worth mentioning that 80 phonetic loans are written with 83 different characters, of which 13 sinograms (i.e. approx. 15.66%) are not included in the table that is commonly used to transcribe foreign words into Chinese characters (vide Guo 1993). On the other hand, all these characters occur in the corpus only once: the sinograms 第、汗、盾、瑞、坚、先、令、郎、提、列、玻、地、那 in the words *dìnà'ěr* 第纳尔 Dinar, *āfùhànní* 阿富汗尼 Afghani, *dùn* 盾 Dong, *ruì'ěr* 瑞尔 (Cambodian) Riel and *jiāngē* 坚戈 (Kazakhstani) Tenge are the currencies of Asian countries. They most likely entered into Chinese vocabulary before the table publication in 1953 (Vochala, 1989, pp. 176–179). A similar case are the currency names of the two European empires, which had a huge influence on China in the early nineteenth century, namely *xiānlǐng* 先令 (British) Shilling, and *fǎláng* 法郎 (French) Franc. Similarly, the currencies of the affiliated countries within the socialist camp *zīluó* 兹罗提 Złoty

and lièyī 列伊 (Romanian) Leu were recognized in PRC at the end of 1949. The reason for the sinogram usage in bōlīwéiyànuò玻利维亚诺Boliviano is probably related to the original transcription of the name Simón Bolívar (1783–1830). In the words sāidì 塞地 (Ghanaian) Cedi and jīnà 基那 (Papua New Guinean) Kina, the presence of the two sinograms outside the table is not clear. They are probably borrowings from Hongkongnese or Taiwanese Chinese.

4. Conclusion

The purpose of this paper was to add certain details to the overall general picture of Chinese word-formation. It is based on a quantitative analysis of the concrete language material. The key issue of this text is the answer to the question of how the Chinese language, which primarily established new words by means of composition, derivation and conversion, performs the transfer of foreign currency names. Based on a corpus composed of 198 units, an analysis of 88 in English and 75 in Chinese currency names was carried out. The quantitative difference between the two parts of the corpus was caused by the tendency to simplify the transfer from the source language to the target one by calquing, or connecting the homeophonic words by a single expression. The origin of foreign currency names in Chinese is generalized by the following diagram:

PICT. 1: Currencies: word-formation



Approximately 91% of the terms were borrowed from foreign languages, i.e. they were phonetic loans; 6% are translations, i.e. calques; and 3% are broadening of the word's primary meaning. Theoretical works on Chinese vocabulary do not even mention phonetic borrowing as a method of word-formation in Chinese (sic!). Translations and conversions are substantially less common in this corpus, and derivation is not present here at all.

This paper is not merely a vocabulary description of a particular language, but should also be related to linguistics in general, namely to onomastics. While currency names are considered non-

prototypical proper names, because they are not generated by phonetic borrowing (Langendonck, 2007, pp. 238–239), Chinese foreign currency names are prototypical proper names, since they are mostly phonetic loans.

Literature:

Cáo Xiānzhuó 曹先擢 & Sū Péichéng 苏培成 (1999). *Hànzì Xíng, Yì Fēnxi Zìdiǎn* 《汉字形义分析字典》 *Analytic Graphemo-Semantic Dictionary of Sinograms*. Běijīng: Běijīng Dàxué Chūbǎnshè.

Coulmas, F. (2003). *Writing Systems. An Introduction to their Linguistics Analysis*. Cambridge: Cambridge University Press.

Countries, Regions, Capitals and Currencies. In Wú Jǐngróng 吴景荣 (ed. 1994). *A Chinese-English Dictionary*. Běijīng: Shāngwù Yīnshūguǎn.

Guō Guóróng 郭国荣 (ed. 1993). *Shìjiè Rénmíng Fānyì Dà Cídiǎn* 《世界人名翻译大辞典》 [*Names of the World's Peoples: A Comprehensive Dictionary of Names in Roman-Chinese*]. Běijīng: Zhōngguó Duìwài Fānyì Chūbǎn Gōngsī.

Kane, D. (2009). *Knížka o čínštině* [The Chinese Language: Its History and Current Usage]. Mirošovice: Desert Rose.

Langendonck, W. (2007). *Theory and Typology of Proper Names*. Berlin, New York: Mouton de Gruyter.

Levý, J. (2012). *Umění překladu* [The Art of Translation]. Praha: Miroslav Pošta – Apostrof.

Lù Gǔsūn 陆谷孙 (1999). *The English-Chinese Dictionary* (unabridged). Shànghǎi: Shànghǎi Yīwén Chūbǎnshè.

Packard, J. (2001). *The Morphology of Chinese: A Linguistic and Cognitive Approach*. Beijing: Foreign Language Teaching and Research Press.

Slaměníková, T. (2013). *Ideogramy v moderní čínštině* [Ideograms in Modern Chinese]. Olomouc: Univerzita Palackého v Olomouci.

Švarný, O. & Uher, D. (2014). *Prozodická gramatika čínštiny* [Prosodic Grammar of Chinese]. Olomouc: Univerzita Palackého v Olomouci.

Vochala, Jaromír & Novák, Miroslav & Pucek, Vladimír (1989). *Úvod do čínského, japonského a korejského písma 2. Praktický kurs* [An Introduction into Chinese, Japanese and Korean Writing Systems – Practical Course]. Praha: Státní pedagogické nakladatelství.

Драгунов, А. А. (1962). Грамматическая система современного китайского разговорного языка. Ленинград: Ленинградский государственный университет.

Никитина, Т. Н. (1982). Грамматика древнекитайских текстов. Синтаксические структуры. Ленинград: Ленинградский университет.

Солнцев, В. М. Китайский язык. In Ярцева, В. Н. (1990). Лингвистический энциклопедический словарь. Москва: Советская энциклопедия.

Яхонтов, С. Е. (1965). Древнекитайский язык. Москва: Наука.

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ECONOMIC FALLOUTS OF LABOR FORCE IMMIGRATION IN GREAT BRITAIN

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Abstract: *The Brexit issue and the subsequent decision of British majority in referendum on Britain's leaving the European Union have changed the labor migration development flows into the country. The preferred target country for migrant workers from the new EU Member States communicates its ideas about anti-immigration policy that is reflected in a decline of migrant's interest to work in this country. The study, based on labor immigration development into the UK, identifies migration trends and explains the impact of immigration on selected macroeconomic indicators of the country by means of calculations of labor migration benefits and losses as a result of cheap labor force coming from Central and Eastern European countries. The implementation of calculations is based on data available from Eurostat, WTO, OECD, OBR UK, the Department for Work and Pensions UK and HM Revenue and Customs UK, World Bank and on empirical surveys data published in professional publications. The study explores several economic and social criteria, and through mathematical calculations, the losses and benefits of immigration to the country and society are to be recalculated.*

Keywords: *Immigration, labor migrant, workforce, target country, migration policy.*

JEL classification: *F22 – International Migration*

Grant affiliation: *This publication was created within the frame of the project funded by VEGA agency „Balance of economic gains and losses from labor mi-gration” (č.1/0679/17.*

1. Introduction

Working migration after the end of transition periods is a proof of the fulfillment of one of the fundamental pillars of European Union – free labor force movement. (The Migration Observatory at the University of Oxford; Habánik, Koišova, 2012)

Based on the pull and push factors theory, migrants' economic motivation to leave their home country and be seeking work abroad are the higher wage level in target country, lower unemployment rate, and bigger number of job vacancies (Andrijasevic, R., Sacchetto, D., 2016; Pajnik, M., 2016). For the receiving country, an uncostly, qualified labor force in the productive age with the potential to generate the highest added value during their life is being judged positively. Possible benefits and regulation of potential labor migration losses force individual countries to

produce more and more effectively. The subject of this study is to discuss the causes and motives of labor migration, its intensity, extent and the perspective of migration from the regional point of view (Divinský, 2009; Blanchflower DG, Shadforth C., 2009; Rosenow, 2009; 2010; Schaeffer, Bukenya, 2010; Simkus, 2014). A significant part of this issue covers the migration of a highly skilled labor force that produces innovation along with highest added value being implemented in it. (Weidlich, R., 2000; Kazlauskienė, Rinkevičius, 2006; Daugėlienė, 2007; Polakowski M., Szelewa D., 2016)

In spite of positive aspects being posed by migrants from Eastern and Central Europe for Western European countries, public opinion, politicians, state institutions and mass media are stimulating a debate about migrants from Eastern Europe who threaten their social and economic order (the burden on social and health systems in the target country, jobs likely to be occupied by local population, pressure to lower wage levels and others). (Čekanavičius, Kasnauskienė, 2009; Polakowski M., Szelewa D., 2016; Karbach, 2005)

The main goal of this paper is on the basis of labor force immigration development into the UK, to identify migration trends and to explain the impact of immigration on selected macroeconomic indicators of the country by means of calculating the migration benefits and losses out of Central and Eastern European labor force immigration.

To achieve the goal, we have developed a balance of economic losses and benefits model recalculating the selected macroeconomic indicators and other economic categories (The Migration Observatory at the University of Oxford, Office for National Statistic GB, ILO 2016, OECD, 2013).

2. Economic aspects of labor immigration and their impact on macroeconomic indicators of Great Britain

By its pro-immigration-oriented policy till 2015, Britain has been one of Europe's most liberal countries in relation to the free movement of labor. In 2015, when United Kingdom announced leaving the European Union, the instability and inability to predict the development scenario has been reflected in the decline of immigration into the country.

TAB. 1: International migration Development in the UK from 2007 to 2016

	2008	2009	2010	2011	2012	2013	2014	2015	2016
immigration	590	567	591	566	498	526	632	631	588
emigration	427	368	339	351	321	317	319	299	339
net migration	229	229	256	205	177	209	318	333	248

Source: The Migration Observatory at the University of Oxford

In a deeper analysis of migration according to the main integration waves of European Union Member States, we can see that immigration from the EU15 and EU8 groups has a contradictory

development. While the immigration from the EU15 into the UK was relatively stable until 2012, in the following two years, immigration to the UK increased significantly and then remained stable at about 130,000. Migration from these countries usually takes place to cover the highly qualified jobs or as a result of financial capital flow and foreign direct investment income accompanied by the human capital flow, therefore, this indicator is not significantly affected by economic cycle. This certainly does not apply to the EU8 migration analysis case, being largely dependent on economic development in world economy and particular country, but also on policy decisions regarding migration policy.

TAB. 2: Development of selected macroeconomic indicators and labor market indicators in the UK from 2007 to 2016

	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP mld. USD	2875	2367	2430	2609	2646	2720	2999	2861	2619
GDP per capita in USD	40317	38281	38710	38988	39226	39709	40621	41184	41603
GDP per worker	97037	81184	83139	88814	89100	90514	97513	91452	82551
employed in mil.	29,628	29,156	29,228	29,376	29,697	30,045	30,76	31,28	31,73
employment rate	74,2	72,5	70,6	70,3	71,2	72	73	73,9	74,4
Immigrants' share on employment	12,8	13	13,4	14,3	14,7	14,9	15,8	16,7	x
unemployed in mil.	1,86	2,49	2,5	2,64	2,51	2,39	1,96	1,71	1,62
unemployment rate	6	7,9	7,9	8,3	7,8	7,4	6	5,2	4,8
job vacancies in ths.	702	445	460	490	465	500	600	749	755
wage USD/week	440	419	440	450	458	460	469	480	489

Source: Office for National Statistics GB, The

Macroeconomic indicators and labor market indicators in the UK shown in tab. 3 are copying the economic situation in the world and the political views in the country that we have described above

and we are also dealing with them in the next chapter. The further structuring of subchapters is indicated below.

3. Analysis and Discussion

In the past, Great Britain has applied liberal and a multicultural society policies. The start of global economic crisis and the following three years have been difficult for the country's economy, being accompanied by a significant GDP reduction (from the start of 2008 till 2010, it dropped from USD 3063 billion to USD 2430 billion), by employment decline (from 74.2% in 2008 to 70.3% in 2011), together with unemployment rise (from 6% in 2008 to 8.3% in 2011). The pressure of core European Union Member States on increased financial demands resulting from integration processes and long-term loans for Greece began to disrupt the built up and relatively functioning system. The cause of unfavorable development the states' top leaders have seen in the negative consequences of migration.

The UK economy is based on immigrants as being a missing labor force but also on their demographic potential in pre-productive age. Nearly 10 mil. immigrants, of which more than 80% are employed. Without these workers, the service system would collapse throughout the whole country. These workers are the costless workforce for which the country has not contributed by any funding from public sources, while the education and training costs in the country are higher than the European Union average.

The share of immigrants on employment is about 15% and thus they have an approximately equal share on the country's GDP. In spite of their number, during the crisis, there were almost 500,000 free job openings. Not to mention their rising trend, when in 2016 there were unoccupied up to 755 thousand jobs. Immigrants from the EU Member States, whether they are from the EU15, EU8 or EU2, to a great extent, do not abuse the UK social system, nor do they take up jobs from British citizens or reduce their wages. They are employees who often work under less favorable working conditions than domestic population and are taking jobs being a persistent shortage for the country for a long time. On one hand, there are highly qualified doctors, medical, IT and design specialists, scientists and others - the human capital being a subject of competition in international economy, because to the country they bring innovation being a source of competitive advantage and the highest added value in the country's economy. On the other hand, there are low-skilled workers helping to ensure everyday life in country, however without immigrants willing to work in those jobs the busy day-day rituals would collapse.

4. Conclusion

The assessment of some items within the economic balance of losses and benefits regarding the labor migration from European Union to the UK point out the lack of accurate data and statistics on the extent and intensity of migration flows, the motives and intentions of migrants, their social and demographic characteristics.

The balance assessment model approach highlights the advantage of benefits that migrant workers from new or old European Union countries create in the target country. On the other hand, the emigration of labor force abroad represents a big loss of not only economic values but also significant part of development potential for sending countries.

Only a model assessment of economic losses and benefits by itself is inadequate because it does not produce a complete picture of real losses and gains for the state and society. The complexity of migration issues requires the assessment of social objectives and other human, moral, psychological, cultural or demographic factors.

Literature:

Andrijasevic, R., & Sacchetto, D. (2016). From labour migration to labour mobility?: The return of the multinational worker in Europe. *Transfer: European Review of Labour and Research*, 22(2), 219-231. Retrieved May 11, 2017, from <http://dx.doi.org/10.1177/1024258916635975>.

Blanchflower, D. G., & Shadforth, Ch. (2009). Fear, Unemployment and Migration. *The Economic Journal* 119/535, p. F136-F182. Retrieved May 11, 2017, from <http://dx.doi.org/10.1111/j.1468-0297.2008.02224.x>.

Divinský, B. (2009). *Migračné trendy v Slovenskej republike po vstupe krajiny do Európskej únie (2004 - 2008)*. Bratislava: IOM.

Habánik, J., & Koišová, E. (2012). *Regionálna ekonomika a politika*. Bratislava: Sprint.

International migration Report. (2015). Retrieved May 11, 2017, from http://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2015_Highlights.pdf (10.03.2017).

Karbach, R. (2005). Stop to Manage, Start to Lead. *Zeitschrift der Eberle-Butschkau-Stiftung*, Jahrgang 20, Nr.3, Bonn.

Kazlauskienė, A., Rinkevičius L. (2006). *The Role of Social Capital in the Highly-Skilled Migration from Lithuania*. *Engineering Economics*, 4, 69-75. 11.

Office for National Statistics. (2016). Retrieved July 01, 2017, from <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/migrationandthelabourmarketuk/2016>.

Pajnik, M. (2016). 'Wasted precariat': Migrant work in European societies. *Progress in Development Studies*, vol. 16, 2, pp. 159-172.

Schaeffer, V. P., & Bukenya, O. J. (2010). *Assimilation of Foreigners in Former West Germany*. *International Migration*, 52/4, p. 157 – 174. Retrieved July 01, 2017, from <http://dx.doi.org/10.1111/j.1468-2435.2010.00617.x>.

Simkus, A., Fominiene, V.B., & Ivanová, E. (2014). *Management of volunteers as human resources in non-governmental organisations: case of sport industry*. Transformations in business & economics. (13) 2A, p. 396-415.

The Migration Observatory. (2016) Retrieved July 01, 2017, from <http://www.migrationobservatory.ox.ac.uk/resources/briefings/migrants-in-the-uk-labour-market-an-overview/>.

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RISK TRAVEL MANAGEMENT AND ITS USE IN THE CONDITION OF THE CZECH REPUBLIC

MAREK TOMAŠTÍK, JIŘÍ DOKULIL

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Abstract: *Now businesses that place an increased emphasis on reducing risk may draw upon a concise, step-by-step guide for creating a corporate travel risk management. Keeping Business Travelers Safe and Secure provides advice on how to involve the right people, what data to collect, how to communicate to travelers and to solve problems and deal risks. The paper also includes its implementation in Czech Republic.*

Keywords: *Travel Risk Management, Process, Travel Planning, Responsible Travel Management.*

JEL classification: *R 41, Z 32*

Grant affiliation:

1. Introduction

The theories as well as practice of contemporary managerial thinking deal with pre-assumptions of business survival and prosperity under conditions of permanent changes and critical changes of social-economic and political environment. Changes require for managers on all the levels of managerial work to be high-level prepared for the changing environment. The ability – and sometimes even art – of successful work in risky conditions becomes a characteristic feature of a modern manager nowadays. The consequences of inability to work under risky conditions are critically threatening for quality of managerial activities.

Everyone is threatened with a risk. Naturally, the risks differ in their type and in the extent of individual risks' existence to threaten the individual subjects. The ability of risk management is an important pre-assumption of successful activities. Risks include the dubiousness of future acts. We have to anticipate future development with a risk. That is the reality when a threat representing a risk becomes a reality. That applies twice mainly in the current period, when menaces and risks of international terrorism, climatic changes and various disasters affect travelling and its safety.

2. Risk Travel Management

Globalization increases mobility of people. Travelling includes expenses, risks and opportunities for organization – it is necessary to manage them well as to maximise results. In consideration of the fact that organizations extend their global activities it becomes more and more important to have available current information on global risks in the field of risk management in travelling with the purpose of travelling employees' protection. (Smejkal & Rais, c2010) Organizations need to assess the travel risks, including in-time information on health, safety, crime, terrorism, economic conditions and political development on local level and the ability of analysing such information and react to it.

Business trips became an integral part of business and the duty of care for health and safety of employees must be considered to be an important part of care for an employee. Safety and protection aim mainly at the main problems, like natural disasters, terrorism and kidnapping. Less attention is paid to less "dramatic" but much more frequent cases, like traffic accidents or health accidents abroad. (Baker, 2016)

Wider conception of good living conditions of travellers and the duty of care does not apply to urgent cases and medical incidents only. The stress of business trips caused by delays, loss of luggage, lower productivity (but anyway high work loads) or just the simple fact that the employee is off his family and friends, should not be underestimated.

Risk Travel Management means much more than fast and efficient reaction to events that occurred. In fact, reaction to an incident is only one part of the risk management program. The pro-active elements are those that must be planned before the business trip commencement. The components must be included in rules and procedures, training, monitoring of employees at business trips (travellers) on 24/7 basis and obtaining feedback from employees in the field. Development of such a continuous cycle and its monitoring may significantly reduce the risks for all the global risks.

Legislation in some countries requires for the employers to introduce full Risk Travel Management. The legal requirements are mainly in the following areas: duty of care; duty to disclose; and standard of care.

Co-operation of many internal divisions within the scope of the company is necessary for development of balance needed for successful and complex Risk Travel Management program. The Travel Risk Programs must be adjusted in such a way so as to satisfy specific needs of given organization and to be integrated in general programs of risk management. (Evans, Campbell, & Stonehouse, 2002)

Even the companies with good experience in safety and security *may encounter some* imperfections in arrangement of their employees' safety. (Brossman, 2016) Even though each individual gap may seem insignificant, it is necessary to be aware of the fact that inadvertence may be perceived as negligence. Potential gaps include (but without limitation):

- Travel policy omits safety and security altogether

- Policy treats senior level management differently than other employees
- Company fails to inform and educate their travellers on general and specific travel risks
- Company does not document when they have advised employees on travel safety
- Company does not test its crisis management plan regularly
- Company does not have a dedicated, fully-mapped travel risk management strategy

Risks for a Traveller

Travelling is risky, as it employs employees in unknown or unsuitable environment, like e.g.:

- Driving in unknown countries and cities
- Tiredness
- Unfamiliarity with local language
- Unfamiliarity with health risks in the country visited

Risks of Employers

In case of an employee to be injured or to die at a business trip, the employer faces serious legal and financial consequences as well as loss of good reputation. (Brossman, 2016)

3. Efficient Risk Travel Management

Efficient risk travel management must be complex, consistent and integrated in the organization's processes. Risk management is a generally structured process supported by robust data management and combination with clear policy and liabilities, which is implemented and controlled via change management and management of communication procedures. Business trips may include a trip to a neighbouring town as well as a trip to another continent or long-term employment in another country. Whenever an employee is on the trip, there exist threats and there emerge risks. (Puig, Laux, Kania, & Colins, 2012) We use the classic risk management model within the Travel Risk Management Program.

PICT. 1: Model of Risk Travel Management

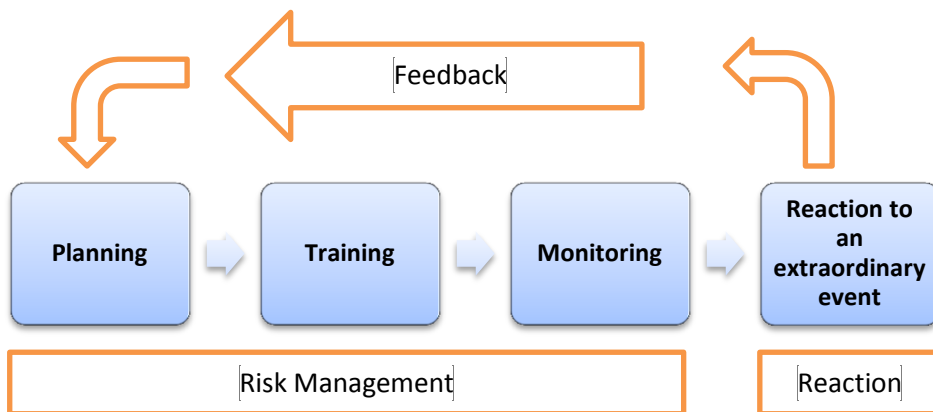


It is necessary to identify threats, to assess them in relation to traveller's profile, to set acceptable risk level for the organization and the employee, to implement the strategies of reduction with the aim of reducing the acceptable risk level and then to monitor any possible changes in threats or classification in the strategy of risk reduction and readiness to react in case of an extraordinary event. (Swarbrooke & Horner, 2000)

Risk Travel Management is a complex integrated system, which is pro-active in the field of various travel challenges. Most organizations have some level of emergency assistance (usually travel and health) for their employees at business trips. But organizations cannot afford any more to react to travel problems only. The travel risks must be actively managed – mainly in reaction to the increase in instability. That means being active in helping our employees to avoid any problems with travelling. (Puig, Laux, Kania, & Colins, 2012) It is necessary to monitor them and to monitor political and safety situation in given destination.

Now let's introduce 4 phases leading to development of an active program of Travel Risk Management.

PICT. 2: Process of Preparation of Risk Travel Management



Source: "Risk Travel Management: Denny Chan: Risk Travel Management", 2007

In the planning phase it is necessary to prepare crisis scenarios for various situations that may occur for the travellers. These must be interconnected with key organization plans.

Training of employees and department managers for extraordinary events, including management of business trips and simulation of events. The aim is to prepare employees for possible extraordinary events and to learn them to appropriately react to such events. (Baker, 2016)

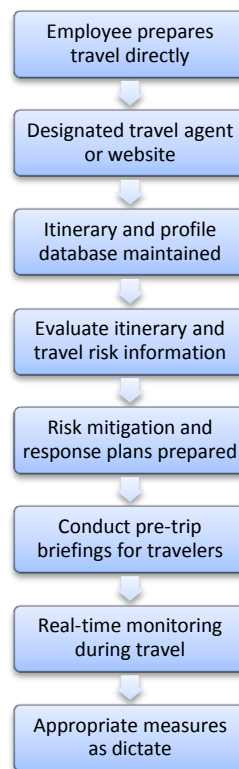
Monitoring of employees in business trips includes monitoring of their travel as well as the political situation as well as climatic conditions and monitoring of extraordinary events of natural character. The aim is to actively and operatively manage employees during their business trips.

Response to an incident – the employees need to address someone at the moment of getting into trouble. He/she must assist them in their trouble. This is usually solved by specialized travel agencies aimed at company clients and disposing with a centre of assistance in case of incidents. The work site must be able to help in various situations and that is why it is important for it to be multi-disciplinary.

4. Travel Risk Management Process

Travel risk management as well as any other program is based on a systematic process. The figure described the flow of processes of Travel Risk Management Process, systematically assessing and managing the travel risks.

PICT. 3: Travel Risk Management Process



Source: “Risk Travel Management: Denny Chan: Risk Travel Management”, 2007

Most of the companies manage the first three steps somehow. Most of the company do not solve the other steps. The process is omitted, mainly in the Czech Republic. Abroad, companies co-operate with specialized travel agencies with trained staff and communication equipment and multi-disciplinary background for problems solving.

Naturally, the process of your travel risks management organization will be more detailed and exact. The program should include e.g. monitoring of regulations fulfilment so as the employees meet the rules related to travelling into highly risky destinations, maximal numbers of employees in a given flight, etc. (Bertea & Moisescu) Together with monitoring, the program should make easier for the employee to adjust to a new situation. (Williams & Baláž, 2013)

In fact, the Risk Travel Management project is not used yet in the Czech Republic. The Faculty of Logistics and Crisis Management co-operates with a travel agency in Uherské Hradiště, aimed at organization of business trips. Together, we have been working on the project of Travel Risk Management for the travel agency and we develop a special application for mobile phones, which would automate many activities and which could assist with communication with the operation centre. Past experience has shown that the introduction of Risk Travel Management helps passengers optimally address their problems. Companies to reduce the risk, preferring to passengers in particular to less secure areas, will pay a higher price for the trip.

5. Conclusion

Liability, duty of care and risk management – these are the key words in business nowadays. Protection of people is important for long-term survival of an organization. Employees face maximal risks while travelling. Processing of a complex and pro-active program of risk management in tourism may increase productivity, bring balance and rescue lives. Risk Travel Management helps to assess global threats related to employees, equipment and sources of the supply chain. It helps in communication with travellers, it implements services of a reaction to extraordinary events and it allows the clients to reduce risks and reaction to them. In connection with an increase of extraordinary events in the world it is necessary to implement the Risk Travel Management principles even in the environment of the Czech Republic.

Literature:

Baker, M. B. (2016). *What You Should Expect from Your Travel Risk Management Provider*. Business Travel News, 33(1552).

Bertea, P., & Moisescu, O. I. (2011). *Perceived Risk, Price and Online Travel Agencies: Does Price Always Matter?* Management Marketing - Craiova, 2011, 32-42.

Brossman, C. (2016). *Building a Travel Risk Management Program: Traveler Safety and Duty of Care for any Organization*. Cambridge: Butterworth-Heinemann.

Evans, N., Campbell, D., & Stonehouse, G. (2002). *Strategic management for travel and tourism*. Oxford: Butterworth-Heinemann.

Goeldner, C. R., & Ritchie, J. R. B. (2014). *Cestovní ruch: principy, příklady, trendy*. Brno: BizBooks.

Oroian, M., & Gheres, M. (2012). *Developing a risk management model in travel agencies activity: An empirical analysis* [Online]. Tourism Management, 33(6), 1598-1603. Retrieved from <https://doi.org/10.1016/j.tourman.2011.12.020>.

Puig, A., Laux, D., Kania, G., & Collins, J. (2012). Travel Risk Management Programs That Include Both Security and Medical Safety Components. In *Proceedings of the Corporate Aviation Safety Seminar* (pp. 61 -67).

Risk Travel Management: Denny Chan: *Risk Travel Management* [Online]. (2007). Retrieved July 30, 2017, from <https://www.slideshare.net/Nostrad/travel-risk-management-danny-chan>.

Sharpley, R. (1995). *Security and risks in travel and tourism* [Online]. Tourism Management, 16(7), 548-549. Retrieved from [https://doi.org/10.1016/0261-5177\(95\)96809-W](https://doi.org/10.1016/0261-5177(95)96809-W).

Smejkal, V., & Rais, K. (c2010). *Řízení rizik ve firmách a jiných organizacích* (3., rozš. a aktualiz. vyd.). Praha: Grada.

Swarbrooke, J., & Horner, S. (2000). *Business travel and tourism*. Oxford: Butterworth-Heinemann.

Williams, A. M., & Baláž, V. (2013). *Tourism, risk tolerance and competences: Travel organization and tourism hazards* [Online]. *Tourism Management*, 35, 209-221. Retrieved from <https://doi.org/10.1016/j.tourman.2012.07.006>.

Zelenka, J. (2015). *Cestovní ruch - marketing* (Vyd. 3., přeprac.). Hradec Králové: Gaudeamus.

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USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN BUSINEESE AND HOUSEHOLDS IN THE CONTEXT OF THE DIGITAL ECONOMY

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Abstract: *The paper points to the possibilities of using information and communication technologies in busineese it whitin context of the digital economy. Points to the fact that ICT supports innovation and competitiveness in a wide range of private and public markets and sectors. It also highlight the need of people and businesses to have the freedom and options to make full use of opportunities offered by the Internet and modern digital technologies. At the end, it presents the latest statistical data on the use of ICT in Slovak enterprises and within consumer behaviour in Slovak households.*

Keywords: *Information and communication technologies. The market. Company. Household. Digital economy.*

JEL classification: *O500, F680*

Grant affiliation: *This work has been supported by Grant No. 002TUKE-4/2017: Innovative didactic methods of education process at university and their importance in increasing education mastership of teachers and development of students competences.*

1. Introduction

The possibilities of using Information and Communication Technology are stimulated by advances in electronics, microsystems, embedded systems, networking, cybernetics and robotics as well as advances in human-machine interface processing (Luttmerdingová, Zelonková, 2013). This progress allows to create a number of new business activities, especially for small and medium-sized enterprises and contributes to increase competitiveness, job creation and, ultimately, the growth of the economy. Thus, ICT supports innovation and competitiveness across a wide range of private and public markets and sectors. Therefore we will focus on information and communication technologies with an emphasis on a digital single market, and also the need of businesses to be able to fully use opportunities offered by the Internet and modern digital technologies.

2. Information and Communication Technologies

The term Information and Communication Technologies (ICT) is a technology that enables electronically to record, store, search, process, transmit and disseminate information. ICT can be understood as a combination of information technology (and technique) and communication technology (and technique).

Nowadays, the term digital technology is quite often used. The notion of Information and Communication Technology is also often used to indicate the convergence of computer network and audiovisual and telephone network with a single unified interconnection system. According to V. Sivý (2006) ICT applies to all technologies used for telecommunication, broadcast media, intelligent building management systems, audiovisual processing and transmission systems and network-based management and monitoring functions. ICT can be seen as technology that allows electronically to record, store, search, process, transmit and disseminate information within required form and quality. Using ICT, business has unlimited opportunities to access information and communication to environment. It might be said that information and communication technologies have no uniform definition. The causes of terminological diversity may arise, for example, in different views of technology and also because ICT concepts, methods and applications are constantly in evolution (ICT has been characterized by dynamic changes, rapid innovations in recent years). But the fact is that ICT has an increasing impact on all segments of society and social economy. For example, they make it possible to streamline business processes, open up new business opportunities on the world markets for small and medium-sized businesses, rapidly upgrade products and services, increase the share of high value-added production, rationalize production processes and save raw materials and energy, strengthen regional development through wide adaption of new forms of work, thereby to increase competitiveness and employment (Luttmerding et al., 2016).

3. Single digital market

Relating to development of economies of individual countries and the EU as a whole, the EU's plan is to create a one digital market that is free and safe, where people can shop online regardless to borders. Enterprises across the EU can sell anywhere in the EU. Dušan Chrenek, head of the European Commission in the Slovak Republic in the series Digital Single Market Road Show 2016, adds "The basic idea is that" people and enterprises can have freedom and opportunity to make full use of opportunities offered by fast internet and modern digital technologies. "(Digital Single Market, 2016) The drive for a single digital market resulted in a strategy published by the Commission on 6 May 2015. This strategy has three objectives:

- to make it easier for consumers and businesses to access online products and services across Europe,
- to improve conditions for digital networks and services to grow and prosper,
- to support a growth of European digital economy.

The single digital market is therefore based on the concept of a common market (internal, defined as an "area without internal borders" where free movement of goods, persons, services and capital is

guaranteed) designed to remove trade barriers between Member States in order to increase economic prosperity and contribution to even closer unification of the nations of Europe (Monitoring the Digital ..., 2016; See also: www.europortal.europa.eu). The aim is to extend the digital economy of the EU in order to offer consumers better services at lower prices and to help businesses to grow. Ultimately, it is about to provide high life standard for EU population.

However, it should not be forgotten that even though the digital economy has its "non-border" nature, the single European digital market is divided by national rules, differences in practice and differences in market practices. As the Member States differ from one another at their pace, the EU takes steps to phase out these differences and to advance the development of the digital economy.

Nowadays, the single digital market appears to be one of the most promising and most comprehensive areas of progress and potential profits. It opens up new opportunities to support the economy through e-commerce. It also facilitates compliance with administrative and financial rules by businesses and strengthens the position of customers through eGovernment. This progress, however, requires a regulatory framework that helps to develop cloud computing, unbundling mobile data connectivity, and simplified access to information and content, while protecting privacy, personal data, cyber security and neutrality (Monitoring the Digital ... , 2016).

Progress in the development of the digital economy is regarded as crucial to improve the competitiveness of the EU's economy. (ICT has become an integral part of business operations). However, Europe's future sustainable growth and competitiveness depends on major range on its ability to embrace digital transformation in its entire complexity.

4. The current state of ICT in Slovakia. Consumer behaviour of Slovak households

Development technologies are considered as important ones to measure and access the Internet as it offers to users the ability of quick transfer of large amounts of data and open access lines. In fact, the deployment of high-speed and super fast broadband is now the key indicator of ICT policy-making. Whilst digital subscriber lines (DSLs) remain the main form of broadband technology in the EU, cable, satellite, fibre optic and wireless local loops are becoming increasingly widespread.

4.1. Use of ICT in enterprises and in households

Since 2002, the European Commission has set up an annual survey on the use of information and communication technologies in businesses and households. Eurostat has developed two models of surveys (one for businesses and one for individuals), working with EU and OECD member countries that have adapted them to their statistical programs.

In 2016, 15958 companies operated in Slovakia with 10 or more employees. They were involved in the survey. The survey included all enterprises with predominant activity according to NACE Rev. 2 classification. 2. - C, D, E, F, G, H, I, J, K (64.19 + 64.92 + 65.1 + 65.2 + 66.19), L, M, N and S95.1. According to the Statistical Office of the Slovak Republic in 2016, 99.5% of all businesses using PCs have access to the Internet. 88.2% of businesses used fixed broadband, and 63.2% of enterprises used mobile broadband. Up to 80.6% of businesses have their own website. From businesses with their own website, on-line order or booking allows 29.6%. Access to product catalogues and price lists on the website allows up to 90.4% of businesses. To design or customize goods or services

online gives the opportunity to 8.9% of businesses. Linkages or links to corporate social network profiles offer 30.7% of businesses on their website, and 33.5% of companies publish their job vacancies. In relation to the use of social media, businesses with access to the Internet, social networks, Facebook, LinkedIn is used by 30.6%. Business blog or microblog, such as Twitter is used by 6.5% of businesses. Multimedia which contain shared web pages such as YouTube is used by 12.8% of enterprises and a wiki based on knowledge is shared by 5.4% of enterprises. Out of all businesses, 24.8% purchased goods or services on the Internet and 15.3% realized sales of goods or services on the Internet. The use of personal computers, the Internet and e-commerce in enterprises is a very important area. The data on their use is needed for international analytical comparisons in the European Union as well as Eurostat, OECD and other international organizations (UN, ITU, SIBIS) (For more see: www.slovak.statistic.sk). This is also the case for households area.

As for the Slovak households (people living in flats who declare that they live and finance together), 4500 households were selected for the survey and one person of each household was selected and asked to answer questions about the use of ICT. One-step stratified selection was used in the survey, where the proportional number of households was selected in simple losses by a simple random selection. According to the Statistical Office of the SR, in the year 2016, 80.5% of the total number of households had access to the Internet. Fixed broadband was used by 89.3 households, 47.2% mobile broadband, 4.5% dial-up or ISDN (integrated TCP / IP digital network), and 5.9% mobile home network (less than 3G) 5.9% For more see: www.slovak.statistic.sk). The data obtained by the Slovak Statistical Office over the last 10 years has shown an increasing trend in access to computer and at the same time to the Internet in the households as well as in the enterprises. ICT has an impact on people's everyday lives in many ways.

4.2. Consumer behaviour of Slovak households

Generally, consumer market is made up of individuals and households which buy products for personal consumption. As far as consumer behaviour is concerned, its definition can be deduced from the general definition of behaviour. It says that behaviour is a mark for all observable, detectable and / or measurable activities of the organism or person. Consequently, consumer behaviour can appear as obvious and observable acts such as purchase and consumption. It understands mental and social process that occurs before the purchase, during the purchase and after the purchase. As for the consumer behaviour of Slovak households: According to the Statistical Office of the Slovak Republic, Slovak people spend most of their time shopping for clothes and sports goods (68.7%), household goods (43.18%), tickets for events (28.8%), electronic (22.2%), books, newspapers and magazines (21.6%), as well as meals and food (19.8%). On the other hand, the least purchased products are financial services, insurance, shares (0%) and also e-learning (3.8%) (For more see: www.slovak.statistic.sk). The aim of the statistical survey is to identify not only consumer behaviour but also to determine the level of availability of households by information and communication technologies and at the same time to identify the knowledge and skills of the population and the ability to use these technologies.

Annual surveys on the use of ICT in households and amongst non-households are the main sources of information (for monitoring) to monitor efforts which are made to support the creation of a single European Information Space. This survey is a source of information for an inclusive knowledge-based economy, and they also show the quality of life.

5. Conclusion

ICT has become the primary driving force for innovation and development of global economic. They are no longer a separate, individual sector, but they became the basis of all modern, innovative economic systems. We might say that "internet and digital technology change our lives and the way we work, both as individuals and in business and in our communities as they are getting increasingly integrated in all sectors of our economy and our society" (Communication from the ... , 2016, p. 3).

The progress and development of the digital economy can be considered as decisive for improvement of competitiveness of the EU economy. The single digital market is one of the most comprehensive areas of progress. It opens up new opportunities for economic support through e-commerce (using state-of-the-art ICTs) while making it easier for enterprises to comply with administrative and financial rules.

Literature:

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: The Digital Single Market Strategy for Europe. (2016). Brusel. Retrieved June 11, 2017, from [https:// ec.europa.eu/ digital - single- market/en/news/digital-single-market-strategy-europe-com2015-192-final](https://ec.europa.eu/digital-single-market/en/news/digital-single-market-strategy-europe-com2015-192-final). (21pt).

Digital Single Market - Threat or Opportunity for Entrepreneurs? (2016). Retrieved from https://ec.europa.eu/slovakia/node/617_sk.

Horenský, M. (2014). *Business Environment and Corruption*. In the Qualification for the Future: Proceedings of Revised Scientific Works with International Participation (pp. 28-33). Kosice: Technical University.

Lévay, P. (2000). *Cyberculture*. Praha: Karolinum.

Luttmerdingová, J. & Zelonková, V. (2013). *Use of Information and Communications Technology in Slovak Republic*. Bratislava: Statistical office of the slovak republic.

Luttmerdingová, I., Hamanová, J. & Palinkasová, M. (2016). *Survey on Usage of Information and Communications Technology in Enterprises in January 2015*. Bratislava: Statistical Office of the Slovak Republic.

Mihályi, D. et al. (2013). *Categorical Semantics of Reference Data Type*. In Acta Electrotechnica et Informatica 13(4), 64-69.

Monitoring the Digital Economy & Society 2016 – 2021. (2015). European Commission Retrieved June 08, 2017, from [https:// ec. Europa.eu/eurostat/documents/341889/725524/ Monitoring +the+Digital+Eco nomy+%26+Society+2016-2021/7df02d85-698-4a87-a6b1-7994sf7fbeb7](https://ec.europa.eu/eurostat/documents/341889/725524/Monitoring+the+Digital+Economy+%26+Society+2016-2021/7df02d85-698-4a87-a6b1-7994sf7fbeb7). (53pt).

Sivý, V. (2006). *Fundamentals of Information Technologies*. Prešov: Prešov University in Prešov.

Vlacucha, R., Kotlár, J. & Zelonková, V. (2015). *Survey on Usage of Information and Communications Technology in Households 2015*. Bratislava: Statistical office of the slovak republic.

For more see: [https:// www.slovak.statistics.sk/wps/portal/ext/data/databases/statdat](https://www.slovak.statistics.sk/wps/portal/ext/data/databases/statdat).

For more see: [https:// consilium.europa.eu/sk/policies/digital-single-market-strategy](https://consilium.europa.eu/sk/policies/digital-single-market-strategy).

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SELECTION OF TOOLS FOR MANAGERIAL DECISION SUPPORT – THE IDENTIFICATION OF METHODS OF CHOICE IN LINGUISTIC APPROXIMATION

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Abstract: *Linguistic approximation is a mathematical tool that transforms outputs of mathematical models (in the form of real numbers, intervals, fuzzy sets, etc.) into natural language. It therefore allows for the presentation of results of decision-support models in natural language in the final step of decision support. This is a crucial step especially for complex mathematical models whose results can be hard-to-interpret for non-experienced users (managers, laymen). For them the linguistic approximation provides easy-to-understand alternative outputs of mathematical models. The paper strives to suggest an analytical framework to select the appropriate method for linguistic approximation based on numerical experimentation and graphical summaries of outputs. One distance measure of fuzzy sets is selected to show the applicability of the proposed analytical framework. The goal is to provide managers and practitioners in economics and finance with results they can understand and apply.*

Keywords: *Linguistic approximation, fuzzy ideal, fuzzy number, dissemblance index, distance.*

JEL classification: C44

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1. Introduction

Linguistic approximation is a process of transforming mathematical outputs (i.e. numbers, intervals, fuzzy numbers) into a more natural form understandable by managers/laymen - natural language. This step may be crucial especially in some decision-support models, where the outputs of mathematical models are complex and cannot be interpreted by non-experienced users without the risk of misunderstanding or misinterpretation. In these cases, a proper linguistic label is often more understandable than numbers. In other words, linguistic summaries might be better understandable

for laymen users and hence more appropriate for them - even though the transition into natural language might introduce some uncertainty and/or bias into the situation (Stoklasa, Talášek and Musilová). However, the outcome of linguistic approximation may depend heavily on the selection of approximating method or the distance/similarity measure within the method. Therefore it is necessary to examine the appropriateness of the selected linguistic approximation methods for the selected decision-support model in sufficient detail. Studies in this topic have started to appear recently (Talášek and Stoklasa, 2016; Talášek and Stoklasa, 2017; Talášek, Stoklasa and Talašová, 2016), none of them, however, addresses directly the issue of the definition of an ideal and its possible impact on the appropriateness of linguistic approximation methods or their results. It is the aim of this paper to fill this gap with a suggestion of an analytical framework and a case study of one linguistic approximation method under a specific fuzzy distance measure.

More specifically, we introduce the analytical framework for the examination of behaviour of the *best-fit* linguistic approximation method, which is based on distance/similarity measures (Stoklasa, 2014; Yager, 2004). In contrast with other approaches to the analysis of linguistic approximation methods (Talášek and Stoklasa, 2016; Talášek and Stoklasa, 2017), this paper does not consider linguistic variables or linguistic scales (Zadeh, 1975) to provide values for the linguistic approximation. Instead, it focuses on the appropriateness of assigning a single, but very relevant and frequently used linguistic label: “*THE BEST*” or “*IDEAL*” (i.e. it considers such situations, where an ideal is defined and used as a benchmark). As such, the results are relevant not only for the purpose of the analysis of appropriateness of particular fuzzy distances or similarities in linguistic approximation, but also in the context of evaluation based on the distance from ideal (such as e.g. TOPSIS). For the simplicity and without loss of generality, the framework will be illustrated on one of the popular distances used in linguistic approximation - the *dissemblance index* (Kaufman and Gupta, 1985).

2. Preliminaries

Let U be a nonempty set (the universe of discourse). A fuzzy set A on U is defined by the mapping $A : U \rightarrow [0,1]$. For each $x \in U$ the value $A(x)$ is called a membership degree of the element x in the fuzzy set A and $A(\cdot)$ is called a membership function of the fuzzy set A . $\text{Ker}(A) = \{x \in U | A(x) = 1\}$ denotes a kernel of A , $A_\alpha = \{x \in U | A(x) \geq \alpha\}$ denotes an α -cut of A for any $\alpha \in [0,1]$, $\text{Supp}(A) = \{x \in U | A(x) > 0\}$ denotes a support of A . Let A and B be fuzzy sets on the same universe U . We say that A is a fuzzy subset of $(A \subseteq B)$, if $A(x) \leq B(x)$ for all $x \in U$.

A fuzzy number is a fuzzy set A on the set of real numbers which satisfies the following conditions: (1) $\text{Ker}(A) \neq \emptyset$ (A is normal); (2) A_α are closed intervals for all $\alpha \in (0, 1]$ (this implies A is unimodal); (3) $\text{Supp}(A)$ is bounded. A fuzzy number A is said to be defined on $[a, b]$, if $\text{Supp}(A)$ is a subset of an interval $[a, b]$. The real numbers $a^1 \leq a^2 \leq a^3 \leq a^4$ are called significant values of the fuzzy number A if $[a^1, a^4] = \text{Cl}(\text{Supp}(A))$ and $[a^2, a^3] = \text{Ker}(A)$, where $\text{Cl}(\text{Supp}(A))$ denotes a closure of $\text{Supp}(A)$. Each fuzzy number A can be represented as $A = \{\underline{a}(\alpha), \bar{a}(\alpha)\}_{\alpha \in [0,1]}$, where $\underline{a}(\alpha)$ and $\bar{a}(\alpha)$ is the lower and upper bound of the α -cut of fuzzy number A respectively, $\forall \alpha \in (0,1]$, and $[\underline{a}(0), \bar{a}(0)] = \text{Cl}(\text{Supp}(A))$. The centre of gravity of a fuzzy number A on $[a, b]$ (if $a < b$) is defined by the formula $\text{COG}(A) = \int_a^b x A(x) dx / \text{Card}(A)$.

The fuzzy number A is called triangular if its membership function is linear on $[a^1, a^2]$ and $[a^3, a^4]$ and $a^2 = a^3$. Triangular fuzzy numbers will be denoted by $A = (a^1, a^2, a^4)$. A triangular fuzzy number $A = (a^1, a^2, a^4)$ is called symmetric if $a^2 - a^1 = a^4 - a^2$. Otherwise it is called assymetric. More details on fuzzy numbers and computations with them can be found for example in Dubois and Prade (1980).

3. Analytical framework to select the appropriate method for linguistic approximation

The process of linguistic approximation of the output O of a mathematical model can be divided into two steps – in the first step, the set of proper linguistic terms/labels (words in natural language) describing the possible outputs of models is selected and their meaning (usually in the form of fuzzy numbers) is established. The crucial part of this process is that the future users of the model are part of this process. In the second step, the linguistic approximation method is selected and the most suitable linguistic label is selected (from the set of linguistic terms from first part). In our case, a single label “IDEAL” is considered with a meaning represented by a triangular fuzzy number F on $[0,1]$, $F = (k, 1, 1)$, where $k \in [0,1)$.

One of the most common linguistic approximation methods is the so called *best-fit approach* which employs distance/similarity measure of fuzzy sets. In this approach the distances (or similarity) between the output O and the meaning of each possible linguistic label are computed and then the label which meaning is closest (or is the most similar in the case of similarity measure) to the output O is selected as a result from the linguistic approximation (in cases when more than one label are selected, further investigation must be done).

The choice of proper distance/similarity method for the best-fit approach in the second step is crucial for the results of linguistic approximation. Different measures have different properties and (from the practical point of view) suggest different types of linguistic labels. Therefore it is necessary to properly investigate the possible impact of the selected distance/similarity measure on our model and its outputs. The presented framework examines the distance of different fuzzy numbers (outputs of models) from the fuzzy number F representing the “ideal value” of the output of mathematical model. This approach differs from other approaches (i.e. Talášek and Stoklasa, 2016; Talášek and Stoklasa, 2017) which usually focus on the final result of linguistic approximation, not the distance from one particular linguistic term. This approach, however, enables to study the effect of selected distance/similarity measure more deeply and offers also evaluation-oriented interpretation. Note, that the distance from the ideal solution can be used to define the best alternative or to order the alternatives in terms of their closeness to the ideal (provided that the distance/similarity measure chosen for this purpose is a suitable one). In the evaluation framework, a reasonable requirement for the distance measure DM could be, that if an alternative A is clearly better than alternative B , then $DM(A, F) \leq DM(B, F)$. A violation of such assumption could indicate either a wrong choice of the distance measure, or a wrong definition of the ideal and its representation F .

3.1. Analytical framework

The presented analytical framework is based on graphical representation of the values of distances between different triangular symmetric fuzzy numbers and a fuzzy ideal F representing an “ideal evaluation” or a “most desired value”. All fuzzy numbers are defined on the $[0,1]$ interval (restriction

on $[0,1]$ interval is chosen for the reader's convenience, however the framework can be used on any interval without the loss of generality). The fuzzy ideal in our framework is a triangular asymmetric fuzzy number $F = (k, 1, 1)$, where $k \in [0, 1]$. Usually the values of k are chosen as 0.9, 0.95 or 0.99 and therefore the fuzzy ideal represents a slightly uncertain fuzzy number close to 1. The concept of fuzzy ideal is well known and used in decision making methods such as TOPSIS (see e.g. Collan, Fedrizzi, and Luukka, 2013) or fuzzy MCDM methods (see e.g. Stoklasa, Talášek and Luukka, 2018; Stoklasa, Talášek, Kubátová and Seitlová, 2017).

One of the reasons why symmetric triangular fuzzy numbers are chosen is because they can be unambiguously identified by an ordered 2-tuple representing their centre of gravity and the length of their support. Symmetric triangular fuzzy numbers represent uncertain quantities or imprecise measurements and as such are frequent objects in mathematical models. In this paper m uniformly distributed symmetric triangular fuzzy numbers $O_i, i = 1, \dots, m$ representing the possible outputs of mathematical model are generated analogously to Talášek and Stoklasa (2017). Cartesian product of n uniformly distributed values of centre of gravity from $[0,1]$ interval and n uniformly distributed values of the length of support from $[0,1]$ is obtained. This Cartesian product is a set of n^2 2-tuples representing symmetric triangular fuzzy numbers. However, the supports of some of these fuzzy numbers are not subsets of the $[0,1]$ interval and therefore these fuzzy numbers must be removed from the set; the remaining 2-tuples represent the fuzzy numbers $O_i, i = 1, \dots, m$.

After the fuzzy ideal F is chosen and m symmetric triangular fuzzy numbers are generated, the investigated distance/similarity measure is selected and the distance/similarity between F and each $O_i, i \in 1, \dots, m$ is computed. Then the results are plotted in a 3D graph, where each point represents the distance (z-axis) of point O_i unambiguously represented by the centre of gravity (x-axis) and length of its support (y-axis) from the fuzzy ideal F . Moreover the colour of each point represents the distance of this point from fuzzy ideal. Due to this property, the graph can be plotted from the TOP view – i.e. the graph could be constructed as 2D graph where z-axis is represented by colours. However, it is more convenient to use both graphs sidewise instead of choosing only one of them.

After the graphs are constructed, the author of the model should inspect the properties of the distance/similarity measure and then decide if it is reasonable to use this measure in this particular mathematical model. How to inspect the properties is shown in the next chapter using a numerical example.

4. Numerical example and discussion

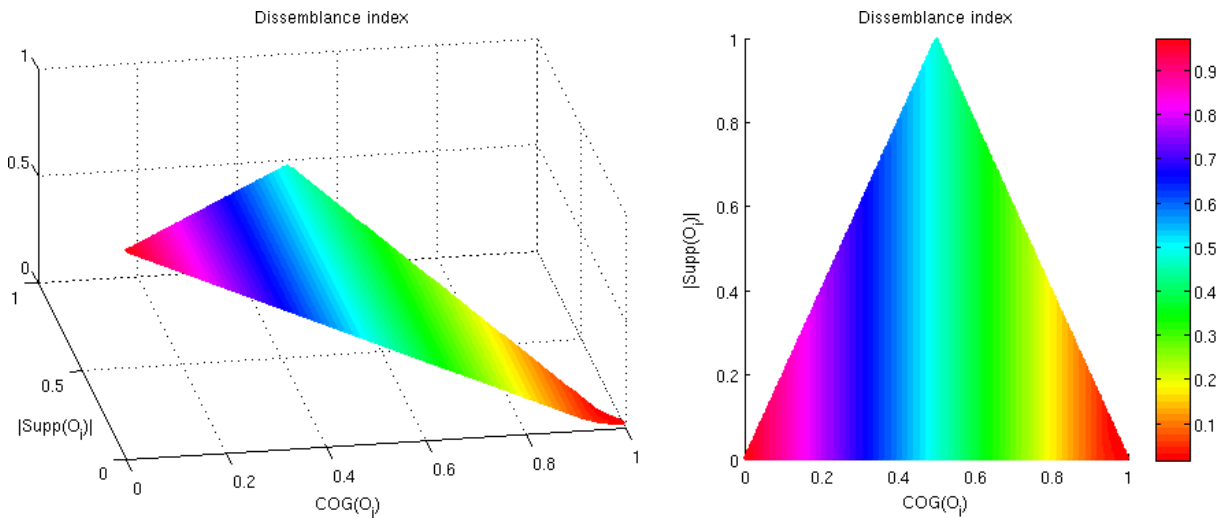
In this chapter, the usage of the proposed framework will be shown. For this purpose, the fuzzy ideal F and the distance measure that will be investigated must be chosen. The distance measure called dissemblance index (Kaufman and Gupta, 1985) was chosen as a representative measure, analogical analysis can be done for other distance/similarity measures of fuzzy numbers. The dissemblance index d of fuzzy numbers A and B is defined as:

$$d(A, B) = \int_0^1 |\underline{a}(\alpha) - \underline{b}(\alpha)| + |\bar{a}(\alpha) - \bar{b}(\alpha)| d\alpha.$$

Fuzzy ideal $F = (0.9, 1, 1)$ was chosen due to the fact, that this ideal is more uncertain and therefore more reflect fuzziness. Finally, 80 000 uniformly distributed symmetrical triangular fuzzy numbers $O_i, i \in 1, \dots, 80\,000$, is generated and the distance between each O_i and F is computed.

The result of this approach is depicted in Figure 1. From the right subfigure of Figure 1 can be clearly seen, that the length of the support does not affect the distance from the ideal F , i.e. the distance from F is dependent on the COG only (note, that this is the result of the use of symmetrical triangular fuzzy numbers). From the left subfigure we can clearly see, that the distance of O_i from the fuzzy ideal F , measured by the dissemblance index, changes linearly with respect to the centre of gravity of the investigated fuzzy number. The linearity is disrupted only for fuzzy numbers whose centre of gravity is situated close to 1 (see the red part of the left subfigure where the linearity is disrupted).

FIG. 1: Results from the numerical example, where the distance between 80 000 symmetric triangular fuzzy numbers $O_i, i = 1, \dots, 80\,000$ and fuzzy ideal $F = (0.9, 1, 1)$ is depicted. Each point O_i is represented by its centre of gravity (x-axis) and the length of support (y-axis). The distances between points are represented by colours and in the case of the left subgraph also by the z-axis.

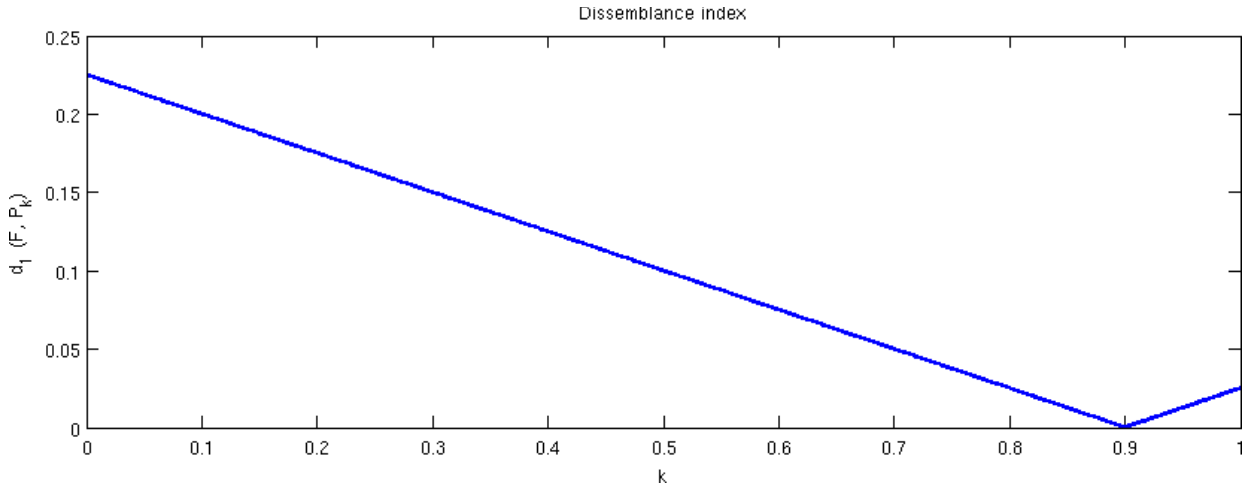


To investigate the disruption of linearity, an additional analysis was performed. The symmetric triangular fuzzy numbers O_i were replaced by 1 000 asymmetrical triangular fuzzy numbers $\{P_0, P_{0.001}, P_{0.002}, \dots, P_{0.999}, P_1\}$, where $P_k = (k, 1, 1)$. In fact, these fuzzy numbers represents different alternative definitions of fuzzy ideals. The distance d between these fuzzy numbers and the fuzzy ideal was computed and the result is plotted in Figure 2.

From Figure 2 we can clearly see that the closer the value of k is to the value 0.9, the lower the distance between P_k and F is. Please note, that for the $k = 0.9$ the distance is equal to 0. This is expected, because in this case the fuzzy number $P_{0.9}$ is equivalent to F . However, if the value of k is higher than 0.9, the distance will become positive again. This can be counterintuitive, because now the fuzzy number P_k is a subset of F , i.e. the fuzzy number P_k is even closer to number 1 (real-valued

ideal result) than the fuzzy ideal F but it is evaluated as having a nonzero distance from the fuzzy ideal (in other words worse than the fuzzy ideal). We can thus conclude that the dissemblance index works well as long as the supports of the outputs of the mathematical model have no intersection with the support of the fuzzy-number representation of the ideal. When low-uncertain fuzzy values close to 1 are considered, the distance measure starts to provide counterintuitive results. The reason is, however, not the distance measure, but the definition of the fuzzy ideal. Note, that defining the ideal as $(0.9, 1, 1)$ we expect the ideal not to be 1 and to be partially uncertain. As long as no value is close to the crisp 1, this is not a problem. If, however, values close to 1 are frequent, then the choice of the dissemblance index in combination with the definition of the fuzzy ideal is not a good one. This very simple combination of a numerical experiment with graphical outputs can provide easy-to-interpret insights into the ideal-distance pair choice appropriateness and help identify possible problems beforehand.

FIG. 2: Results from the numerical analysis, where the distance between 1 000 asymmetric triangular fuzzy numbers $\{P_0, P_{0.001}, P_{0.002}, \dots, P_{0.999}, P_1\}$, where $P_k = (k, 1, 1)$ and fuzzy ideal $F = (0.9, 1, 1)$ is depicted. On the x-axis the values of k of each fuzzy number P_k are depicted, whereas the y-axis represents the distance from the fuzzy ideal F .



5. Conclusion

In the paper a new analytical framework for selection of appropriate distance/similarity measure for linguistic approximation was proposed. This framework differ from standard framework in a way, that it compares the resulting distance between different outputs of mathematical models and so called fuzzy ideal – fuzzy number representing the goal. With this framework the author of mathematical model could examine the behavior of fuzzy measure more deeply and check if the measure possesses the required properties. The applicability of the framework is explained on a numerical example where one distance measure is examined and the found results are described. Also an additional analysis of found results is presented.

Literature:

Collan, M., Fedrizzi, M., & Luukka, P. (2013). A multi-expert system for ranking patents: An approach based on fuzzy pay-off distributions and a TOPSIS-AHP framework. *Expert Systems with Applications*, 40(12), 4749–4759.

Dubois, D. & Prade, H. (1980). *Fuzzy sets and systems: theory and applications*. Orlando: Academic Press.

Kaufman, A. & Gupta M. M. (1985). *Introduction to Fuzzy Arithmetic*. New York: Van Nostrand Reinhold.

Stoklasa, J. (2014). *Linguistic models for decision support*. Lappeenranta: Lappeenranta University of Technology.

Stoklasa, J., Talášek, T., Kubátová, J., & Seitlová, K. (2017). Likert scales in group multiple-criteria evaluation. *Journal of Multiple-Valued Logic and Soft Computing*, (in press).

Stoklasa, J., Talášek, T., & Luukka, P. (2018). Fuzzified likert scales in group multiple-criteria evaluation. In M. Collan & J. Kacprzyk (Eds.), *Soft Computing Applications for Group Decision-making and Consensus Modeling* (Vol. 357, pp. 165–185).

Stoklasa, J., Talášek, T. & Musilová, J. (2014). Fuzzy approach - a new chapter in the methodology of psychology? *Human Affairs*, 24(2), 189–203.

Talášek, T. & Stoklasa J. (2016). The role of distance/similarity measures in the linguistic approximation of triangular fuzzy numbers. In *Proceedings of the international scientific conference Knowledge for Market Use 2016*, 539–546.

Talášek, T. & Stoklasa, J. (2017). Linguistic approximation under different distances/similarity measures for fuzzy numbers. *Journal of Multiple-Valued Logic and Soft Computing*, (in press).

Talášek, T., Stoklasa, J. & Talašová, J. (2016). The role of distance and similarity in Bonissone's linguistic approximation method – a numerical study. In *Proceedings of the 34th International Conference on Mathematical Methods in Economics*, 845–850.

Yager, R. R. (2004). On the retranslation process in Zadeh's paradigm of computing with words. *IEEE Transactions on Systems, Man, and Cybernetics. Part B: Cybernetics*, 34(2), 1184–1195.

Zadeh, L. A. (1975). The concept of a linguistic variable and its application to approximate reasoning-I. *Information Sciences*, 8(3), 199–249.

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CONSUMERS' INFLATION EXPECTATIONS IN THE EU COUNTRIES. DOES THE CRISIS AFFECT THEIR FORWARD-LOOKINGNESS?

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Abstract: *In this paper, we investigate the forward-lookingness (FL) of consumers' expectations prior to and after the Great Recession in 18 EU Member States: 10 euro area members and 8 countries with national currencies. We hypothesize that despite the enhanced transparency of central banks during the crisis, the FL of expectations has not increased in the post-crisis period when compared with the pre-crisis circumstances. To verify this hypothesis, we (1) rejected the rationality of expectations in the countries under examination and we (2) estimated the hybrid specification of expectations for the whole sample (2001/02-2016), the pre-crisis period (until October 2008) and the post-crisis period (from 2010). The obtained results are ambiguous: in some countries, we found that FL increased while in other it decreased. With respect to some other countries we were not able to estimate any hybrid specification of expectations.*

Keywords: *Inflation expectations, expectations' forward-lookingness, monetary policy, crisis.*

JEL classification: E840, E580

Grant affiliation:

1. Introduction

In this paper, we investigate whether the forward-lookingness (FL) of consumers' expectations rose after the outburst of the global financial crisis. We form a hypothesis that it did not. Despite the central banks' enhanced way of communicating their intentions, including forward guidance, the non-standard practices of central banks and more turbulent economic circumstances hold back the possible trend of greater forward-lookingness. We expect that the results might differ across the countries.

The research covers the following Member States (MS) of the European Union (EU): 10 euro area countries: Austria (AT), Belgium (BE), Finland (FI), France (FR), Germany (DE), Greece (GR), Italy (IT), Netherlands (NL), Portugal (PT), and Spain (ES) as well as 8 non-euro area Member States: Bulgaria

(BG), Croatia (HR), Czechia (CZ), Hungary (HU), Romania (RO), Poland (PL), Sweden (SE), and the United Kingdom (UK). We have excluded the remaining EU Member States: for Luxemburg and Denmark no European surveys on expectations are conducted whereas for Ireland they are not performed in a continuous manner. The new euro area joiners have been ruled out as their euro admission took place in different years. The time span covers the years 2002-2016 (in some cases it might be shortened). We have concluded that the period before October 2008 is a pre-crisis (Lehman Brother collapse in September 2008) and we have marked the year of 2010 as the beginning of the post-crisis period. The most turbulent time for financial market came to an end in 2010. Up to that year, central banks had already implemented extraordinary monetary policy measures including enhanced communication.

We chose to examine the properties of consumers' expectations. The decisions made by individuals and businesses regarding consumption and investments along with the setting of prices are pivotal for economic output and - as such - are of primary importance to policy makers. We have at our disposal the Business and Consumer Surveys from the European Commission, i.e. methodologically homogenous qualitative surveys on expectations conducted among consumers in the EU Member States. There is no such database available for businesses. Nonetheless, consumers' expectations proxy business better than the expectations of professionals (Coibion & Gorodnichenko, 2015).

The paper contributes to the literature on expectations' forward-lookingness. It discusses the properties in 18 EU MS since the introduction of the euro currency and after the crisis.

2. Literature

In our research, we focused on expectations as their importance for monetary policy performance, i.e. transmission, effectiveness and costs, is commonly recognised (Mankiw, 1990), (Rudebusch & Svensson, 1999), (Woodford, 2003) and they were not discarded in the post-crisis discussions on the monetary policy theory and strategy (Woodford, 2014).

The most relevant strand of the literature for this paper compares the properties of inflation expectations made by different groups of economic agents before and after the crisis in several dimensions. The research conducted so far has generally confirmed that the crisis changed the properties of expectations. In their examination of the ECB Survey of Professional Forecasters Dovern & Kenny (2017) found a break in the forecast distribution and a higher risk of lower inflation. The research by Andreou, Eminidou & Zachariadis (2016) provided evidence that consumers' expectations in the fifteen euro area MS reacted differently to monetary policy shocks in the pre- and post-crisis times. Autrup & Grothe (2014) examined inflation expectations derived from the market measures for the euro area and USA. They focused on de-anchoring of inflation expectations and found that its level is lower for the USA, but not for Europe. The context of de-anchoring of inflation expectations was also analysed by Łyziak & Paloviita (2016). They studied the European surveys conducted among professional forecasters and consumers and found that in the post-crisis period longer-term inflation expectations are more sensitive to short-term inflation forecasts and the actual inflation rate, which means that they are de-anchored. Ciccarelli, Garcia & Montez-Galdón (2017) investigated the effects of unconventional policy measures on the anchoring of inflation

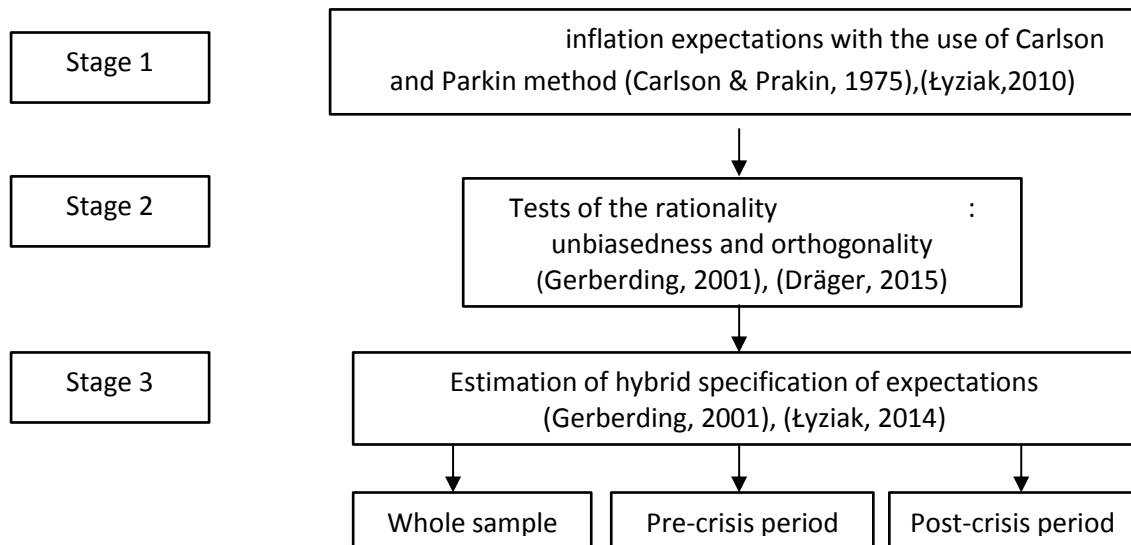
expectations in the USA. They proved that the degree of the anchoring of expectations got weaker after 2008 but unconventional monetary policy measures reduced this process.

In the light of the results mentioned hereinabove we could have expected a change in the relation between forward-looking and backward-looking components of consumers' expectations. Expectations do not linger passively to inflation target but they incorporate most recent economic conditions. We do not expect unique results for all samples as national factors might affect the formation of expectations together with with unconventional policy measures, including communication.

3. Methodology and sample

We applied a three-step methodology presented in Fig. 1 (with references provided at each step). We carried out the third step of the research three times to compare the results for the pre-crisis and post-crisis circumstances and for the entire time span as well.

FIG. 1: Research procedure



Source: own processing

While estimating the hybrid nature of expectations we applied two approaches which had been adjusted for adaptive (1) and static expectations (2) respectively in the backward-looking part of the equation: 10

$$\pi_{t+12|t}^e = \alpha_1 + \alpha_2 \pi_{t+12} + (1 - \alpha_2) [\pi_{t-2|t-14}^e + \alpha_3 (\pi_{t-2|t-14}^e - \pi_{t-2}) + \alpha_4 (\pi_{t-2} - \pi_{t-14})] + \varepsilon_t \quad (1)$$

$$\pi_{t+12|t}^e = \alpha_1 + \alpha_2 \pi_{t+12} + (1 - \alpha_2) \pi_{t-2} + \varepsilon_t \quad (2)$$

where: $\pi_{t+12|t}^e$ is expected at time $t+12M$ inflation rate formed 12 months earlier, the other subscripts to be interpreted analogously, π_t is actual inflation at period t , ε_t is white noise error.

We followed the procedure presented by Łyziak (2013). In both equations, α_2 represents the level of FL. We tested the hypothesis that $H_0: \alpha_2 = 0$. In order to estimate eq. (1) we use the two-stage least squares method (2SLS). The 2SLS results are based on predicted values of the endogenous regressors from the first stage instrumental regressions. This makes the analysis-of-variance difficult to interpret, so we use McElroy- R^2 , which extends the concept of R^2 to measure goodness-of-fit in a system-of-equations model (see more McElroy (1977)).

The sample and the data set are presented in TAB. 1.

TAB. 1: Sample and dataset

Year	Description of the sample/data
Euro area Member States	AT, BE, FI, FR, DE, GR, IT, NL, PT, ES. Sample starts in 2002 (euro introduction), except for NL (2004) due to unreliable survey results in 2002 and 2003.
Non euro area Member States	BG, HR, CZ, HU, RO, PL, SE, UK. Sample starts in 2001, except for HR and RO (the EC surveys coverage since 2005).
Expectations	Monthly surveys: The EC Business and Consumers Surveys; fractions of responses to the qualitative question to be quantified with Carlson and Parkin method.
Macroeconomic indicators	Central banks and national statistical offices. Used to test the orthogonality of expectations. Monthly publications of: inflation, unemployment, industrial production index, broad money. Daily quotations of exchange rates (vs. EUR and USD) and 3M interbank offer rates are averaged.
Oil prices	Macrobond. Used to test the orthogonality of expectations. Brent oil. Monthly averages of spot prices. USD per barrel.

Source: own processing

4. Results and summary

The tests for unbiasedness and orthogonality rejected the rationality of expectations (they are not presented given the length of the paper). Tab. 2 presents the results of the FL analysis.

TAB. 2: Results of the forward-lookingness analysis

	Whole sample		Pre-crisis		Post-crisis	
	α_2	R^2	α_2	R^2	α_2	R^2
AT	0.1367 ***	0.5819	0.1418 ***	0.6862	0.0626 ***	0.3575
BE	0.2342 ***	0.6130	0.1576 ***	0.5614	0.1370 ***	0.4274

FI	0.2287 ***	0.4044	0.2482 ***	0.4756	0.1184 ***	0.1528
FR	0.1742 ***	0.3547	0.1336 ***	0.2948	0.1032 ***	0.1647
DE	0.1140 ***	0.2653	0.0795 **	0.0732	0.0187	0.6378
GR	0.0907 **	0.0320	0.2375 **	0.0756	0.4573 ***	0.3867
IT	0.2202 ***	0.2439	0.4876 ***	0.6124	0.1613 ***	0.1785
NL	0.2692 ***	0.5083	0.6774 ***	0.7992	0.2188 ***	0.4632
PT	0.2718 ***	0.4412	0.2093 ***	0.3570	0.2081 ***	0.5066
ES	0.3217 ***	0.1815	0.1832 ***	0.3511	0.2080 ***	0.2368
BG	-0.0077	0.2094	0.0941 ***	0.2609	-0.0077	0.2095
HR	0.0675 ***	0.1984	0.0547 ***	0.3595	0.0861 ***	0.1994
CZ	0.1358 ***	0.3362	0.0587 ***	0.3382	0.0939 ***	0.2658
HU	-0.0198	0.1411	-0.0201	-0.0033	0.0292 **	0.1536
RO	-0.0294 *	0.2556	-0.0823 *	0.4091	0.0350	0.1949
PL	0.1139 ***	0.1471	0.1306 ***	0.5344	0.3377 ***	0.2869
SE	0.1451 ***	0.3826	0.0609 ***	0.2149	0.2033 ***	0.6244
UK	0.1306 ***	0.1487	0.0742	0.3195	0.3603 ***	0.2345

Source: own processing

First of all, the relatively low goodness-of-fit of our hybrid specification could be explained by the fact that it links expectations only to the forward-looking inflation component and the past inflation figures (adjusted with the expectation errors in the case of the adaptive specification). As the analysis of orthogonality proved, there is information that - once taken into account in the formation of expectations - would decrease errors of expectations. In the cases of R^2 below 0.20 we assume that linear regression does not capture the nature of expectations, so we abandoned their interpretation.

Secondly, the results we have obtained for the euro area MS are quite consistent. The hybrid specification of expectations for these countries proved to have better goodness-of-fit than in the case of the non-euro area MS. Of the euro area MS only Spain and Greece have had more FL expectations after the crisis but as for the latter - due to the low model adjustments prior to the crisis - the result is inconclusive. In Portugal, α_2 is just slightly lower in the post-crisis period. The three most crisis-affected MS registered the lowest loss of FL.

Thirdly, in the case of the non-euro area MS we were able to interpret the results only for CZ, PL, SE, UK where the model goodness-of-fit is above 0.20 and α_2 is positive. The FL of consumers' expectations in these countries increased in the post-crisis period. For the remaining four countries, we did not obtain interpretable results. BG and HR conduct their monetary policy under the fixed exchange rate regime, so the mechanism of monetary transmission and the formation of expectations might differ there. In RO and HU, some important changes in monetary policy occurred (HU abandoned ERM II shadowing regime in 2008, RO adopted inflation targeting in 2005). Moreover, the disinflation performance of the central banks in HU and RO was poor at the beginning of the research period.

To conclude the research, we refer to the hypothesis on which we based our work. In most of the countries we observed the level of FR was waning after the crisis. Surprisingly, the worst performing euro area Member States and non-euro area MS registered higher FL of consumers' expectations. The issue of FL calls for more in-depth examination as we have not found satisfactory goodness-of-fit of our hybrid specification of expectations and some results have been inconclusive.

Literature:

Andreou, E., Eminidou, S. & Zachariadis, M. (2016). Inflation Expectations and Monetary Policy in Europe (CEPR Discussion Paper 11306). Retrieved July 10, 2017, from <https://ssrn.com/abstract=2790743>.

Astrup, S. L., & Grothe, M. (2014). *Economic surprises and inflation expectation. Has anchoring of expectations survived the crisis?* (EBC Working Paper Series 1671). Frankfurt: European Central Bank. Retrieved July 10, 2017, from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1671.pdf>.

Carlson, J. A., & Parkin, J. M. (1975). *Inflation expectations*. *Economica*, 42, pp. 123-138.

Ciccarelli, M., Garcia, J. A., & Montez-Galdón, C. (2017). (EBC Working Paper Series 1995). *Unconventional monetary policy and the anchoring of inflation expectations*. Frankfurt: European Central Bank. Retrieved July 10, 2017, from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1995.en.pdf>.

Coibion, O. & Gorodnichenko, Y. (2015). Is the Phillips curve alive after all? Inflation expectations and the missing disinflation. *American Economic Journal: Macroeconomics*, 7(1), 197-232.

Dovern, J., & Kenny G. (2017). *The long-term distribution of expected inflation in the euro area: what has changed since the great recession?* (EBC Working Paper Series 1999). Frankfurt: European Central Bank. Retrieved July 10, 2017, from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1999.en.pdf>.

Dräger, L. (2015). *Inflation perceptions and expectations in Sweden – are media reports the missing link?* *Oxford Bulletin of Economic and Statistics*, 77(5), 681–700.

Geberding, Ch. (2001). *The information content of survey data on expected price development for monetary policy*. (Deutsche Bundesbank Discussion Paper 9). Frankfurt: Deutsche Bundesbank. Retrieved April 25, 2015, from

https://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Discussion_Paper_1/2001/2001_07_09_dkp_09.pdf.

Łyziak, T. & Paloviita, M. (2016). *Anchoring of inflation expectations in the euro area: Recent evidence based on survey data*. (EBC Working Paper Series 1945). Frankfurt: European Central Bank. Retrieved July 10, 2017, from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1945.en.pdf>.

Łyziak, T. (2010). *Measurement of perceived and expected inflation on the basis of consumers survey data*. (Irving Fisher Committee on Central Bank Statistic Working Papers 5). Basel: Bank for International Settlements. Retrieved June 10, 2012, from <http://www.bis.org/ifc/publ/ifcwork05.pdf>.

Łyziak, T. (2013). Formation of inflation expectations by different economic agents. The Case of Poland. *Eastern European Economics*, 51(6), pp. 5–33.

McElroy, M.B. (1977). Goodness of Fit for Seemingly Unrelated Regressions: Glahn's and Harper's. *Journal of Econometrics*. 6, 381-387.

Mankiw, N. G. (1990). A Quick refresher course in macroeconomics. *Journal of Economic Literature*, 28, 1645-1660.

Rudebusch, G., & Svensson, L. E. O. (1998). *Policy rules for inflation targeting*. In J. B. Taylor (Ed.), *Monetary Policy Rules* (pp. 203-262). Chicago, IL: University of Chicago Press.

Woodford, M. (2003). *Interest and Prices. Foundations of Theory of Monetary Policy*. Princeton: Princeton University Press.

Woodford, M. (2014). *Monetary policy targets after the Crisis*. In G. Akerlof, O. Blanchard, D. Romer & J. Stiglitz (Eds.). *What Have We Learned? Macroeconomic Policy after the Crisis* (pp. 55-64). Cambridge MA: The MIT Press.

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GENDER AND PERSONALITY TRAITS' (BFI-10) EFFECT ON OPINION LEADERSHIP

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Abstract: *Opinion leadership used to be perceived as a highly domain-specific trait but it was found to be multi-faceted, i.e. individuals are influential independent of a specific subject area. Another term is generalized opinion leadership. Impact of Big Five Inventory personality traits on domain-specific opinion leadership mediated through objective knowledge and generalized opinion leadership was investigated by Gnambs and Batinic. According to them, generalized opinion leadership should be influenced by extraversion, neuroticism, and openness to experience. The paper can be perceived as a replication of Gnambs and Batinic's study in a loose sense of the term. The research was conducted in Slovakia. With regards to the findings, extraversion and neuroticism were significant - in line with Gnambs and Batinic; moreover, agreeableness was significant; consciousness was significant at approximately .1 level; while openness to experience - identified by Gnambs and Batinic - was not significant.*

Keywords: *Opinion leadership, personality traits, Big Five Inventory, questionnaire survey, quantitative research.*

JEL classification: M31

Grant affiliation: n/a.

1. Introduction

Opinion leadership may be considered to be a highly domain-specific characteristics but e.g. Marcus and Bauer (1964) already a half a century ago confirmed that it is, actually, a multi-faceted characteristics, i.e. individuals are influential independently of a specific subject area. Therefore, opinion leadership is considered to be multi-faceted also in this paper. Katz and Lazarsfeld (1955) use term generalized opinion leadership; and their research still attracts attention, e.g. (Kollar, 2015).

Effect of the Big Five Inventory personality traits (Rammstedt and John, 2005) on domain-specific opinion leadership mediated through objective knowledge and generalized opinion leadership was investigated by Gnambs and Batinic (2012). They posit that mixed findings have been reported in the

past - some reported significant correlations (Brancaleone and Gountas, 2007; Mooradian, 1996), others did not (Goodey and East, 2008; Robinson, 1976). It is possible that different authors used different questions; and therefore also their findings differ.

Generalized opinion leadership in Gnambs and Batinic's (2012) survey used their own operationalization (Gnambs and Batinic, 2011) which they describe as "a variant of opinion leadership that is independent from a specific content domain and is not exclusively limited to consumer behavior such as the market maven construct" (Gnambs and Batinic, 2012, p. 611). Gnambs and Batinic's (2011) generalized opinion leadership was significantly correlated with extraversion, neuroticism, consciousness, and openness to experiences.

Another research (Sudzina 2016) identified extraversion as a significant personality trait influencing opinion leadership, while neuroticism, and conscientiousness were (bivariately) significant when respondents were asked about the level of their opinion leadership in their own opinion.

The research presented in this paper can be considered a replication of the generalized opinion leadership part of Gnambs and Batinic's (2012) model (adding gender and using fewer items to measure both the Big Five Inventory and generalized opinion leadership), and of Sudzina (2016).

The rest of the paper is organized as follows: The next section describes the questionnaire and the analysis, the following section contains results, the penultimate section discusses these results and the final section summarizes the findings.

2. Data and methodology

Data were collected in the February 2017 by using a broader questionnaire dealing with personality traits. Respondents were students of the University of Economics in Bratislava, Slovakia. In total, 136 students (of whom 44 were male and 92 female) answered all relevant questions. Moreover, there was one respondent who did not provide information on gender but filled in all other answers. This additional, 137th respondent will be used in streamlined models, which do not contain gender. Gnambs and Batinic's (2012) sample contained also more females than males. They did not use gender in their model but the model presented in this paper will include gender.

Gnambs and Batinic (2012) used their own operationalization (Gnambs and Batinic, 2011) of opinion leadership consisting of nine statements, later they included an additional statement (Batinic, Appel, Gnambs, 2016). The research presented in this paper measures opinion leadership using two statements from (Gimpel, Sudzina and Petrovcikova, 2014; Gimpel, Sudzina and Petrovcikova, 2016); they used it to measure opinion leadership as a part of a self-identity construct. The instruction was, the same as in (Sudzina, 2016) "Please indicate to what degree you agree with the following statements":

"People consider me an opinion leader";

"I consider myself an opinion leader".

A 1-5 Likert scale was used where 1 meant strongly disagrees and 5 stood for strongly agree. Despite both answers are self-reported, they provide an insight in how respondents perceive their opinion leadership in the eyes of others and in their own opinion.

Gnambs and Batinic (2012) used Rammstedt and John's (2005) instrument to measure the Big Five Inventory; the instrument contains four statements per character trait (five for openness). The research presented in this paper is based on the newer version of the questionnaire (Rammstedt and John, 2007) which contains two statements per character trait. The aim is to test whether the instrument with less than a quarter of questions compared to John and Srivastava's (1999) questionnaire for the Big Five Inventory can lead to significant results.

A generalized linear model (GLM) was used to analyze impact of gender and of five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) in two models where the dependent variables were:

1. opinion leadership in the eyes of others ("People consider me an opinion leader");
2. opinion leadership in one's own opinion ("I consider myself an opinion leader").

A multivariate approach to testing was used. Parameter estimates tables will be provided (instead of ANOVA-style tables) in order to be able to see signs of parameter estimates (not only p-values). The results should be equivalent to a multiple linear regression model estimates in case the dummy variable is set to 1 for male and to 0 for female. R2 and R2adj are provided in order to be transparent about how much a model explains though it may be significant. SPSS software was used for all the tests.

3. Results

Parameter estimates for the generalized linear model analyzing impact of gender and of personality traits on self-perceived opinion leadership in the eyes of others are provided in TAB. 1.

TAB. 1: Parameter estimates for model 1

Parameter	B	Std. Error	t	Sig.
Intercept	1.892	.710	2.662	.009
Extraversion	.495	.110	4.504	.000
Agreeableness	-.289	.107	-2.712	.008
Conscientiousness	.161	.096	1.670	.097
Neuroticism	-.188	.092	-2.047	.043
Openness to experience	.050	.089	.558	.578
Gender	-.062	.184	-.338	.736

The model per se is significant (p -value < .001), and with regards to the explanatory power, $R^2 = .230$, $R^2_{adj} = .194$. Submodels were tested to see whether omissions of certain independent variables could improve p -values. Parameter estimates for the best submodel are provided in TAB. 2.

TAB. 2: Parameter estimates for streamlined model 1

Parameter	B	Std. Error	T	Sig.
Intercept	2.083	.638	3.264	.001
Extraversion	.496	.108	4.593	.000
Agreeableness	-.288	.104	-2.762	.007
Conscientiousness	.152	.092	1.648	.102
Neuroticism	-.202	.086	-2.351	.020

The streamlined model is also significant (p -value < .001), $R^2 = .227$, $R^2_{adj} = .203$. Significance of conscientiousness marginally worsened, and it above the .1 level.

Parameter estimates for the generalized linear model analyzing impact of gender and of personality traits on self-perceived opinion leadership in one's own opinion are provided in TAB. 3.

TAB. 3: Parameter estimates for model 2

Parameter	B	Std. Error	t	Sig.
Intercept	2.258	.813	2.777	.006
Extraversion	.433	.126	3.439	.001
Agreeableness	-.244	.122	-1.997	.048
Conscientiousness	.180	.110	1.628	.106
Neuroticism	-.244	.105	-2.312	.022
Openness to experience	-.023	.102	-.224	.823
Gender	-.095	.210	-.451	.653

The model per se is significant (p -value < .001), $R^2 = .182$, $R^2_{adj} = .144$. Submodels were tested to see whether omissions of certain independent variables could improve p -values. Parameter estimates for the best submodel are provided in TAB. 4.

TAB. 4: Parameter estimates for streamlined model 2

Parameter	B	Std. Error	t	Sig.
Intercept	2.215	.729	3.037	.003
Extraversion	.435	.124	3.518	.001

Agreeableness	-.248	.119	-2.081	.039
Conscientiousness	.165	.105	1.565	.120
Neuroticism	-.259	.098	-2.627	.010

The streamlined model is also significant (p-value < .001), $R^2 = .181$, $R^2_{adj} = .156$. Significance of conscientiousness marginally worsened, and it above the .1 level.

To sum up, opinion leadership is influenced by the same personality traits in both model; moreover, the direction of the relationship is also the same. Namely, extraversion (and conscientiousness) have a positive impact; while agreeableness and neuroticism have a negative impact.

4. Results

The aim of the paper was to analyze impact of gender and of personality traits on self-perceived opinion leadership. It was (1) a replication of a part of a previously published model using constructs with fewer questions to measure both personality traits and opinion leadership, and (2) a full replication of (Sudzina, 2016). There were two versions of the dependent variable used - opinion leadership in the eyes of others, and opinion leadership in one's own opinion.

Compared to Gnambs and Batinic's (2012) who found extraversion, neuroticism, conscientiousness, and openness to experiences to significantly influence opinion leadership, our research fully supports only two findings - extraversion, and neuroticism at .05 significance level, and conscientiousness marginally above .1 significance level. Our research did not find openness to experiences to be significant, while agreeableness was significant. Compared to Sudzina (2016), the replicated finding is that extraversion is significant. Gender, which was not included in previous research, was not found to be significant.

Literature:

Batinic, B., Appel, M., & Gnambs, T. (2016). Examining Individual Differences in Interpersonal Influence: On the Psychometric Properties of the Generalized Opinion Leadership Scale (GOLS). *Journal of Psychology*, 150(1), 88-101.

Brancaleone, V. R., & Gountas, J. (2007). Market mavens and their need for power. In *Proceedings of the Australian and New Zealand marketing academy conference*. Dnedin: ANZMAC.

Gimpel, G., Sudzina, F., & Petrovcikova, K. (2014). Mobile ICT acceptance in late adopter countries. In *Proceedings of 13th International Conference on Mobile Business 2014*. London.

Gimpel, G., Sudzina, F., & Petrovcikova, K. (2016). Mobile ICT use in early adopter vs. late majority countries. *International Journal of Mobile Communications*, 14(6), 610-631.

Gnambs, T., & Batinic, B. (2012). A personality-competence model of opinion leadership. *Psychology and Marketing*, 29(8), 606-621.

Gnambs, T., & Batinic, B. (2011). Evaluation of measurement precision with Rasch-type models: The case of the short Generalized Opinion leadership Scale. *Personality and Individual Differences*, 50(1), 53-58.

Goodey, C., & East, R. (2008). Testing the market maven concept. *Journal of Marketing Management*, 24(3-4), 265-282.

Hřebíčková, M., Jelínek, M., Blatný, M., Brom, C., Burešová, I., Graf, S., Mejzlíková, T., Vazsonyi, A. T. & Zábrodská, K. (2016). Big Five Inventory: Základní psychometrické charakteristiky české verze BFI-44 a BFI-10. *Československá Psychologie*. 60 (6), pp. 567-583.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In Pervin, L. A. & John, O. P. (Eds.), *Handbook of personality: Theory and research*, 2nd edition (pp. 102-138). New York, NY: Guilford Press.

Katz, E., & Lazarsfeld, P.F. (1955). *Personal influence*, Glencoe, IL: Free Press.

Kollar, R. (2015). Decatur: The research of Paul F. Lazarsfeld and Elihu Katz on opinion leadership in areas of marketing, fashion, public affairs and movie going. *Historická Sociologie*, 2015(1), 47-73.

Marcus, A. S., & Bauer, R. A. (1964). Yes: There are generalized opinion leaders. *Public Opinion Quarterly*, 28(4), 628-632.

Mooradian, T. A. (1996). The five factor model and market mavenism. *Advances in Consumer Research*, 23(1), 260-263.

Rammstedt, B., John, O. P. (2005). Kurzversion des Big Five Inventory (BFI-K) [Short version of the Big Five Inventory (BFI-K)]. *Diagnostica*, 51(4), 195-206.

Rammstedt, B., John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.

Robinson, J. P. (1976). Interpersonal influence in election campaigns: Two step-flow hypotheses. *Public Opinion Quarterly*, 40(3), 304-319.

Sudzina, F. (2016). Do gender and personality traits (BFI-10) influence self-perceived opinion leadership? In *21st International Scientific Conference: Smart and Efficient Economy: Preparation for the Future Innovative Economy. Proceeding of selected papers*. Brno: University of Technology Brno, 229-236.

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ECONOMIC FALLOUTS OF ILLEGAL MIGRATION IN GERMANY

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Abstract: *The consequences of refugee crisis in Europe, which began in 2015, are starting to come through in full extent. Germany, as a country with pro-immigration-oriented policy, has become the most preferred target country, so the consequences are most pronounced in this country. The study, based on development of illegal migration and selected economic indicators, identifies the consequences of illegal migration in Germany and their impact on economy and public finances. The study defines a set of economic criteria and, by means of statistical calculations; the losses and benefits of illegal migration for the country and society are to be recalculated. The implementation of calculations is based on available statistical data from national and international databases, but also on empirical surveys data available in professional publications. The result is a balance of losses and benefits in terms of illegal migration in Germany, and in long run it also deals with the returns of governmental spending on integration of immigrants into society.*

Keywords: *Refugee, illegal migration, economic fallout, target country, countries of origin.*

JEL classification: F22 – International Migration

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1. Introduction

UCDP / PRIO (Uppsala Conflit Data Program) data shows that at least 27 states are actively involved in ongoing conflicts, including 11 wars with more than 1000 victims. In general, it covers internal or internalized armed conflicts. The migration crisis that hit Europe in 2015 is fueled by new and renewed armed conflicts in the world. Eight of them take place in Africa (Ivory Coast, Central African Republic, Libya, Mali, Nigeria, Democratic Republic of Congo, South Sudan, Burundi), three in the Middle East (Syria, Iraq, Yemen) and Asia (Kyrgyzstan, Myanmar, Pakistan) and one in Europe (Ukraine). Other disturbances with a significant impact on migration and, in particular, on migration to Europe include riots in the Middle East (Afghanistan, Pakistan, Egypt) as well as other African countries (Eritrea, Somalia). (Frontex, 2017)

The main objective of this study is to identify, on the basis of the development of illegal migration and selected economic indicators, the consequences of illegal migration in Germany and their impact on the economy and public finances. A set of economic criteria will be used and through statistical calculations the losses and benefits of illegal migration for the state and society are to be recalculated.

The implementation of calculations is based on available statistical data from national and international databases, but also on data from empirical surveys being available in professional publications. Regional statistics show different data - German Federal Bureau for Migration and Refugees (BAMF). The result is a balance of losses and benefits from illegal migration in Germany; and in the long run, the study also deals with the governmental spending return on immigrants' integration into the society.

2. Theoretical backgrounds within the economic aspects assessment of illegal migration to Germany

Germany is a country that considers migration to be important for ensuring sustainable development, a source of growth for the economy, a source filling up the gaps on labor market, or a source that ensures the sustainability of pension systems. On the other hand, there is a strain in the social systems in the country, public spending, but also the security risk associated mainly with illegal borders crossing. In the history of Germany from the 1960s and 1970s, there are Turkish immigrants with lower education (at that time approximately 77% of Turkish population was employed in agriculture) who were admitted to work in Germany on the basis of an employment agreement (Anwerbeabkommen) in different sectors as "gastarbeiters". At the beginning it was a mutually beneficial agreement - Germany needed a workforce from abroad, as demand for work exceeded supply, putting pressure on wages and improving working conditions, and Turkey was coping with population growth and the need to develop the industrial sector. (Luft, 2014)

Over the past ten years, labor force in Europe grew by 70% thanks to migrants. (BuchlÁková, 2015) At the end of 2016, according to the Federal Statistical Office of Germany, 10 million foreigners were registered in the Central register of foreigners in Germany. In 2015 and 2016, their number increased by 1.886 million, representing an increase in net migration by 23.1% compared to 2014. In 2016 it was 1535 thousand people and in 2016 only 482.3 thousand people, which is a drop of nearly 70%. In 2015, it was 229.8 thousand of people being naturalized. From the countries outside the European Union 1,279,000 foreigners came to the country, although from 2007 to 2014 it was only 879,000. The most significant increase was represented by immigrants from Syria (+ 439%), Afghanistan (236%) and Iraq (156%). The average age of immigrants in 2016 was 37 years and 7 months of age and remained working in Germany for an average of 15 years and 5 months. In 2014, it was 39 years and 11 months of age and 17 years and 7 months being remained to work in the target country.

3. Economic aspects of illegal migration and their impact on selected German macroeconomic indicators

Germany's demographic statistics, combined with labor market indicators, indicate that in 2030 the country will be missing 6.1 million workers. The country is already suffering from a labor shortage. To increase the retirement age is a temporary solution, but if the country wants to maintain economic growth, it is necessary to look for sources of missing labor. If not, Germany's economic growth will slow down and the lost GDP would be around 440 billion €, based on statistics in 2015 when GDP per capita was nearly € 37,000 and € 70,400 GDP per working person.

TAB. 1: GDP Development in Germany in 2007 and 2016

year	GDP in bill. €	%	number of inhabitants	HDP/per capita	working	GDP per working
2007	2513,23	5,0	82217837	30567,94	40325	62324,36
2008	2561,74	1,9	82002356	31239,83	40856	62701,68
2009	2460,28	– 4,0	81802257	30075,94	40892	60165,31
2010	2580,06	4,9	81751602	31559,75	41020	62897,61
2011	2703,12	4,8	80327900	33651,07	41577	65014,79
2012	2758,26	2,0	80523746	34254,00	42061	65577,61
2013	2826,24	2,5	80767463	34992,31	42328	66769,99
2014	2923,93	3,5	81197537	36010,08	42662	68537,11
2015	3032,82	3,7	82175684	36906,54	43057	70437,33
2016	3134,07	3,3	x	x	43595	71890,58

Source: own calculations by Destatis

One of the most important sources of labor is immigration. Immigration of refugees represents for the country potential labor force, working in jobs where domestic workers do not want to work for offered wages or they lack sufficient qualifications. At the same time, the wages of immigrants are significantly below the wage average in particular profession, as evidenced by the BAMF statistics examining the living conditions of migrants compared to the domestic population.

One of the most problematic aspects is the educational structure of population, as in 2014 41% of foreigners in Germany did not have any vocational training. (Wech, 2016) Within a refugee ratio, 15% of them do not have primary education, 65% has elementary or secondary school, and 20% are college-educated foreigners. This fact, together with missing language knowledge, increases the assumption that asylum seekers will remain in the labor offices registers as job seekers.

The Munich Institute of Economics (IFO), in its study, says that spending on accommodation, meals, education and other needs for refugees has reached about 21 billion in €2015. TASR in May 2016 stated that Germany's estimate of spending being expended on refugees are to be 93.6 billion € by 2020. German finance minister, on the basis of negotiations with the federal states, said that social benefits would reach 25.7 billion €, language courses 6 billion € and job search help 4.6 billion €. In order to return the above-mentioned finances, through the GDP indicator per worker, by 2020 more than 1.5 million refugees would need to get employed. In Germany, there are two rates of contributions being paid to asylum seekers. Every applicant for asylum receives € 135 per month as a contribution to personal expenses (notwendiger persönlicher Bedarf) and a contribution to the necessary expenses (notwendiger Bedarf) of € 219 (the amount of contribution valid from 17.03.2016). (Classen, 2016) Both contributions can be compensated by other compensations such as vouchers, tickets, accommodation in asylum camp without payment, etc. If the amount is paid only in cash, it represents € 354 per month, which is € 4,248 per year as a basic contribution. When converted to five years after which more than 50% is likely to get employed a refugee would get from government more than € 21,240 as a pocket money.

4. Conclusion

On one hand, arriving foreigners are a cost item in the asylum procedure and subsequent integration into society. On the other hand, illegal migrants for the target countries represent a potential, in particular, in the form of labor and reproductive potential. So, on one hand, we can talk, for example, about a refugee from Syria, who is being persecuted and threatened to live in his home country, being an educated doctor coming to Germany as a country that will be his/her refuge for the next years. However, he/she is ready to take the asylum procedure under the relevant legislation and as soon as he/she gets a positive decision he/she will apply for a job in a hospital. During the asylum procedure he/she will be taking a German language course and other skills will be acquired by self-education and exercising within a social contact with domestic population. For the future, he/she wants to start a family in Germany and will be fully assimilated. On the other hand, we can say, for example, a refugee from Pakistan, whose friends, relatives or acquaintances have left the country and is seeing immigration to Germany only because of economic benefits, generous social benefits, without motivation to find a job in the target country; later on to help migrate to other family members, create ghetto in suburbs and live on public debt.

The goal of German migration policy is to encourage refugees to achieve rapid integration and subsequent assimilation, which is the most desirable solution for the country. Public finances spent on this type of policy are considerable, but with a rapid return in asylum process through increased consumption and tax payments and consequently with integration on labor market, they are soon becoming economically positive for the recipient country. This implies the need to explore the issues in more detail that will contribute to the effective management of illegal migration for the benefit of both the target country and migrant.

Literature:

Buchláková, L. (2015). *Migrácia je výzva. Zvládne ju Európa?*. Retrieved May 11, 2017, from <http://spravy.pravda.sk/ekonomika/clanok/366615-migracia-je-vyzva-zvladne-ju-europa/>.

Bundesamt für Migration und Flüchtlinge. (2007 - 2017). *476.649 Asylanträge im Jahr 2007 - 2017*. Retrieved May 11, 2017, from <https://www.bamf.de/SharedDocs/Meldungen/DE/2016/201610106-asylgeschaeftsstatistik-dezember.html>.

Classen, G. (2016). *Existenzsicherung nach dem Asylbewerberleistungsgesetz als Grundrecht*. Retrieved May 11, 2017, from http://www.fluechtlingsinfo-berlin.de/fr/asylblg/AsylbLG_kurz.pdf.

Liebig, T. (2007). The Labour Market Integration of Immigrants in Germany. In *OECD Social, Employment and Migration Working Papers*, 47, 8.

Luft, S. (2014). *Die Anwerbung türkischer Arbeitnehmer und ihre Folgen*. Retrieved Juni 01, 2017, from <http://www.bpb.de/internationales/europa/tuerkei/184981/gastarbeit>.

Pettersson, T. & Wallensteen, P. (2015). Armed Conflicts, 1946-2014. In *Journal of Peace Research*, 52, 4.

Pro Asyl. (2017). *Fakten, Zahlen und Argumente*. Retrieved July 01, 2017, from <https://www.proasyl.de/thema/fakten-zahlen-argumente/>.

Regionálne európske informačné centrum. *Správy z Komisie: Počet žiadostí o azyl*. Retrieved July 01, 2017, from http://www.reic.sk/index.php?option=com_content&view=article&id=420:spravy-z-komisie-poet-iadosti-o-azyl&catid=1:aktuality&Itemid=1.

Statistisches Bundesamt. (2007 - 2016). *Nettozuwanderung von Ausländerinnen und Ausländern im Jahr 2015*. Retrieved May 11, 2017, from https://www.destatis.de/DE/PresseService/Presse/Pressemitteilungen/2016/03/PD16_105_12421.html.

UNHCR. *Figures at a Glance*. Retrieved May 11, 2017, from <http://www.unhcr.org/figures-at-a-glance.html>.

Wech, D. (2016). ifo Migrationsmonitor: Einwanderer und Asylbewerber in Deutschland – Zahlen, demographische Angaben, Qualifikationsstrukturen und Arbeitsmarktpartizipation. In *Ifo Schnelldienst*. 6, 55. idder, T. (1981). *The soul of a new machine*. Boston, MA: Little, Brown & Company.

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THE ISSUE OF DATA QUALITY IN ECONOMIC PRACTICE – CHALLENGES AND AVAILABLE TOOLS

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Abstract: *The paper deals with the issue of the quality of economic data in the context of managerial decision support. It summarizes some of the frequently used data quality criteria and suggests possible new ones. The context of self-report data sources (such as surveys and questionnaires, interviews and focus groups) is taken into account and measures of confidence of the provided information, level of error, level of appropriateness of the data collection instrument and other possible measures of distortions of data are discussed. The paper adopts the data-user perspective on the quality of data while abstracting from the more technical information-systems requirements usually placed on data sets and information systems. The paper also briefly discusses the use of data quality measures in theory building and decision support – more specifically in the design and validation of decision support models and in the investigation of the validity of assumptions or hypotheses based on the data available.*

Keywords: *Quality, data, data instance, model validation, classification.*

JEL classification: *C44, B40, C65*

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1. Introduction

Data quality (DQ) is a topical issue nowadays. In fact the quality of data has become topical already in the 1970s – mostly in the context of accounting and financial reporting. Data quality improvement needs were getting into the focus of researchers and practitioners. First definitions of data quality as a relative concept dependent on the context of the use of the data (mostly defined as “fitness for use” in the given situation) were proposed and various dimensions of data quality were investigated.

The importance of this topic grew in the 1980s along with the increasing availability of computers, increasing computational power and ability to store more data in databases – models for the prediction of the impact of errors in the data on the outputs of the model were proposed (see e.g. Ballou & Pazer, 1985), measures of the data-error rates were proposed (Morey, 1982), the role and possible consequences of lower data quality in government-operated inter-organizational systems dealing with the private information on citizens were investigated (Laudon, 1986), etc. And the issue of data quality, its measurement and assurance remains still relevant (and open) (Sadiq, 2013; Sebastian-Coleman, 2013). At the very beginning, the quality of data referred to numerical datasets. With the development of information technology datasets became more complex including also text (alphanumeric) values, qualitative data (in the form of e.g. qualitative evaluation or comments), soft data (e.g. Tayi & Ballou (1998) define soft data as data with inherently unverifiable quality), data in the narrative form, graphical data etc. With the growing complexity of the datasets, the complexity of analytical tools had to grow as well, and so did the concept of quality of data and its assurance and management.

Data quality has become so important in the “information age”, because so many aspects of our everyday lives are dependent on it. And this is true for the most simplest ones such as the quality of our everyday decisions, quality of our predictions and anticipation (even the quality of our view and understanding of the world around us), but also such things as the possible impact of data quality on our constitutional rights (Laudon, 1986), on the occurrence of man-made disasters (Fisher & Kingma, 2001) and other effects have been studied in the scientific literature. Obviously, low quality data can have potentially huge impact on social and economic aspects of our lives, but also on our health and our very existence. The focus on data quality in a data-driven society is therefore not only justified, but reasonable.

With the ever expanding computational and data-storage capacity, new types of data and new challenges in data-quality assessment have arisen. For example Big Data, characterized usually by high-volume, high-velocity and high-variety (or at least two of these characteristics) have become the core of business intelligence and business analytics. But hand in hand with the possibilities the analysis of such data offers comes also the need for the development of new tools for their analysis and even new methodological frameworks within business analytics, and obviously also new views on data quality (Janssen, van der Voort, & Wahyudi, 2017; Merino, Caballero, Rivas, Serrano, & Piattini, 2016). Note also, that Big Data does not necessarily mean data sets of numerical values – qualitative, textual and linguistic data are more and more common. The tools required for their analysis are still being developed, as is the concept of Big Data quality when parts of the data set are obtained from social media such as Facebook, but are supposed to be used e.g. by the tax authorities (Janssen et al., 2017). Open data (i.e. data made freely available by organizations, governments, researchers etc.) presents another distinct category of potentially useful, but specific type of data. The variability of sources, possible existence of unidentifiable duplicates, missing values, non-uniform frequency and time of collection and possible multiple identification codes for the same entity might make open data difficult to use. Yet the free availability and the amount of available data make free data an attractive source on information.

From the wide range of data quality influence areas, it is clear that an overall definition of data quality might not be feasible; in fact it might not even be desirable. There are obviously some features/aspects of data quality that would be valid almost every time, but generally speaking data

quality is a relative concept. This does not decrease the importance of data quality and research in this area in any way – on the contrary, since 1970s data quality management and data quality assurance procedures and mechanisms have become an integral part of business and economic reality. And yet the definition of data quality as “fitness for use” remains valid. Note, that this relative definition implies that different characteristics of data can be considered for the quality assessment procedures in different contexts – e.g. *data completeness*, *data inaccuracy* and *data ambiguity* were considered relevant in the assessment of criminal-record system in the US (Laudon, 1986); whereas *transaction rejection rate*, *transaction error rate* and *management information system (MIS) record error rate* were investigated for MIS data quality improvement (Morey, 1982) and for predicting/estimating the MIS error rate; *data accuracy*, *timeliness*, *completeness* and *consistency* were considered in an output-error prediction model in the context of multi-user information systems for decision support (Ballou & Pazer, 1985); Strong, Lee, & Wang (1997) consider 15 DQ dimensions (*Accuracy*, *Objectivity*, *Believability*, *Reputation*, *Accessibility*, *Access security*, *Relevancy*, *Value-Added*, *Timeliness*, *Completeness*, *Amount of data*, *Interpretability*, *Ease of understanding*, *Concise representation* and *Consistent representation*) grouped into 4 DQ categories (*Intrinsic DQ*, *Accessibility DQ*, *Contextual DQ* and *Representational DQ*) in their data-consumer-centric framework; Merino, Caballero, Rivas, Serrano, & Piattini (2016) use a slightly different set of 15 DQ characteristics (*Accuracy*, *Completeness*, *Consistency*, *Credibility*, *Currentness*, *Accessibility*, *Compliance*, *Confidentiality*, *Efficiency*, *Precision*, *Traceability*, *Understandability*, *Availability*, *Portability* and *Recoverability*) in the context of Big Data quality, which represent two partially overlapping points of view: inherent and system dependent.

Data generated by organisations, governments, consumers, groups of people and even by machines through the Internet of Things is a resource. As such, it has its value (possibly different in different circumstances and for different users) and also costs associated with its creation, storage, quality assurance and distribution etc. To be able to determine the value of data is thus economically necessary, as without an estimate of its value, the economic efficiency of investments into data quality management projects cannot be assessed. And the value of data is highly associated with its quality (but it is true that sometimes the quantity of the data is more correlated with the value of the dataset (Sadiq & Indulska, 2017)).

This paper strives to summarize the basic concepts of data quality, possible dimensions of data quality and criteria of data quality. The data quality issue is approached from a non-traditional perspective of single data-instances. Several possible tools for dealing with the (partial) non-fulfilment of some of the data-quality criteria are presented and discussed and the use of data-instance quality measures in economic model validation and hypothesis testing as well as data analysis is suggested.

2. Data quality characteristics

In this paper we focus on the use of the data and the role data quality plays within. In other words we do not adopt the perspective of information systems and hence we do not consider data security, data accessibility and other IS connected characteristics to be important at this point. We assume that a data set is available to us and that we want to use it either for analytical purposes, for the validation of our model or classifier, for hypothesis testing, for predictions etc. Although this is a

rather restrictive view, it might be valid for many data users, for which the IS oriented data-quality framework might be too general and too technical.

Note, that there are also several aspects that are closer to actual data collection procedures rather than to the systematic approach to data quality, such as the possibility of checking certain aspects of data quality during their collection (and hence correcting some inconsistencies or errors directly). Jandová & Talašová (2013) or Stoklasa, Talášek, & Talašová, (2016) provide an example of such a possibility – they suggest a consistency measure for the collection of data concerning the preferences of the respondents in a pairwise comparison matrix of preference intensities directly during the input process, as opposed to the standard Saaty's consistency measure, that can be computed no sooner than the input process is completed (Saaty, 2000). This way, the need for the post hoc corrections of the values in the matrix or the repetition of the data collection procedure that might be needed in Saaty's original approach can be avoided.

Let us now list some of the possibly relevant data quality characteristics for data-users (as specified in the beginning of this chapter) and comment them where necessary to stress the relative nature of data quality and its dependence on the use of the data:

- *Completeness* – it seems to be a natural requirement on the dataset not to contain missing values. It can be relaxed to “not to be missing important values”. Note, that absolute completeness, however, does not need to be feasible and can stand in the way of being able to collect the data. Data incompleteness thus does not need to be an indicator of insufficient data quality, but can in fact be a desired property that simplifies the input procedure and is compensated for in the next step – see e.g. Jandová, Krejčí, Stoklasa, & Fedrizzi (2017) for such a case.
- *Accuracy* – the data is provided with the required precision, there are no measurement errors, no mistakes. In some cases, however, interval or fuzzy values can be expected (and even required).
- *Consistency in sample* – the answers to the same item in the questionnaire have the same form and reasonable values, are “measured” on the same scale.
- *Consistency with benchmark* – the values are on the same scale as expected/required. The values do not lie outside the interval of expected values and if they do, it can be explained.
- *Validity* – the data help us gain insight into the phenomenon we are interested in or can be reasonably used for the given purpose.
- *Timeliness* – the data is not too old and all the instances are gathered for the same time period (if the time matters). This can be a very important data quality characteristics e.g. for data concerning cash flows etc.
- *Verifiability* – a requirement of being able to check the values if needed against a reliable source. If the data is not verifiable, it does not necessarily point to low quality of the data, however we need to trust the data is OK. If not even a random check of the correctness of the data can be performed, the data might be considered too risky to use.
- *Known source* – even when the data cannot be directly checked, at least knowing the source of the data can be required.
- *Originality* – was the data modified after input or its download from a database? All modifications of data originally obtained from trusted sources can be suspicious. Some

systems even distinguish between improvement and worsening if the values e.g. in the evaluation setting.

- *Well measured* – the measurement instrument used is appropriate for the purpose and is providing data with the required precision, the linguistic values used are understandable to the user of the dataset, there is uniformity of understanding of linguistic terms among the respondents...
- *Representativeness* – the dataset provides a good representation of the whole population, no part is overstressed, no part is omitted. The prevalence of the phenomena (including outliers, extreme values and structural changes) in the data reflects the reality well. This is more a methodological issue than a data quality issue, but a nonrepresentative dataset cannot be safely used for hypotheses testing, for predictions etc. Hence the representativeness of the dataset should be kept in mind.
- *Required format* – the data is in the format that can be used in the analysis for the given purpose. There might be nothing wrong with the data concerning validity completeness, timeliness and all the other criteria, but if it does not provide information in the required form, it might be considered useless for the given purpose. This is close to the *adequacy* requirement of Merino et al. (2016) for Big Data.
- *Truthfulness* – issue mainly in self-report data. The data was not deliberately modified to appear different from reality. In other words the data represents the reality. There are established fake-good and fake-bad measures as well as measures of random answering in several psychological instruments, e.g. (Greene, 2000).
- *Logicity of the input sequence* – in some situations, a strange time-sequence of input of data can identify random selection of answers or “not taking the situation seriously” etc.
- *Nonredundancy* – there are no repetitions of the data instances without actual reflection in the reality. The existence of duplicities or multiplicities might compromise the representativeness, change the prevalence of the phenomena in the dataset in comparison with reality etc.
- ...

Since data quality is relative to the purpose, there can be many more data quality requirements. The important thing is to be able to specify what should be understood as good quality in the given situation and also to be able to explain why, if compromises or relaxation of some of the requirements are needed further on the way. The analyst/economist/researcher should clearly specify what are the minimum requirements on the data, such that their violation renders the data useless for the given purpose. Violations of other requirements can be allowed and further reflected in the analysis (see Section 4).

3. Why do we assess the quality of data?

Let us just briefly state why the data quality management and data quality assurance are nowadays so important in business, economics and in fact in everyday life. There are several possible reasons for the assessment of the quality of data:

- *DQ improvement* – “if you cannot measure it, you cannot manage it”, or in other words it is not possible to talk about improvement if its magnitude and direction cannot be measured or quantified
- *DQ maintaining* – once an acceptable level of data quality is achieved, we need to be able to identify deviations in the undesirable directions
- *Selection of data with acceptable quality* – in the case of larger datasets, their subsamples might still be representative enough for analytic purposes (i.e. it might be possible to use just subsets of the datasets which can be considered of high quality – but only provided that the low quality is randomly distributed and not a characteristic of a specific subpopulation within the population/sample)
- To be able *to tell the value of the data* – this is an interesting use of data quality measures (note, that data quality is relative, and hence so is the value of the data)
- To *estimate the cost of low-quality data* (in terms of the results/insights they can provide or the opportunities that are lost due to the use of low quality data). This can help the managers to decide what investments into data quality management projects are worthwhile.

There are also two other possible uses of data quality measures, that will be discussed more in the next section. These consider the assessment of the quality of single data instances:

- To *reflect the quality of observations/data-instances in the models*. This way e.g. a predictive model can draw more information from high-quality data instances and rely less on data instances of low quality. This way quality of a data instance is considered to be its importance weight for the purposes of the model.
- To *reflect the quality of observations/data-instances in the validation of models*. This use is slightly different from the previous one, since here we might be interested not in the data itself or its predictions or analysis, but in the performance of the model as such, see e.g. (Stoklasa, Luukka, & Talašová, 2014).

Let us now take a closer look at the difference between data quality in general (in terms of dataset quality) and the quality of separate data instances.

4. Quality of single data instances

Note that most of the concepts of data quality found in the literature refer to data sets as a whole. This is understandable, since the purpose of data quality “measurement” (or estimation) is to reach sufficient data quality, to maintain the quality of data at an acceptable level or to constantly improve data quality. If the quality of data is not ideal, the data either needs to be corrected, cross-validated, completed or other measures aiming on the removal of problems need to be applied. This automatically implies that if the data is of low quality, then it should not be used and it should be replaced by data of a better quality.

Such an approach is absolutely understandable in a binary “black and white” thinking, when data either is of sufficient quality, or if it is not. But what if there are only slight deficiencies in the data? What if a hypothetical data quality measure (i.e. a measure defined for the given dataset for a given

purpose keeping in mind the requirements of a given user of the data) points at 98% quality? How should we proceed? Should we remove the data instances that are the cause of this decrease in quality? All of them? Or should we use the data set as a whole?

If we consider e.g. a dataset of responses provided by n respondents to a questionnaire (or to questions in an interview, or alternatively data by n people concerning their results or sub-results of a psychological or medical diagnostics) we in fact have an $n \times m$ set of values, where m is the number of questions in the questionnaire (or the number of answers provided or measurements carried out within the diagnostics procedure). We would require that all the n answers to the same item have the same format and are of the same type (e.g. all are numerical or all are values from a specified linguistic scale etc.) – i.e. we would expect the data to be uniform, we would also require the data to be actual, to be meaningful (not corrupted) etc. On the other hand, we might not mind that some minor piece of information is missing with one person's data, that there is a slight inconsistency in the answers provided by one of the respondents etc. That is there might be some minimum requirements on the data set as a whole to be used and on the data instances themselves. If these minimum requirements are not met, we should not use the data. We can also introduce additional requirements on the data, which e.g. increase our user comfort, provide easier interpretations etc. If these additional requirements are not fully met, we might be willing to use the data anyway (e.g. because getting better data would take time and cost more). That is some level of inconsistency, incompleteness or error might be tolerable – we just need to be able to specify what level and obviously to measure the necessary features of the data.

Another set of questions comes to mind if we decide to repair or recollect the data. What if such a thing is not possible? What if the data cannot be recollected or cannot be repaired? This might be the case of hard-to-reach samples in social sciences, historical data or even of Big data, which is also very difficult, if not impossible, to recollect or repair. Also high costs can stand in the way of data recollection and repair. Even though the role of data quality assurance and management units is to plan the processes so that no recollection or data repair needs to take place is undeniable in the business setting, it might not be enough to provide solutions for the correction of our data set or to provide a new data set in time. Also, there might be objective issues that prevent us from getting 100% quality data (i.e. self-report methods, observation etc. will always be prone to some level of error or imprecision – either introduced deliberately by the person providing the data, or by the measurement procedure, the scales being used etc.).

When the data we have is the only thing we can work with, or when we cannot afford to wait for better data or when getting better data is not even possible, we at least need to be able to adapt and to:

1. Define the criteria for the quality of separate data instances. Note, that e.g. psychology and sociology have already developed tools for the assessment of questionnaire and self-report data, such as lie scores, consistency scores, fake-good scores, fake bad scores etc. (see e.g. (Greene, 2000; Stoklasa et al., 2014; Stoklasa & Talašová, 2011)). There are also other methods capable of checking for the consistency of the information provided by the users of the methods by obtaining several repeated (possibly indirect) assessments of the same relationship – e.g. the AHP method provides means for the assessment of consistency of the preference provided by the decision-maker (Brunelli, Canal, & Fedrizzi, 2013; Jandová,

Stoklasa, & Talašová, 2014; Krejčí & Stoklasa, 2016; Saaty, 2004; Stoklasa, Jandová, & Talašová, 2013; Stoklasa et al., 2016).

2. Assess quality of separate data instances – this can be done on a continuous [0%,100%] universe with respect to several data instance quality criteria. An aggregated data quality measure can then be computed either using a careful “minimum guaranteed quality” approach, or even using complex aggregation functions or rule bases to obtain a single real-numbered characteristics of data quality of the given instance of data. Stoklasa & Talašová (2011) provide examples of such aggregation in the context of psychological diagnostics using the lie-scores and validity measures of the MMPI-2 method.
3. Reflect the quality of data in our computations. The basic idea here can be that the lower the quality of a data instance, the less significant its effect should be on the outcome (this idea is suggested e.g. in (Stoklasa, 2014)). Hence e.g. a classification method’s validity can be tested even on a lower-quality data set, as long as the quality of the single data instances is known (Stoklasa et al., 2014). In fact the possible uses of single-instance data quality measures can be extended even to rule validation and validation of assumptions concerning the relationships present in the data. Stoklasa, Luukka, & Talášek (2017) present a fuzzy set-theoretic methodology for rule validation. Fuzzy rules are considered to represent possible relationships in the data and degrees of support and disproof of the rules are computed. This methodology can easily incorporate data-instance quality by introducing a fuzzy set representation of “sufficient data-instance quality” on the [0%,100%] universe and including the “data-instance is of sufficient quality” into the antecedent part of the rules that are being investigated. This way, low-quality data instances would not be used in the process of rule validation. And the fuzzy set representation allows for a gradual increase in significance for the rule-testing as the “sufficiency” of the quality of the data instance increases.

The focus on high quality of data sets is justified in many cases and obtaining high quality data is the ideal we should aim to. On the other hand, there are many contexts in which getting high quality data cannot be guaranteed (i.e. self-report based methods, questionnaires, interviews – most of the qualitative methods of data collection). In this case it is desirable to include data quality measures (data-instance focused) into the data collection procedure. When the level of quality of every data instance is known (or at least reasonably estimated), the data can still be used and analysed - on condition that methods reflecting different quality of data instances are applied – see e.g. (Stoklasa, 2014; Stoklasa et al., 2017, 2014).

5. Conclusion

The paper presents a data-instance oriented view of data quality. It summarizes the criteria usually considered in the context of data quality (i.e. dataset quality) and stresses the specific role of self-report data collection procedures, where ideal data quality might not be possible to achieve. We propose to incorporate data-instance quality measures into the data collection procedures (inspired by e.g. psychological lie-scores) and refer to several existing data analysis or model validation methods capable of reflecting data-instance quality. This way economic, marketing and other social science datasets of lower quality, for which the quality of separate data instances can be reasonably estimated, can be used in further analysis, model validation and assumption verification. This

presents a cost-effective and methodologically acceptable alternative to forced data re-collection or artificial data correcting. The main message of the paper can be summarized in the following way: when better quality data is too difficult to obtain, too costly to get and when the quality of the data cannot be increased by corrections, the assessment of the quality of individual data-items can provide means for the use of the dataset (obviously when methods designed to reflect data-instance quality are used for the analysis). In other words “if we can tell how bad the shape of the data instances is, we might still be able to use it”.

Literature:

Ballou, D. P., & Pazer, H. L. (1985). Modeling Data and Process Quality in Multi-Input, Multi-Output Information Systems. *Management Science*, 31(2), 150–162. <http://doi.org/10.1287/mnsc.31.2.150>.

Brunelli, M., Canal, L., & Fedrizzi, M. (2013). Inconsistency indices for pairwise comparison matrices: a numerical study. *Annals of Operations Research*, 211(1), 493–509. <http://doi.org/10.1007/s10479-013-1329-0>.

Fisher, C. W., & Kingma, B. R. (2001). Criticality of data quality as exemplified in two disasters. *Information and Management*, 39(2), 109–116. [http://doi.org/10.1016/S0378-7206\(01\)00083-0](http://doi.org/10.1016/S0378-7206(01)00083-0).

Greene, R. L. (2000). *The MMPI-2: An Interpretive Manual*. Needham Heights: Allyn and Bacon.

Jandová, V., Krejčí, J., Stoklasa, J., & Fedrizzi, M. (2017). Computing interval weights for incomplete pairwise-comparison matrices of large dimension - a weak consistency based approach. *IEEE Transactions on Fuzzy Systems*, PP(99 (accepted, forthcoming)), 1–1. <http://doi.org/10.1109/TFUZZ.2016.2633364>.

Jandová, V., Stoklasa, J., & Talašová, J. (2014). Modification of the AHP based model for evaluating artistic production of Czech colleges. In *Proceedings of the 32nd International Conference on Mathematical Methods in Economics* (pp. 372–377).

Jandová, V., & Talašová, J. (2013). Weak Consistency: A New Approach to Consistency in the Saaty's Analytic Hierarchy Process. *Acta Univ. Palacki. Olomuc., Fac. Rer. Nat., Mathematica*, 52(2), 71–83.

Janssen, M., van der Voort, H., & Wahyudi, A. (2017). Factors influencing big data decision-making quality. *Journal of Business Research*, 70, 338–345. <http://doi.org/10.1016/j.jbusres.2016.08.007>.

Krejčí, J., & Stoklasa, J. (2016). Fuzzified AHP in the evaluation of scientific monographs. *Central European Journal of Operations Research*, 24(2), 353–370. <http://doi.org/10.1007/s10100-015-0399-2>.

Laudon, K. C. (1986). Data quality and due process in large interorganizational record systems. *Communications of the ACM*, 29(1), 4–11. <http://doi.org/10.1145/5465.5466>.

Merino, J., Caballero, I., Rivas, B., Serrano, M., & Piattini, M. (2016). A Data Quality in Use model for Big Data. *Future Generation Computer Systems*, 63(1), 123–130. <http://doi.org/10.1016/j.future.2015.11.024>.

- Morey, R. C. (1982). Estimating and improving the quality of information in a MIS. *Communications of the ACM*, 25(5), 337–342. <http://doi.org/10.1145/358506.358520>.
- Saaty, T. L. (2000). *Fundamentals of Decision Making and Priority Theory With the Analytic Hierarchy Process*. Pittsburgh: RWS Publishers.
- Saaty, T. L. (2004). Decision making — the Analytic Hierarchy and Network Processes (AHP/ANP). *Journal of Systems Science and Systems Engineering*, 13(1), 1–35. <http://doi.org/10.1007/s11518-006-0151-5>.
- Sadiq, S. (Ed.). (2013). *Handbook of Data Quality: Research and Practice*. Heidelberg New York Dordrecht London: Springer. <http://doi.org/10.1007/978-3-642-36257-6>.
- Sadiq, S., & Indulska, M. (2017). Open data: Quality over quantity. *International Journal of Information Management*, 37(3), 150–154. <http://doi.org/10.1016/j.ijinfomgt.2017.01.003>.
- Sebastian-Coleman, L. (2013). *Measuring Data Quality for Ongoing Improvement*. *Measuring Data Quality for Ongoing Improvement*. Amsterdam: Morgan Kaufmann. <http://doi.org/10.1016/C2011-0-07321-0>.
- Stoklasa, J. (2014). *Linguistic models for decision support*. Lappeenranta: Lappeenranta University of Technology.
- Stoklasa, J., Jandová, V., & Talašová, J. (2013). Weak consistency in Saaty ' s AHP - evaluating creative work outcomes of Czech Art Colleges Classification of works of art. *Neural Network World*, 23(1), 61–77.
- Stoklasa, J., Luukka, P., & Talášek, T. (2017). Set-theoretic methodology using fuzzy sets in rule extraction and validation - consistency and coverage revisited. *Information Sciences*, 412–413, 154–173. <http://doi.org/10.1016/j.ins.2017.05.042>.
- Stoklasa, J., Luukka, P., & Talašová, J. (2014). Classifier performance assessment in social science - does the quality of data matter? In *Proceedings of the 32nd International Conference on Mathematical Methods in Economics* (pp. 974–979).
- Stoklasa, J., Talášek, T., & Talašová, J. (2016). AHP and weak consistency in the evaluation of works of art – a case study of a large problem. *International Journal of Business Innovation and Research*, 11(1), 60–75. <http://doi.org/10.1504/IJBIR.2016.077610>.
- Stoklasa, J., & Talašová, J. (2011). Using linguistic fuzzy modeling for MMPI-2 data interpretation. In *Proceedings of the 29th International Conference on Mathematical Methods in Economics - part II* (pp. 653–658). University of Economics, Prague, Faculty of Informatics and Statistics.
- Strong, D. M., Lee, Y. W., & Wang, R. Y. (1997). Data quality in context. *Communications of the ACM*, 40(5), 103–110. <http://doi.org/10.1145/253769.253804>.
- Tayi, G. K., & Ballou, D. P. (1998). Examining data quality. *Communications of the ACM*, 41(2), 54–57. <http://doi.org/10.1145/269012.269021>.

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THE EDUCATION, DEVELOPMENT AND EVALUATION OF HUMAN RESOURCES IN NON-PROFITS NONGOVERNMENTAL ORGANIZATIONS

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Abstract: *The aim of paper is to determine specifics of the educational programs and evaluation of job performance, in non-profits nongovernmental organizations (NGO). Primary data collection was carried out in Q1 and Q2 2016 through quantitative research, which examined the researched file of NGO in Czech Republic, joined at web portal named "Neziskovsky.cz". The data were processed using Microsoft Excel pivot tables, and distributed according to the frequency of the selected monitored variables. The hypothesis were tested by Pearson χ^2 test. Based on the results of the research were formulated recommendations for the improvement of human resource management in this segment of non-profit organizations.*

Keywords: *Non-governmental non-profit organizations, education, staff appraisal.*

JEL classification: L31, M12, M52, M53

Grant affiliation: *This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.*

1. Characteristics of NGO in Czech Republic

The non-governmental non-profit sector and organizations (hereinafter NGO), that fills the gap between market, state and family in areas of governmental character, infrastructure, religious groups or social aid, is a term connected to the 20th and 21st centuries. The Czech NGO sector has gone recently through "accelerated development", which had an impact on the quality of HR. Internationally recognised definition of NGO was introduced by Salamon, Anheier (1996, p. 213) as a "set of institutions existing within state structures, which serve public interests." Stejskal (2014, p. 17) defined NGOs as "legal or social subjects established for the purpose of delivering products and services which must not serve as any source of income, profit or financial benefit." More definitions have been provided by Reed and Howe, McMullen and Schellenberg, or Chadwick (Reed, Howe, 1999; McMullen, Schellenberg, 2002, Frič, Goulli, 2001, Chadwick, 2010).

2. The non-profit sector in the Czech Republic

The Government Council defines NGOs as civic associations, religious orders and societies, public benefit institutions, foundations and foundation funds.

TAB. 1: The number of NGOs from 2005–2015

Year	Foundation	Public Benefit Institutions	Registered institutes	Religious organisations	Associations	Branch associations
2005	293	0 998	1 208	55 473	4 647	33 355
2006	302	1 042	1 369	58 915	4 503	30 749
2007	302	1 100	1 543	62 370	4 487	31 230
2008	379	1 157	1 721	66 079	4 439	31 629
2009	413	1 229	1 870	69 154	4 358	32 272
2010	434	1 280	2 031	72 620	4 362	32 696
2011	435	1 358	2 208	76 126	4 376	33 599
2012	444	1 400	2 409	79 462	4 373	34 656
2013	511	1 430	2 685	84 430	4 172	34 536
2014	508	1 407	2 962	123	4 158	86 956
2015	505	1 518	2 894	388	4 166	89 584

Source: data extracted from RES (ČSÚ), 2016

Success of NGOs is influenced by the quality of their HRM and the ability to use it for fulfilment of organisations 'goals (Moore, 2000, Allison, Kaye, 2005, Conway, Monks, 2008, Ridder, McCandless, 2010, McCandless, 2012, Ridder, McCandless, Pierning, 2012, Obukhova, Lan, 2013). Volunteering is a phenomenon, which constitutes one of the pillars of the non-profit sector, requiring specific managing approach (Harrison, Muray 2005, Kim, Lee, 2007, Pynes, 2009, Werbel, Balkin, 2010).

3. Material and methods

The purpose of the research was to determine the specifics of the educational programs and evaluation of job performance, in segment of NGO in Czech Republic and with regard to the size of the organisations to recommend solutions for further improvement. Academic literary research has been completed via the method of description and comparison. Collection of primary data was carried in Q1 and Q2 2016 via quantitative research by using electronic surveys. The examined file

were the organizations clustered on the official portal www.Neziskovsky.cz belonged to The Association of Public Benefit Organizations Czech Republic. (AVPO, 2017) The investigated group included 348 organisations, from which 142 were micro organisations, 86 small and 60 mid-size organisations. First part of the survey included a filtering question, which eventually led to removal of 18 organisations, which were non-profit, however belonged to the governmental subjects. The second part of the research was a pre-test, which helped to identify and eliminate potential mistakes and flaws. Pearson χ^2 test was used for testing of the hypotheses, while the null hypothesis claimed that the researched variables were independent. Results of the research served for formulation of recommendations for further improvement of HR management in NGOs.

TAB. 2: Structure of respondents according to their area of expertise

Area of expertise	Absolute multiplicity	Relative multiplicity
Charity and volunteering	014	04 %
Culture, art and communication	019	05 %
Religion	004	01 %
Law and defence of interests	020	06 %
Municipality development and accommodation	009	02 %
Social services and health	172	49 %
Sports, free time and recreation	027	08 %
Upbringing, education and research	078	22 %
Environment	011	03 %

Source: own processing

4. Testing the hypothesis

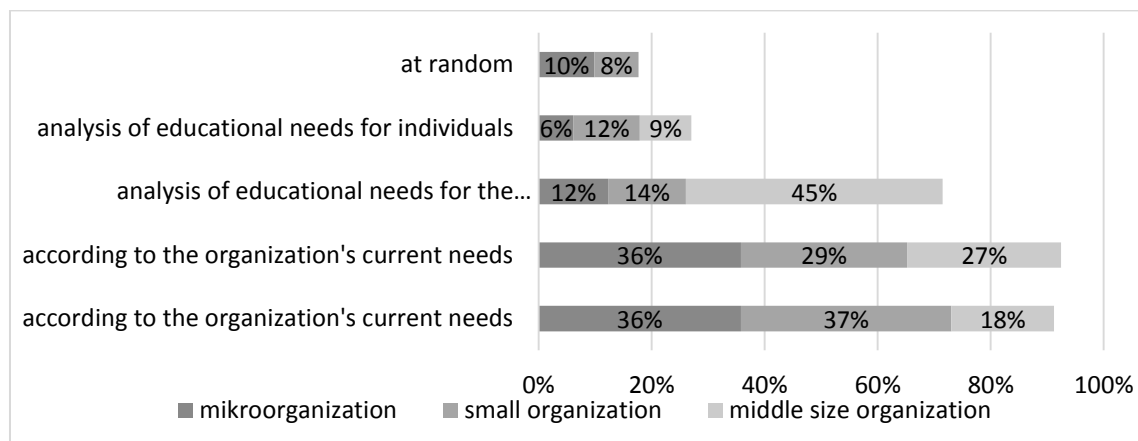
4.1. Testing of hypothesis H1

This hypothesis "The higher the number of non-profit organizations employee, the provision of further education and development opportunities to employees is growing" cannot be rejected. χ^2 equals 344 and exceeds the critical value required for independence verification (5%). Results show dependence between the growing number of employees and provision of further education within studied NGOs.

The research results show that 88% of surveyed NGOs provide further education and development opportunities. Depending on the size of the organization, 83% of the interviewed micro-organizations, 91% of the small and 100% of the medium-sized surveyed NGOs provide their workers

with education and development. The identification of the needs for further training of NGO staff can be seen into bellow mentioned figure.

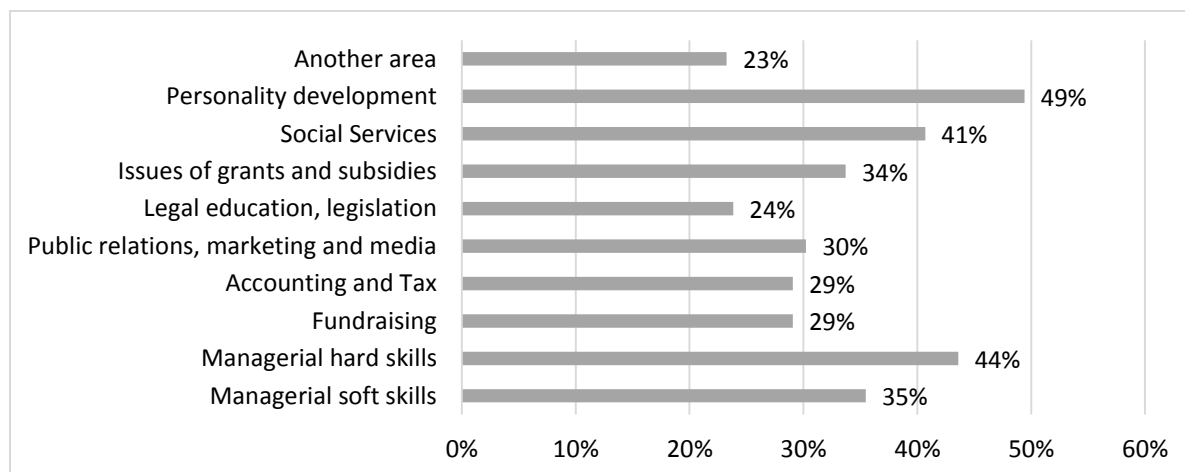
FIG. 1: Share of ways of determining needs for employee training, depending on the size of the organization



Source: own processing

NGOs provide their staff training and development, particularly in the areas mentioned in figure no.2.

FIG. 2: The areas for employee training and development

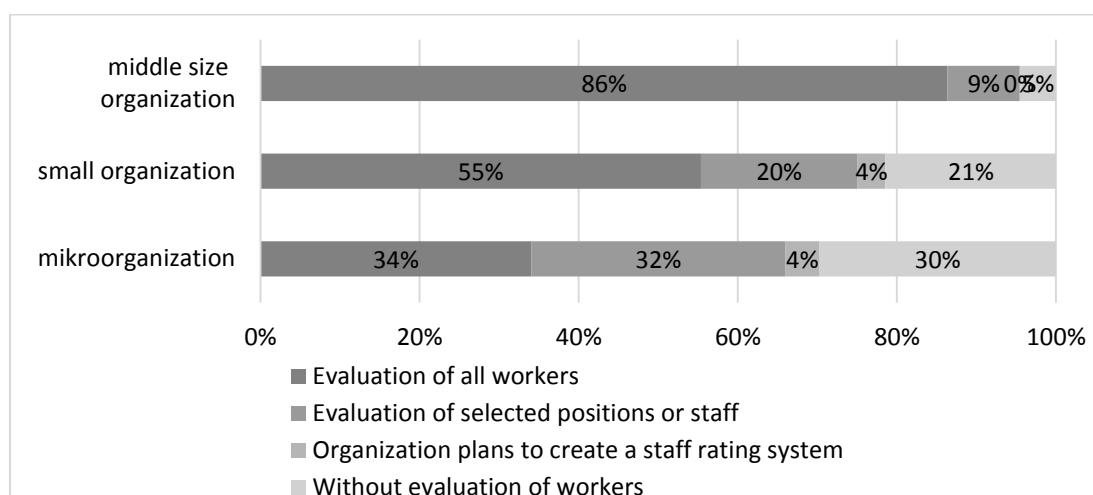


Source: own processing

4.2. Testing of hypothesis H2

The hypothesis "With the growing number of workers in the non-profit organization grow the use of a formal method of evaluating employees" cannot be rejected. χ^2 equals 134 and exceeds the critical value required for independence verification (5%). Results show dependence between the growing number of employees and grow the use of a formal evaluating methods.

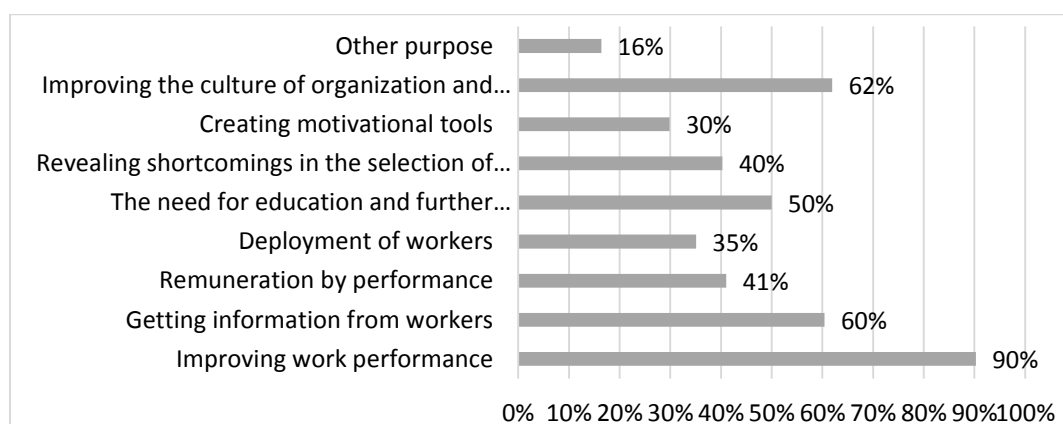
FIG. 3: Staff appraisal based on organization size



Source: own processing

The results declare the dependence between formal assessment of staff and the size of the organization. While the formal assessment of workers by 22% of respondents prevails in microorganisms, 49% in small organizations, and 76% in middle organizations.

FIG. 4: Share of usage staff appraisal results



Source: own processing

5. The solutions for further improvement with regard to the size of the organisations in order to recommend

Recommendations are suggested with regard to the size of organisation.

The most common content of micro-organization education has been found the personality development, fundraising, grant and subsidy issues, hard managerial skills and public relations. Because of the limited amount of available finance, micro organizations should first define what learning areas are key to its existence and growth and focus on courses that are free or educate staff

within the organization. Small organizations prove very little focus on fundraising, the key areas of organization financing. The increasing competencies in the field of managerial development, via using the NGO Information Centre or Via Foundation offerings might be beneficial. Middle sized organizations ought to increase attention to marketing and public relations to improve the fundraising as well.

As the predominant form of assumption the share of formal assessment was statistically confirmed. The micro-organizations provide in particular feedback to their staff, in order to improve the culture of organization and communication. Small organizations have shown declining interest in creating incentive tools or detecting shortcomings in staff selection. In medium-sized organizations, the interest in improving communication and culture is declining with the growing size of the organization. For improving quality of human resources are very important direct communication with the manager at regular intervals. The authors recommend the use of predominantly informal forms of assessment, such as self-assessment or motivational interviews.

6. Discussion

The 90% of NGOs confirm they provided their workers with the opportunity to further develop and train. Such a high figure proves, in line with the current state of scientific knowledge, the fact that education is a form of employee remuneration and the acquisition of such new experiences is one of the most frequent motives for work in NGOs (Wright, Boswell, 2002, Bryson, 2011, Ridder, Baluch, Piening, 2012, Ruhm, Borkoski, 2013, Anheier, 2014). Although it is widely accepted in the professional literature that the purpose of employee evaluation is motivation, control and correction of the working behaviour (Wittmer, 1991, Salamon, Dewees, 2002, Theuvsen, 2004, Watson, 2010). The authors are inclined to findings that the performance of NGO staff depends on the moral approach to work, the clearly defined work plan and the personality of the leader (McCurley, 1993, Akingbola, 2006, Borzaga, Tortia, 2006, Fisher, Cole, 2008, Akingbola, 2015)

7. Conclusion

There are two typical types of HR in focus of training and education and the staff appraisals for NGOs. One of that are employees, who can relate to this research, and others are volunteers, which haven't been provided enough attention at work, what could be further studied.

Literature:

Akingbola, K. (2006). Strategy and HRM in nonprofit organizations: evidence from Canada. *The International Journal of Human Resource Management*. 17(10): 1707–1725. ISSN 0958-5192.

Akingbola, K. (2015). *Managing Human Resources for nonprofits*. 1st ed. Oxford: Routledge, 2015, 314 p. ISBN 1135021864.

AVPO. (2017) Retrieved January 11, 2017, from <https://www.avpo.cz/2017/stanovisko-asociace-verejne-prospesnych-organizaci-cr-k-vladnimu-navrhu-zakona-o-statusu-verejne-prospesnosti>.

Allison, M. & KAYE, J. (2005). *Strategic planning for nonprofit organizations: a practical guide and workbook*. 2nd ed. Hoboken, N. J.: Wiley, 458 p. ISBN 0471445819.

Anheier, H.K. (2014). *Nonprofit organizations: theory, management, policy*. 2nd ed. London: Routledge, xii, 579 p. ISBN 978-0-415-55047-5.

Borzaga, C. & Tortia E. (2006). *Worker motivations, job satisfaction, and loyalty in public and nonprofit social services*. *Nonprofit and Voluntary Sector Quarterly*. 35: 225–248. ISSN 0899-7640.

Bryson, J.M. (2011). *Strategic planning for public and nonprofit organizations: a guide to strengthening and sustaining organizational achievement*. 4th ed. San Francisco: Jossey-Bass, xxviii, 547 s. ISBN 978-0-470-39251-5.

Conway, E. & Monks, K. (2008). HR practices and commitment to change: An employee-level analysis. *Human Resource Management Journal*. 18: 72–89. ISSN 1748-8583

CSU. (2016). Retrieved February 9, 2016, from <https://www.czso.cz>.

Fisher, P.J. & Cole, K.M. (2008). *Leadership and Management of Volunteer Programs*. San Francisco: Jossey-Bass Publisher. 193 p. ISBN 1-55542-531-3.

Frič, P. & Goulli, R. (2001). *Non-profit Sector in the Czech Republic: Results of the Johns Hopkins University International Comparative Project* (Neziskový sektor v ČR: výsledky mezinárodního srovnávacího projektu Johns Hopkins University.) Praha: Eurolex Bohemia, 203 s. ISBN 80-86432-04-1.

Harrison, Y. D. & Murray, V. (2005). *The Effect of an Online Self-Assessment Tool on Nonprofit Board Performance*. *Nonprofit and Voluntary Sector Quarterly*. 44(6), pp 1129-1151. ISSN 0899-7640.

Chadwick, C. (2010). Theoretic insights on the nature of performance synergies in human resource systems: Toward greater precision. *Human Resource Management Review*. 20: 85–101. ISSN 1053-4822.

Kim, S.E., & Lee, J.W. (2007). Is mission attachment an effective management tool for employee retention? An empirical analysis of a nonprofit human services agency. *Review of Public Personnel Administration*, 27(3), 227-248.

McCandless, A. (2012). *Human resource management in nonprofit organizations*. 1st pub. New York: Routledge, xvi, 306 s. ISBN 978-0-415-89617-7.

McCurley, S. (1993). *How to fire a volunteer and live to tell about it*. *Nonprofit*. 27(5): pp. 8–11. ISSN 8755-7614.

McMullen, K. & Schellenberg, G. (2002). *Mapping the Non-profit Sector*. CPRN Research Series on Human Resources in the Non-profit Sector [online]. Ottawa: Canadian Policy Research Networks, s. 5. Retrieved February 3, 2016, from <http://goo.gl/wxplJe>.

Moore, M.H. (2000). *Managing for value: Organizational strategy in for-profit, nonprofit, and governmental organizations*. Nonprofit and Voluntary Sector Quarterly, 29.1_suppl: 183-204.

Neziskovsky.cz (2016). Retrieved february 10, 2016, from <http://www.neziskovsky.cz/>.

Obukhova, E. & Lan, G. (2013). *Do Job Seekers Benefit from Contacts? A Direct Test with Contemporaneous Searches*, Management Science, Volume: 59 Issue: 10 Pages: 2204-2216.

Pynes, J. (2009). *Human resources management for public and nonprofit organizations: a strategic approach*. 3rd ed. San Francisco: Jossey-Bass, 483 p. ISBN 978-0-470-33185-9.

Reed, P. B. & Howe, V. J. (1999). *Defining and Classifying the Nonprofit Sector*. Nonprofit Sector Knowledge Base Project [online]. Canada: Statistics Canada and Carleton University, Retrieved February 3, 2016, from <http://goo.gl/LjwyVR>.

Ridder, H. & McCandless A. (2010). *Influences on the Architecture of Human Resource Management in Nonprofit Organizations: An Analytical Framework*. Nonprofit and Voluntary Sector Quarterly. 39(1): 124–141. ISSN 0899-7640.

Ridder, H., McCandless A, & Pierning, E. (2012). The whole is more than the sum of its parts? How HRM is configured in nonprofit organizations and why it matters. *Human Resource Management Review*. 22: 1–14. ISSN 1053-4822.

Ridder, H., Baluch, A.M. & Pierning, E. (2012). The Third Way Reconfigured: How and Why Nonprofit Organizations are Shifting Their Human Resource Management. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*. September, 23(3): 605–635. ISSN 1573-7888.

Ruhm, Ch.J., & Borkoski, C. (2003). Compensation in the nonprofit sector. *Journal of Human Resources*, 38.4: 992-1021.

Salamon, L.M. & Anheier, H.K. (1996). *Social origins of civil society: explaining the nonprofit sector cross-nationally*. Baltimore: The Johns Hopkins University. Institute for policy studies, 44 s. Working papers of the Johns Hopkins comparative nonprofit sector project, Number 22. ISBN 1-886333-26-2.

Salamon, L.M., & Dewees, S. (2002). *In search of the nonprofit sector: Improving the state of the art*. American Behavioral Scientist, 45(11), 1716-1740.

Stejskal, J. (2014). *Economics of a non-profit organization*. (Ekonomika neziskové organizace). 2. ed. Praha: Tiskové a distribuční centrum, 262 s. ISBN 978-80-7501-063-6.

Theuvsen, L. (2004). Doing better while doing good: Motivational aspects of pay-for-performance effectiveness in nonprofit organizations. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 15.2: 117-136.

Watson, T. J. (2010). Critical social science, pragmatism and the realities of HRM. *International Journal of Human Resource Management Studies*. Vol. 21, iss. 6, p. 915–931. ISSN 2162-3058.

Werbel, J. & Balkin, D.B. (2010). Are human resource practices linked to employee misconduct?: A rational choice perspective, *Human Resource Management Review*, Vol.20, Issue 4, Pages 317–326.

Wittmer,D. (1991). Serving the people or serving for pay: Reward preferences among government, hybrid sector, and business managers. *Public Productivity & Management Review*, 369-383.

Wright, P. M. & Boswell, W.R. (2002). Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*. 28: 247–276. ISSN 1557-1211.

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KHEIL'S BOOKEEPING SYSTEM

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Abstract: *Kheil's system of double-entry bookkeeping is an original system designed by Karl Petr Kheil Sr. which took hold in the Czech lands in the second half of the 19th century, as a result of the influential role that Kheil played in the field of bookkeeping in the region. This article aims to explain the principles of the system and to present an account of the life and work of Karl Petr Kheil Sr., this with special respect to his endeavours in the domain of pedagogy as well as his research and publishing on bookkeeping.*

Keywords: *Accounting; History of Accounting; Double-entry Accounting; History; Karel Petr Kheil.*

JEL classification: *M41; N90; K19*

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1. Introduction

As a research discipline, bookkeeping established itself in the Czech lands in the second half of the 19th century thanks to the contribution of a number of outstanding personalities, many of whom are forgotten today, including such names as Antonín Skřivan, Josef Pazourek, and both Karel Petr Kheil Sr. and Karel Petr Kheil Jr. The younger, Karl Petr Jr., whose contribution consisted of translating and commenting upon the writings of Benedeto Cotrugli, among other things, has never ceased to be a subject of research: there is much evidence at the disposal, from Jaroslav Kubeša's studies (Kubeša, 1966; Kubeša, 1967) to the more recent works of Miloslav Janhuba (Janhuba, 2012). In contrast, his father has been rather neglected, which is why this article aims to shed more light on his life and, most importantly, expose the importance of his contribution to the development of bookkeeping as such, particularly by introducing Kheil's bookkeeping method. The crucial question then remains as to what role this particular system played in the development of bookkeeping in the region.

2. Karel Petr Kheil, Senior (1817-1871)

There is very little that remains today in terms of information about the life of Karl Petr Kheil Sr. He was born on October 17 1817, in Prague, to a family of a local tradesman who had moved from Dresden. Instead of attending a grammar school, Kheil became an apprentice at his father's shop. After his father's early death, Karl Petr, still very young, was forced to take up his father's role (Blecha, 1965). Unable to find satisfaction in business practice, Kheil decided to further develop his education, particularly in the field of trade, law and political economics.

His entrepreneurial spirit wasn't misplaced in the rising demand for expertise in business education which occurred in the wake of the transitional year of 1848 and the new political and legal organization of society which accompanied the changes. As the current educational facilities unable to meet the demand, Karel Petr Kheil decided to offer classes himself. His lectures became very popular which lead him to found his own private school, *Mercatorisches Lehrcontor*, in 1855. Originally, the school was only open to men; however, the year 1859 marked the introduction of a new trade licensing act that granted equal trade rights to women, and the school consequently opened its doors to women as well. The list of compulsory subjects included trade mathematics, business correspondence, exchange law and bookkeeping (Kubeša, 1967).

As a consequence of his newly acquired expertise, Karl Petr Kheil decided to aspire to reach habilitation in bookkeeping. He first filed his request in 1850 at the Prague Polytechnic Institute, but was rejected. The same happened with his second and third attempts, in 1864, and again in 1865. Consequently, he remained devoted to teaching, particularly focusing on the private education of students in the field of bookkeeping, concurrently writing and publishing professional works on the theme. He was also appointed bookkeeping expert at the regional court in Prague and was an active member of the Czech Trade Licensing Organization (Kubeša, 1967).

Karel Petr Kheil Sr. died in 1871, leaving two sons, the younger Napoleon Manuel and the aforementioned Karel Petr Jr., who further developed his father's work and helped foster the establishment of bookkeeping as a professional discipline in the region.

3. Work

Karel Petr Kheil Sr. published his first work in 1846: his very first articles were featured in a diverse range of magazines, including the *Triester Lloyd*, the *Prager Zeitung* and the *Archiv für deutsches Wechsel- und Handelsrecht* (Wurzbach, 1856-91). As he later noted, several authors strongly influenced his thinking, among them Ludwig Wilhelm Luzac, who was an extremely prolific author. Luzac penned the *Lehrbuch der Handlungs-Wissenschaften* (published in 1833, in Prague) and the *Kaufmännisch-praktische Anleitung zur Führung der Wechselgeschäfte* (published 1831, in Prague).

In 1849, Karel Petr Kheil published his first book, a three-part monography entitled *Die Handelswissenschaft*. In Jaroslav Kubeša's view, however, only the first part of the trilogy is original text drafted by Kheil, the remaining parts are mere reformulations of an existing text from Ludwig Wilhelm Luzac, with whom Kheil had agreed to collaborate (Kubeša, 1967). His main objective was supposedly to extend the practical part of the study by a quality theoretical background. The first part of the work deals with trade, its tools, measures, trade mathematics and terminology related to

the field: it also includes a 70-page vocabulary list. The second part includes a chapter on business correspondence and an explanation of bookkeeping theory, further developed in the final part which is entirely devoted to double-entry bookkeeping (Heinsius, 1847-51). In reaction to the new Trade Licensing Act of 1859, which opened the doors of trade schools to women, Kheil published a book entitled *Lebend dargestellter Geschäftsgang zur Buchführung mit einer Münz-, Mass- und Gewichtskunde im Vergleiche mit den österreichischen Massen und Gewichten*, a sort of model work for “Damenunterricht”, so-called bookkeeping for women. The work was published in 1860, in Prague, and Kheil dedicated it to his first six female graduates. Though minor in extent, Kheil’s other writings are worth mentioning, among them the *Wechselrecht des österreichischen Kaiserstaates* (Prague, 1859), the *Mercatorischer Brief- und Geschäftsstyl* (1863) and *Geld-, Münz-, Maas-, Gewichts- und Cours-Lehre* (1866), all of them designed mostly for educational purposes. The only one of Kheil’s work published in Czech is *Sbírka obchodních případů k praktickému provedení v knihách* (A Collection of Trade Cases for Practical Application in Ledgers, 1866), as a Czech translation of the above-mentioned course book for women.

By far, the most popular and widely circulated in libraries up to the modern day is Kheil’s *Lehrbuch de Handelswissenschaft*, a large-scale, multidimensional publication. Its fifth installation, published in 1860 with the subtitle *Die Lehre der Buchführung nach italinischem und Kheilscheme Systeme in doppelten Partien*, contains, among other things, an explanation of Kheil’s original version of double-entry bookkeeping, the version today referred to with its author’s name.

4. Kheil’s Bookkeeping System

As revealed by the author himself, he invented the system on March 5 1858, and he started teaching it at his school the very same year. The core of the system is simple: instead of seven elementary books, the norm at the time, Kheil cut the number of books to two: the journal and the central book (Kheil, 1860). As a result, the system becomes more similar to the original double-entry bookkeeping practice which was introduced by Luco Pacioli. Regarding practical application, the simplified system was easier to use and therefore gained in popularity.

The journal served to keep track of cash and interest alike. For this purpose, it was divided into four columns, two marked as Cash and the other two marked as Interest. Revenue columns were marked as *Debit*, expense columns then as *Credit*. Each entry was marked twice, an essential prerequisite for double-entry bookkeeping, as debit and credit, whether it concerned a cash transaction or any other type of entry. (Raulich, 1932)

The central book contained all ledgers necessary for bookkeeping: from customer ledgers, to containers, diverse order-books and all financial accounts (capital, costs, interest etc.) The book was meant to be organized to open with customer ledgers, followed by economic ledgers and closing with the statistical ledgers (promissory notes, goods, order-books, etc.). The economic and statistic accounts were divided into two columns, the first serving as daily bookkeeping, the second to keep track of entries in terms of months (Raulich, 1932).

In addition to the two books, Kheil deemed it crucial to keep Inventory, this particularly with regards to the law. The items of the inventory were, however, tracked in the inventory only at the beginning

of the accounting year, not at its closure. Inventory was required to take the form of a hardcover and to contain a breakdown of the assets, property, gains and losses (Raulich, 1932).

5. Conclusion

Karel Petr Kheil Senior is undoubtedly a personality of major importance, one to have largely contributed to the professionalization of bookkeeping and its establishment as a field of research in the Czech lands. Despite his unsuccessful efforts in the academic domain, he influenced several generations of bookkeepers: on the one hand through his trade school, on the other hand through his popular books on accounting. His legacy in the field, whether with regards to theory or practice, is undeniable.

In hindsight, his major contribution consisted of the invention of a bookkeeping system that simplified the double-entry bookkeeping practice of the time, providing trades professionals with a more attractive alternative. His system was, as a matter of fact, an amendment to the former version of double-entry bookkeeping, and its implementation was far from flawless. As the author himself mentions: "We do not like to learn new things even if they are better when we are quite comfortable with the old and worse methods." Still, the system became popular, also due to the indoctrination Kheil exerted on his pupils. The system was of great use mostly at sugar mills, distilleries, breweries, mills and other food processing facilities, largely also in wholesale (Raulich, 1932). The system was amended into the so-called Brož system at farming estates in particular (Puchinger, Slavičková, 2014). Nevertheless, the strongest competitor for Kheil's double-entry bookkeeping was not a double-entry alternative but the simple single-entry bookkeeping, prevalent in the Czech lands until the late 19th century. This is yet another argument why Karl Petr's relentless endeavours should be considered as most admirable.

Literature:

Blecha, J. (1965) *Karel Peter Kheil, sien Leben und Werk*. Die Österreichische Betriebswirt 15(5), S. 133-178.

Heinsius, W. (1847-51). *Allgemeines Bücher-Lexikon: oder vollständiges alphabetisches Verzeichniss..* Leipzig, J. A. Brodhaus.

Janhuba, M. (2012) *Karel Petr Kheil ml. - historik účetnictví*. Český finanční a účetní časopis 7(1), s. 121-128.

Kheil, K. P. (1860) *Lehrbuch der Handelswissenschaft. Fünfter Band. Die Lehre der Buchführung nach italienischem & Kheil'schem System in doppelten Partien: theoretisch und praktisch dargestellt: a) für ein En gros- & b) für ein En Detail-Geschäft in 3 Theilen. Dritte, gänzlich umgearbeitete Auflage*. Prag: Karl André.

Kubeša, J. (1967) *Karel Petr Kheil otec*. Účetnictví 10(2), s. 372-373.

Kubeša, J. (1968) *Účetní historik Karel Petr Kheil*. Účetnictví 3(3), s. 110-113.

Kubeša, J. (1966) *K jubileu vydání dvou Kheilových prací*. Účetnictví 10(1), s. 364-366.

Puchinger, Z., Slavičková, P. (2014) *Malé dějiny účetnictví*. Olomouc: VUP.

Raulich, H. (1932) *Kheilův účetní systém*. In: Slovník obchodně-technický, účetní a daňový, 4. díl. Praha: Tiskové podniky Ústředního svazu československých průmyslníků v Praze, s. 691-712.

Wurzbach, C. von (1856-91) *Biographisches Lexikon des Kaiserthums Oesterreich*. Wien: L. C. Zamarski.

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HIGH-DIMENSIONAL STATISTICAL ANALYSIS OF DEMOGRAPHIC DATA IN REGIONS OF THE CZECH REPUBLIC

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Abstract: *This article deals with analysis of demographic data for component regions in the Czech Republic in 2015. Out of the source demographic data of the Czech Statistical Office there were calculated basic indicators, measures and demographic indexes. Using the Principal Component Analysis an extensive number of variables was eliminated to five crucial components which were subsequently included in the targeted Cluster Analysis. On the basis of the Ward method of hierarchic clustering and application of Euclid distance calculation, the probability matrix was compiled to get the resultant dendrogram of the four main clusters. Among other it was found out that region of the capital Prague (Hlavní město Praha) creates separate cluster together with Pardubice, and Central Bohemia (Středočeský) region create separate cluster with Liberec region.*

Keywords: *Demographics, population structure, dynamics indicators, cluster analysis, principal component analysis.*

JEL classification: C38, J10

Grant affiliation:

1. Introduction

This article deals with an analysis and statistical processing of the basic demographic data in the regions of the Czech Republic in 2015. Since the object of demographics is the human population, its analysis should certainly be in each citizen's concern. For the year 2015 the Czech Statistical Bureau issued the summary source data (www.czso.cz, 2016) which were subjected to two high-dimensional statistical analyses - Principal Component Analysis and Cluster Analysis - aiming to find similarity, resp. differences between the regions of the Czech Republic as to the analysed demographic data. According to Meloun (2013), the Principal Component Analysis is one of the most widely used methods of high-dimensional statistical analysis, and he recommends to begin each high-dimensional analysis with retrieving principal components. Reduction of original variables to smaller number of latent preferably featured variables able to catch the whole variety of observable variables, allows a deep analysis of the source data (Meloun, 2013). In this analysis, the latent variables are called the principal components and they present a linear combination of observable components. Basic parameter of each principal component is a variability measure. The principal components are

arranged in order of priority. Most of information of variability of the observed data is concentrated right in the first component, and the least information is included in the last component. (Meloun and Militký, 2002; Anděl, 2007). The Input Matrix contained 15 variables, out of which five principal components were detected and subsequently processed with the Cluster Analysis. This method is one of the most important tools to search for homogenous data and their categorisation (Horák et al., 2012). The aim of the Cluster Analysis is to find such a configuration in which the objects in each cluster is mutually as similar possible and as divergent as possible. (Meloun, Militký, 2002). Combination of both methods resulted in a dendrogram, out of which it was possible to identify clusters of regions, showing similarity in light of the principal components obtained. Seeing that the clustering process resulting in dendrogram is irreversible (Hebák et al., 2005), the clusters can be considered as terminal and can be interpreted verbally. To visualize the findings of regional similarities, the entire result was transposed to the map of regions. It uniquely defined the problematic regions with the most unfavourable monitoring results, and the best regions with the lowest natimortality and infant mortality ratio, with the highest crude natural increase and total population increase, and with the highest crude marriage rate and lowest abortion rate.

2. Methods

The source data were selected from databases of the demographical offices in each region of the Czech Republic (www.czso.cz, 2016). Out of the input data, there were defined the basic demographic indicators, as recommended in publications of Pavlík et al. (1986), Koschina (2005) and Kalibová (2006). After examination of all basic demographic indicators there was determined a suitable number of indicators. The indicators were reduced by their variability (variation coefficient), whilst the indicators of the lowest variability (up to 1%) were disqualified as they indicated similarity (identity) between the regions. Another indicators were rejected for they were represented more times, they were assessed in multiple aspects or they were in absolute vales. They were also taken into account alternative business cycle approaches as reported by Petříček (2015). After the reduction there was compound the input matrix of: femaleness index, age index, youth dependency ratio, aged dependency ratio, economic burden, crude mortality rate, crude abortion rate, crude marriage rate, crude divorce rate, crude rate of natural increase, crude migration rate, crude total population increase, natimortality and infant mortality rates. These 15 indicators were expressed in comparable relative units (per cent and per mille), followed by preliminary inter-regional comparison. After having determined optimal number of input variables (demographic indicators) and after an inter-regional evaluation there were applied high-dimensional statistical analyses. At first, the variables were processed by Principal Component Analysis which is suitable and often used method for data reduction ((Field, 2000; Rencher, 2002; Johnson a Wichern, 2007) and subsequent Cluster Analysis. For example Benešová et al. (2016) used the Cluster Analysis to solve comparable questions. Data were processed by highly programmable software SAS 9.4. containing many methods and procedures implemented. Number of analysed principal components was based on recommendations of Meloun and Militký (2002) and Kába (2012). The main five output components were processed by the Cluster Analysis where - using Ward's method of hierarchical clustering (Řezánková at al., 2009) and applying Euclid distance calculation (Lukasová and Šarmanová, 1985) - there was compiled the probability matrix and obtained the resultant dendrogram. For better orientation in the Cluster Analysis outputs there was made the probability map along the regions of

the Czech Republic, which was used for instance by (Poláčková and Jindrová, 2011; Vostrá et al., 2012; Jindrová, 2015).

3. Results

Reduction of the source data resulted in 15 indicators in per cents, resp. in per mille. The data found for each region were preliminarily evaluated in relative values. First monitored indicator is the femaleness which shows proportion of women in entire population and is similar in all regions of the Czech Republic, whilst the most outstanding difference was indicated in Pardubice region. Next monitored index is the aged dependency, indicating number of people person who are 65 years old or older, compared to a 100 of persons of 14 years old and below. This indicator is quite well-balanced; greater difference was found in region of Central Bohemia. In the next one - the youths dependence Index there are only minimal differences between the regions. Further there was monitored the aged dependence index found the most distinctive differences in regions of Liberec region and Moravian-Silesian region (Moravskoslezský kraj). Following index of the economic burden shows only minimal inter-regional differences, excepting regions Liberec (Liberecký kraj) and Hradec Králové (Královéhradecký kraj). As the next index there was monitored the crude mortality rate. Here there weren't found any distinctive difference in any region. Significant differences in crude natality rate were found only in Karlovy Vary region (Karlovarský kraj). As to the abortion rate, the most significant differences were found in Prague and region of Ústí nad Labem (Ústecký kraj). Marriage rate and divorce rate presents no significant inter-regional difference. In the Crude natural increase there were found the most significant inter-regional differences in regions South Bohemian (Jihočeský kraj) and Pardubice (Pardubický kraj). The cross migration rate differs markedly in two regions - the lowest value was found in Karlovy Vary and the highest value in Central Bohemia. Crude total population increase was found as the highest in Central Bohemia, and the lowest (negative) in Karlovy Vary region. Natimortality and infant mortality is very similar in all the regions.

By the Principal Component Analysis there were found the correlation matrix values (TAB. 1). As the principal components there were selected those having Eigenvalue of the Correlation Matrix =eigenvalue greater than one. There were selected five principal components (y1 - y5).

TAB. 1: Eigenvalues of Correlation Matrix

Eigenvalues of Correlation Matrix				
	Eigenvalue	Difference	Proportion	Cumulative
1	5.04809209	1.29068106	0.3365	0.3365
2	3.75741103	1.64316717	0.2505	0.5870
3	2.11424387	0.52170505	0.1409	0.7280
4	1.59253881	0.58235902	0.1062	0.8342
5	1.01017979	0.38626729	0.0673	0.9015

6	0.62391250	0.29240213	0.0416	0.9431
7	0.33151037	0.08401079	0.0221	0.9652
8	0.24749958	0.08763890	0.0165	0.9817
9	0.15986068	0.09055628	0.0107	0.9923
10	0.06930439	0.03740078	0.0046	0.9970
11	0.03190362	0.01849907	0.0021	0.9991
12	0.01340455	0.01326584	0.0009	1.0000
13	0.00013871	0.00013871	0.0000	1.0000
14	0.00000000	0.00000000	0.0000	1.0000
15	-0.00000000		-0.0000	1.0000

Source: Self processed results of SAS 9.4 programme

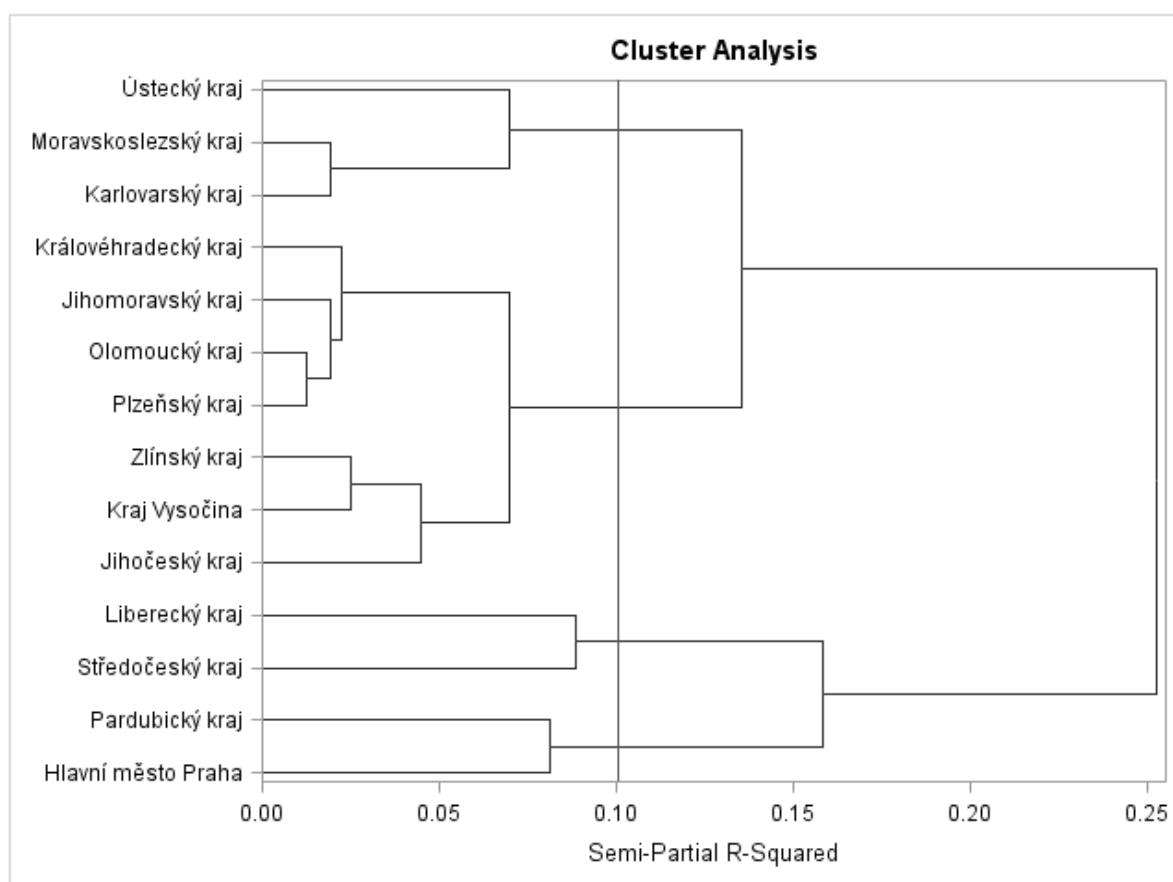
The first component describes the greatest part of the original data variance. In this case the first component bears 33,65% of variability of the original variables. The second component bears only 25,05% of variability of the original variables. These components bear collectively 58,70% of variability of the original differences.

The principal components (y_1 - y_5) can be expressed on the basis of the Eigenvector calculation, which is a linear combination of the original variables.

Furthermore, there was made the Cluster Analysis of the five selected principal components (y_1 - y_5) displayed in the resultant dendrogram (Picture 1).

Object similarity dendrogram (Picture 1) is a standard output of hierarchical clustering which very well reflects the structure of objects in clusters, e.g. which regions are mutually more similar or more different.

PICT. 1: Resultant Dendrogram



Source: Self processed results of SAS 9.4 programme

According to the resultant dendrogram (Picture 1) the regions were divided into four clusters. In the first one there are Ústí nad Labem, Moravian-Silesian and Karlovy Vary regions. In the second cluster there is a majority of all the regions - Hradec Králové, South Moravia, Olomouc, Plzeň, Zlín, Vysočina and South Bohemia. In the third region there are Liberec and Central Bohemian regions, and in the fourth one there are regions Pardubice and Prague. For plasticity and accentuation of the four clusters there was made a map of regions (picture 2).

PICT. 2: Map of the Czech Republic as per Results of Cluster Analysis



Source: Self-processed

The first cluster is created by Ústí nad Labem, Moravian-Silesian and Karlovy Vary regions. These regions are „substandard – problematic“ with the less favourable results of monitoring. Inhabitants of these regions are dying out and moving to other regions.

In the second cluster there is the majority of all the regions: Hradec Králové, South Bohemia, Olomouc, Plzeň, Zlín, Vysočina and South Bohemia. These regions can be marked as "average". In this cluster there are regions with average indexes of youth and aged dependency and economic burden.

In the third cluster there are two regions: Central Bohemian and Liberec. This cluster can be marked as "above-average". These regions are matched by lower natimortality and infant mortality, high crude migration rate, higher divorce rate and significantly lower aged dependency index.

In the fourth cluster there are only two regions: Pardubice and Prague. This cluster can be marked as "above-average - the best" cluster. In this cluster there are regions with the lowest natimortality and infant mortality, highest crude natural growth increment and crude total population increase, highest marriage rate and the lowest abortion index.

The reason evidently lies in the fact that both regions of Capital Prague and Pardubice region show relatively high living standard of inhabitants with quality social services (education, public health) and stabilised social situation (absence of excluded localities, large industrial centres and structural unemployment, etc.).

4. Conclusion

Principal Component Analysis reduced the original demographical data matrix from 15 indicators to only 5 principal components bearing 90,15% of original variability, which were subsequently implemented in the Cluster Analysis. Resultant Dendrogram (Picture 1) shows four crucial clusters, visualised in the map of Czech regions (Picture 2). The best cluster is the fourth one which consists of the regions of the Capital Prague and Pardubice. These regions show the most favourable valuation as to the demographical study performed above in this article.

Literature:

Anděl, J. (2007). *Statistické metody*. 4. Praha: Matfyzpress.

Benešová, I., Dlubalová, Z., Šánová, P., Laputková A. (2016). *Agriculture of the post-Soviet countries*. In Global and European challenges for food production. Agrobusiness and the rural economy, Praha. Czech University of Life Sciences Prague, 41-50.

Databáze demografických údajů za obce ČR. Český statistický úřad. Retrieved September 9, 2016, from <http://www.czso.cz>.

Field, A. (2000). *Discovering statistics using SPSS for Windows advanced techniques for the beginner*. 2ND ED. London: Sage Publications.

Hebák, P., Hustopecký J., Jarošová E., Malá I. (2005). *Vícerozměrné statistické metody*. Praha: Informatorium.

Horák, J., IVAN I., Inspektor, T. (2012). *Prostorové hierarchické shlukování*. Retrieved September 15, 2016, from http://gisak.vsb.cz/GIS_Ostrava/GIS_Ova_2012/sbornik/cz/topic.html.

Johnson R.A., Wichern, D.W. (2007). *Applied Multivariate Statistical Analysis*. New Jersey: Pearson Education.

Jindrová, A. (2015). *Application of Multivariate Statistical Methods in the Analysis of Czech Population Life Quality with Attention to Regional Differentiation*. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 63(5), 1671-1678.

Jindrová, A., Poláčková, J. (2012). *Dimensionality reduction of quality of live indicators*. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 60(7), 147-154.

Kába, B., Svatošová, L. (2012). *Statistické nástroje ekonomického výzkumu*. Plzeň: Vydavatelství a nakladatelství Aleš Čeněk.

Kalibová, K. (2006). *Úvod do demografie*. 2nd ed. (5th reprint). Praha: Karolinum.

Koschin, F. (2005). *Demografie poprvé*. 2nd revision. Praha. Oeconomica.

Lukasová, A., Šarmanová, J. (1985). *Metody shlukové analýzy*. Praha. SNTL.

Meloun, M. (2013). *Kompendum statistického zpracování dat*. Praha. Karolinum 1.

Meloun, M., Militký, J. (2002). *Kompendium statistického zpracování dat: metody a řešené úlohy včetně CD*. Praha. Academia.

Pavlík, Z., Jitka Rychtaříková, J., Šubrtová, A. (1986). *Základy demografie*. Praha: Academia.

Petříček, M. (2015). *Kvantifikace teorie inovačních vln*. In Pavla Slavičková, Jaromír Tomčík. *Znalosti pro tržní praxi 2015*. První vydání. Olomouc: Societas Scientiarum Olomucensis II., 695 - 703.

Poláčková, J., Jindrová, A. (2011). *Measurement of Life Satisfaction across the Czech Republic*. *Statistika*. 48(3), 35-45.

Rencher, A. C. (2002). *Methods of multivariate analysis. 2nd ed.* New York. J. Wiley.

Řezánková, H., Húsek, D., Snášel, V. (2009). *Shluková analýza dat*. 2nd expanded ed. Praha. Professional Publishing.

Vostrá Vydrová, H., Novotná, Z. (2012) *Evaluation of disparities in living standards regions of the Czech Republic*. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 2012(4), 407-414.

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SOCIAL DETERMINANTS OF UNEMPLOYMENT IN ROMANIA - AN ANALYSIS AT NUTS 3 LEVEL

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Abstract: *The phenomenon of unemployment is intensely studied for its economic and social implications. More and more, studies go from national level to local level to improve the measures used to combat this phenomenon. The purpose of this research is to determine to what extent the status of being unemployed is influenced by the area (urban/rural), gender, ethnicity, level of education and the age of the person at the county level (NUTS3) in Romania. To achieve this purpose, we used individual data (10% of the total resident population of each county) from the last population and housing census in 2011. We selected the population aged 20 to 64, of whom over 49% were women and over 45% came from rural areas. The analysis were carried out using a logit model estimated with the R software. The results showed that in each county of Romania the status of being unemployed is influenced by the area in which the person lives, by gender and by age. From the ethnical point of view, in most counties, the Roma ethnicity has proved to be a determining factor of unemployment. Although the studies in this research area show that the level of the education is an important determinant of the unemployment, our results show that only in a part of the counties this relation is verified.*

Keywords: *Unemployment; logit model; social determinants.*

JEL classification: J10; J20; J64

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1. Introduction

The economic crisis of the late 2000s had a lot of negative economic as well as social effects. This study attempted to show the influence of certain social factors on unemployment from each county of Romania using data from the last population and housing census conducted in 2011.

Starting from studies that have been conducted on unemployment and the specific conditions in each county of Romania, the factors that influence the status of the unemployed were determined. Thus, the following factors were taken into account in the analyzed models: the gender, the area in which a person lives, the level of education, age and ethnicity. The R software system was used for data analysis.

2. Literature review

Of the surveys on unemployment it can be reminded the research conducted for the OECD by Hazans, Eamets and Earle (2003). They have investigated the relationship between unemployment and individual characteristics for data (1999-2000 years) from Estonia, Latvia and Lithuania, using multivariate regressions. The results showed that higher education reduces unemployment risk in all three countries. The youth have the highest risk to become unemployed. The unemployment risk for woman was lower than for man. The unemployment risk for men decreases if they are married. Being part of a ethnic minority can increase the unemployment risk.

In a study on youth unemployment in Europe, Dietrich (2012) found that the economic crisis has affected first of all the young people. Gary and Fleming (1998), in a study on the factors that influence youth unemployment in Australia over the 1980-1994 period, found that young men are more likely to become unemployed than young women and with aging the risk of being unemployed decreases.

Azmat, Güell and Manning (2004) accomplished a study regarding gender gaps in unemployment rates in OECD countries. The conclusion was that the large gender gap in unemployment rates is correlated with a large gender gap in both flows from unemployment into employment and from employment into unemployment. Gender differences were analyzed also by Unay-Gailhard (2016), in a study regarding determinants which influence the job access in rural Germany, for the young people graduates aged 15-29. Gender and marital status influence the unemployment outflows across the three European countries: Spain, France and Italy, as it was demonstrated by Fabrizi and Mussida (2010).

Nunez and Livanos (2010) in a study on unemployment across 15 European countries, indicated that in general a higher education has a stronger impact on long-term unemployment than on short-term unemployment.

In Romania, Danacica and Babucea (2008) revealed that the employment risk increases for men compared to women, for persons with higher education compared to those without education and for younger persons compared to persons aged 55-64. Another study for Romania, which was carried out by Oancea, Pospisil and Drăgoescu (2016), found that people with tertiary education have the smallest odds of being unemployed compared to other people with other educational levels.

3. Analysis of unemployment at the level of Romanian counties

We analyzed the data for 1237463 people aged 20 to 64, of whom over 49% were women and over 45% came from rural areas. The dependent variable constituted the unemployed status. A person was classified as unemployed according to the International Labor Office criteria.

The variable being investigated is a binary qualitative variable which takes value 1 for the situation where the person is unemployed and 0 for a person with another status. It was used a logit model for describe the relation between this dichotomic variable (Y-current activity status at census) and more independent variables (Xi). In time, the logistic regression was widely presented by Hosmer &

Lemeshow (2000), Green (2003), Wooldridge (2012) and others. This type of regression describes how the logarithm of the odds of being unemployed varies depending on changing the values of independent factors taken over in the model.

The following explanatory variables have been selected: the area, the gender, the ethnicity declared, the level of the school graduated, the age. 'Ethnicity' is a variable that has values depending on the proportion of minorities living in that county. The 'edu' variable refers on graduate school and clusters were built according to data existing in every county.

TAB. 1: Variables used

Variable	Values
status	1 - unemployed; 0 - otherwise
area	1 - urban; 0 - rural
gender	1 - male; 0 - female
ethnicity	1 - Romanian; 2 - Roma; 3 - German; 4 - Hungarian; 5 - other
edu	1 - no education at all; 2 - primary education; 3 - gymnasium education; 4 - vocational education; 5 - upper secondary education; 6 - post-secondary education; 7 - tertiary education
age	1 - aged 20-24; 2 - aged 25-34; 3 - aged 35-44; 4 - aged 45-54; 5 - aged 55-64

The model was:

$$\log(\text{odds status}) = a_0 + a_1 \text{area}_i + a_2 \text{gender}_i + a_3 \text{ethnicity}_i + a_4 \text{edu}_i + a_5 \text{age}_i + \varepsilon_i$$

The results obtained for each county showed that the urban population is more likely to be unemployed than the rural population. The highest odd of being unemployed in the urban area compared to rural area was obtained for Botoșani County from North East Region (OR = 4.28) and the lowest in Sălaj County from North-West Region (OR = 1.19).

Men are more likely to be unemployed than women in all counties. In three counties from South Muntenia Region, South East Region and South West Region of Oltenia the chances for a man to be unemployed are over 90% higher than for a woman. The lowest odds for a man to be unemployed compared to a woman were obtained for two counties from North-West Region (lower than 20%).

For all counties tests revealed that with aging it is less likely to be unemployed compared to a person in the 20-24 age group. For the 25-34 age group, tests showed that people from Botoșani (North East Region) have 77% fewer chances to be unemployed compared to the reference level. In Maramureș County (North-West Region) to be unemployed for a person from the last age group (55-64 years old) are 94% lower than the reference level.

From the ethnical point of view in some counties tests validated a link between the status of the unemployed and the Roma ethnicity. So, in Vâlcea County, the odds of being unemployed as Roma

person are twice as high as those of the Romanians. For Maramureş County, the odds of being unemployed among the Ukrainian people are 111% higher than Romanian people and in Sălaj County Hungarians have 27% more chances to be unemployed than a Romanian. In Constanţa County a Turkish or Tatar person has 18% more chances to be unemployed than a Romanian.

Only for 25 counties tests showed that people with a higher level of school graduated have lower odds to be unemployed than people with at most gymnasium education or no education at all. So, in Cluj County (North West Region), the odds for a person with post-secondary or higher education to be unemployed compared to the persons with the highest level of education the gymnasium education are 34% lower. In one county from North East Region we can say that the odds for a person with post-secondary or higher education to be unemployed are 50% lower than a person with no education at all and for a person with vocational or high-school education compared to the same reference level are 42% lower. In the capital, the odds of being unemployed with vocational and upper secondary education drop by 40% compared to the people with studies lower than gymnasium. For people with post-secondary and tertiary education, odds decrease by the same percentage of 58%. In Arad County from West Region people with post-secondary education have 17% fewer chances to be unemployed than people with a lower education level than gymnasium.

4. Conclusion

This study investigated to what extent some social factors influence the odds of being unemployed in every county of Romania. This research showed that gender, age and area of residence, are statistically correlated with unemployment status in all Romanian counties. Also, tests showed that belonging to some ethnic minority increase the odds of being unemployed compared to Romanian persons. Contrary to previous research, education doesn't seem to be a determining factor for unemployment status. But for some counties the results are consistent with other studies: higher education decrease the odds of being unemployed.

Literature:

Azmat, G., Güell, M., & Manning, A. (2004). *Gender Gaps in Unemployment Rates in OECD Countries*. London, Published by Centre for Economic Performance. London School of Economics and Political Science.

Chiara, M., & Enrico, F.(2014). Unemployment outflows: the relevance of gender and marital status in Italy and Spain. *International Journal of Manpower*, 35 (5), 594-612.

Dănăcică, D.E., & Babucea, A.G. (2008). *Risk of Unemployment – a Logistic Regression Approach*. Analele Universităţii "Constantin Brâncuşi" from Târgu Jiu, Seria Economie, 1, 123-136.

Dietrich, H. (2012). *Youth Unemployment in Europe. Theoretical Considerations and Empirical Findings*. Berlin. Friedrich-Ebert-Stiftung.

Greene, W. H. (2003). *Econometric Analysis*. New Jersey. Prentice Hall.

Hazans, M, Eamets, R, & Earle, J. (2003). *Unemployment Risk Factors in Estonia, Latvia and Lithuania*. Retrieved May, 2017, from <http://www.oecd.org/social/soc/2493996.pdf>.

Hosmer, D., & Lemeshow, S. (2000). *Applied Logistic Regression, Second Edition*. New York: John Wiley & Sons, Inc.

Marks, G., & Fleming, N. (1998). *Factors influencing youth unemployment in Australia: 1980-1994*. LSAY Research Reports. Longitudinal surveys of Australian youth research report ; n.7. Retrieved May 10, 2017, from http://research.acer.edu.au/lsay_research/61.

Nunez, I., & Livanos, I. (2010). *Higher education and unemployment in Europe: an analysis of the academic subject and national effects*. Higher Education, 59(4), 475-487.

Oancea, B., & Pospíšil, R., & Drăgoescu, R. M. (2016). *A Logit Model for the Estimation of Educational Level Influence on Unemployment in Romania, Proceedings of the Knowledge for Market Use 2016: Our Interconnected and Divided World*, 334-344.

Unay-Gailhard, I. (2016). Job access after leaving education: a comparative analysis of young women and men in rural Germany. *Journal of Youth Studies*, April, 2016.

Wooldridge, J. M. (2012). *Introductory Econometrics a Modern Approach*. South Western College.

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MANAGEMENT OF COMPANY PRESENCE IN THE INTERNET

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Abstract: *As network media started to play a pivotal role in marketing and advertisement, the paper presents a survey of methods for enterprise online presence management. The methods include social media, online video and various types of web pages. Apart from these straightforward forms we focus on search engine optimization, pay per click marketing, link sharing and other ways of improving company visibility. Moreover, we performed a case study for a retail fashion industry company and carried out a survey among the company customers regarding various forms of its online presence.*

Keywords: *Management presence in the Internet, social media, Internet advertising.*

JEL classification: M21, M3

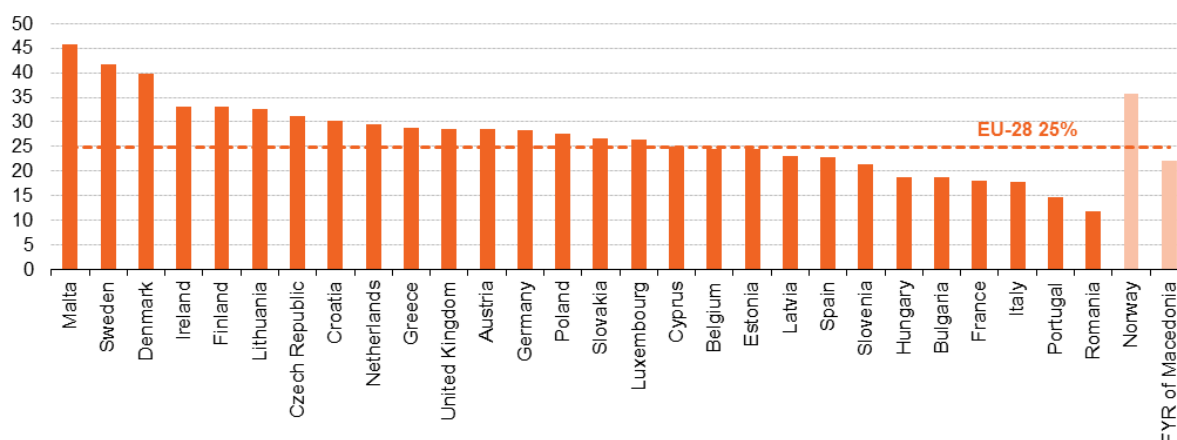
Grant affiliation:

1. Introduction

The Internet is becoming more and more common in households, with 78% of all EU-28 residents aged 16 to 74 using it in 2014. (Eurostat, 2017a). Widespread access to the Internet has made businesses increasingly pay attention to their online presence. The Internet offers a wide range of business promotion opportunities. The huge number of customers and the relatively small cost of advertising on the Internet have made companies start to see their image on the Internet as very important. Websites, social media, or thematic portals have become a great marketing tool and communication channel between customers and businesses. For many clients, websites have become the primary source of information and are often the place where they want to buy goods or services. As a result, many companies have increased their presence on the Internet and modified their advertising practices so that current and potential customers receive news, advertising and promotions with relevant content. Undoubtedly, the great advantage of a modern marketing tool, the Internet, is to direct the ads to specific recipients. Direct targeting of content to a narrow range of customers can be positively perceived in the process of building relationships with customers

(Štefko, 2016). In the EU-28 countries, the number of companies using internet marketing was 25% (Fig. 1) (Eurostat, 2017b).

FIG. 1: Percentage of Enterprises advertising on the Internet in 2016



Source: Eurostat, 2017b

2. Business websites

In Poland in 2016, 67% of companies owned a website. The largest percentage of enterprises with their own WWW sites were large enterprises (91.8%), then medium ones (86.1%), and the smallest share were small enterprises (62.3%)(GUS, 2017b). In 2016, as many as 77% of businesses in the EU-28 attached importance to their visibility on the Internet and had their own website (Eurostat, 2017b).

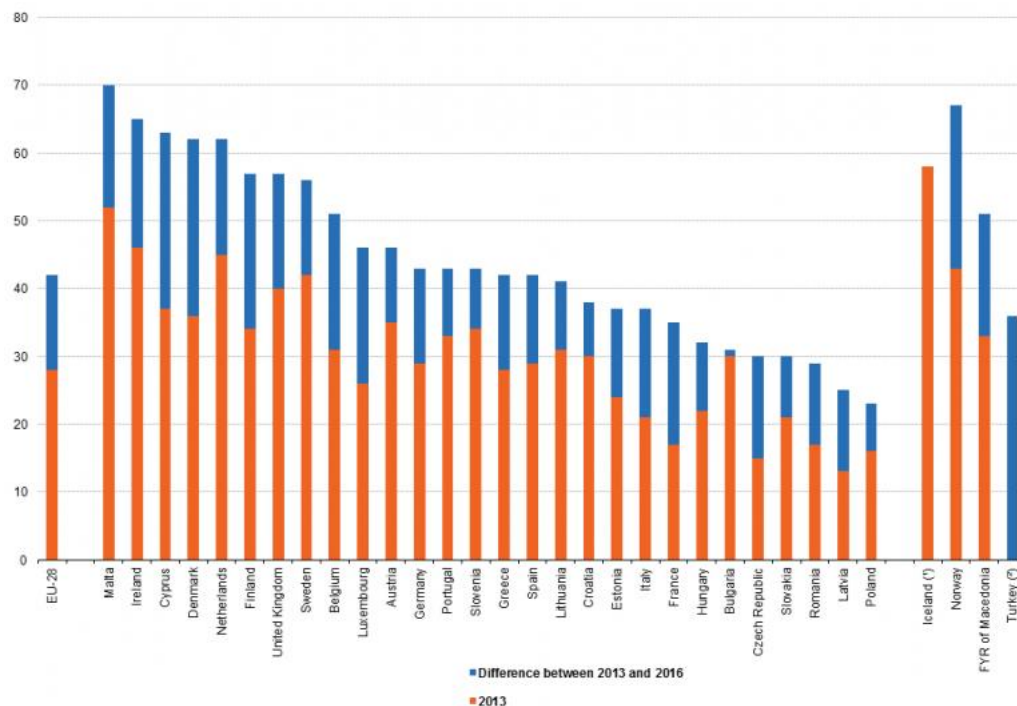
Today, corporate websites offer more and more features such as ordering products and their customization, downloadable catalogues and information, order tracking, and social media links. When creating a website, it should be kept in mind that its right structure is a very important thing. Some users browse pages selectively by reading only fragments for the information they need. It is also important to provide convenient navigation, not to mention, a nice and modern colour palette. Technological progress requires that pages be displayed on a variety of devices, platforms, or browsers.

3. Presence of Enterprises in Social Media

Recently there is a progressive shift from traditional static web pages to sophisticated web applications relying heavily on user data. Moreover, companies change their behaviour regarding interaction with customers. They started to use social media to communicate with them. The presence of businesses in social media is still growing, with about 45% of EU-28 companies using them in 2016, according to Fig. 2, whereas only 15% of enterprises used multimedia content-sharing web pages. A similar share, i.e. 14 %, used blogs. Smaller number of companies (5 %) use wiki-based knowledge repositories (Eurostat, 2017b). It can be caused partly by a small percentage of

technological enterprises. Social media makes it easy to interact, collaborate, and share content on a wide scale (Safiullah, 2016).

FIG. 2: Enterprises using social networks, 2013 and 2016 (% of enterprises)



(*) 2016: not available.

(†) 2013: not available. Blue bar shows value in 2016 rather than the difference between 2013 and 2016.

Source: Eurostat (online data code: isoc_cismit)

Source: Eurostat, 2017b

Some content on certain social media platform can spread rapidly what gives great possibilities for business. Some content can be targeted for specific location and for specific time.

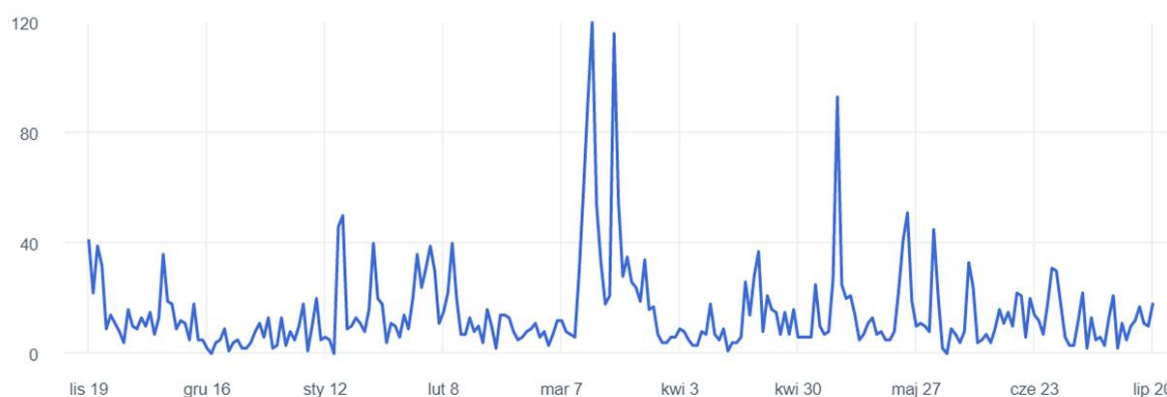
4. Case Study

The Casada wedding fashion salon has been on the clothing market since 2006. The salon is designed for women only because of its specificity, and customers purchase usually only one time. From customer surveys we can see that the average age of clients is between 20 and 35 years old. The salon's customers are not only Częstochowa residents, but also other provinces and neighbouring countries.

Casada wedding fashion salon is a micro-enterprise, so the budget for advertising is not too high. Therefore, the salon, guided by the low cost of advertising, strongly involved in the creation of its image on the network. The effort put increased sales and allowed to find new business contacts. Casada salon has its website <http://www.casada.com.pl/>, where available wedding dress collections and contact details of the company can be found. In the future, it is planned to expand the site with the possibility to buy clothing and wedding accessories.

The Casada fanpage was created on the tenth anniversary of the company's founding. At present, Casada has 454 fans on his fanpage. Taking into account local operation and specific business profile, the result can be considered satisfactory in such a short period of time. Fans are still arriving, and most of them, according to the research, are shopping in the salon. In order to increase the number of fans contests are organized, such as the likes to the Casada fanpage, to share a post regarding a competition or inviting friends. Prizes are discount coupons, wedding accessories available in the Casada showroom, trial wedding makeup and other wedding services. Each contest results in increased activity on the fanpage, as can be seen in Fig. 3. Facebook fans are informed about new deliveries, thus they have the most choice. The existence in social media also facilitates contact with customers. Customers enjoy the opportunity to make a visit to the salon and send their inspirations and comments on the tastes of wedding dresses. In addition, customers are informed about opening times, promotions, deliveries, holiday breaks and new fashion trends.

FIG. 3: Total number of post views on the Casada wedding dress salon fanpage



The Facebook account has the greatest impact. Unlike the traditional web site, it is partly created by fans. Clients have the ability to share photos and videos from their weddings and add comments, which strengthens the market position of the company. The fans are not anonymous, so the ad is even more credible. Customer contact is more common than traditional forms of web communication, i.e. email or messages left on the page. This is due to the growing habits to social networking sites. Some matching wedding dresses are made entirely on-line. Particularly when personal contact is impeded, e.g. due to distance or lack of time. This is possible thanks to the good reputation of the company that have been developed by the Facebook fans.

Among the possible forms of online advertising, according to the owner of Casada, the most advantageous is the Facebook account. Not only does it attract new customers, but also business partners. The Facebook account allows mutual business partners to be referred by sharing their advertising posts. This makes it possible to reach more potential customers. Business portals and people from the wedding industry were willing to cooperate. Thanks to this, the wedding fashion salon has been involved in a professional photo session. The only Casada's contribution was to hire dresses and wedding accessories. Models had professional make-up, haircuts and bouquets of flowers, both make-up artist, hairdresser and florist have also been invited by their Facebook accounts. This collaboration has resulted in two professional photo shoots, which have been

published in two consecutive issues of one of the most famous industry magazines. It was a great way to advertise free, which normally would have to be very expensive. One of the conditions of publication in the journal was the mutual marking under the photos on Facebook of all the participants and the magazine.

Initially, the Casada wedding fashion salon used only the free advertising offered by the Facebook tools. However, after seeing the positive effects of the ad on the Facebook fanpage, it was decided to use paid advertising to reach the targeted group of potential customers. In order to spread the information about new deliveries of goods or promotions, sponsored advertising is used. The advantages of this type of marketing are: low cost (1 euro per day) and wide reach (600-800 people who meet pre-set criteria). Due to the specificity of the wedding industry and the location of the salon, the ad is addressed to women aged 15-50 from the Częstochowa region and the surrounding area. The effects of such an advertisement are visible almost immediately, the next day, the customers appear in the salon to ask about the product being promoted.

Casada wedding dress salon has also an account on the thematic portal wedding.pl, where they presents available collections. An additional advantage of the portal is the possibility of making an on-line appointment for a visit. A visit to the salon where the client wants to try on the dresses, due to the long duration, requires a prior reservation of the day and time. The average time spent measuring wedding dresses is about an hour. In addition, customers have the opportunity to get acquainted with the salon experience added by the previous clients.

5. Conclusion

Over the past years, internet marketing has become very popular. Business managers have recognized its potential and are eager to use its capabilities. The corporate website has become their virtual showcase, and social media is a great channel for exchanging information with the client. In the paper we researched online presence of a small company. Thanks to the online presence of Casada wedding dresses salon, it can be said that internet advertising has many benefits. Low cost and wide reach are the major advantages of internet marketing. Ads and posts placed on social media spread very fast and relatively wide, thus it is cheap and the same time effective way of reaching returning and potential customers. Thanks to its presence on the Internet, customers perceive the salon as more modern and not afraid of challenges. For many clients, the use of technological innovations is linked to the pursuit of new fashion trends. Moreover, they are creators of a large part of the content related with a given business.

Literature:

Eurostat: Statistics on the information society - households and individuals. (2017a). Retrieved July 25, 2017, from http://ec.europa.eu/eurostat/statistics-explained/index.php/Information_society_statistics_-_households_and_individuals/pl#Dost.C4.99p_do_internetu.

Štefko, R., Fedorko, R., & Bačík R. (2016). Website content quality in terms of perceived image of higher education institution. *Polish Journal of Management Studies*. Vol. 13, No. 2.

Eurostat: Internet advertising of businesses - statistics on usage of ads. (2017). Retrieved July 25, 2017 from http://ec.europa.eu/eurostat/statistics-explained/index.php/Internet_advertising_of_businesses_-_statistics_on_usage_of_ads.

GUS: *Information Society in Poland. Statistical results of years 2012-2016*. (2017b). Retrieved July 25, 2017, from <http://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/spoleczenstwo-informacyjne/spoleczenstwo-informacyjne-w-polsce-wyniki-badan-statystycznych-z-lat-2012-2016,1,10.html>.

Eurostat: *Digital economy and society statistics – enterprises*. (2017c). Retrieved July 25, 2017 from http://ec.europa.eu/eurostat/statistics-explained/index.php/Digital_economy_and_society_statistics_-_enterprises#Enterprises.E2.80.99_presence_on_the_internet.

Safiullah, M., Pathak, P., Singh, S. & Anshu, I. A. (2016). Social media in managing political advertising: a study of India. *Polish Journal of Management Studies*. Vol. 13, No. 2.

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SELF-REFLECTION OF THE UNIVERSITY STUDENTS IN FINANCIAL LITERACY

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Abstract: *Financial literacy belongs to the key competencies of a university graduated person in the 21st century. In our research, we focused on the students of two faculties with related study curriculum located in the Czech Republic and Slovakia. In addition to the level of financial literacy, we have focused on elements of self-reflective assessment of the students themselves. In this paper, we present the results of our comparative analysis of this self-reflective evaluation in relation to the results achieved, with respect to the study fields. The results of these analyses also provide the appropriate background to increase the effectiveness of education in the area of financial literacy.*

Keywords: *Financial literacy, self-assessment, questionnaire survey.*

JEL classification: A20, A22, A23

Grant affiliation:

1. Introduction

We live in the modern world and modern society of the 21-st century. For life in such a world, it is typical that we are exposed to rapid and dynamic changes. That is true not only when faced with the modern technology but everyone almost daily becomes the part of the financial market. We use the credit or debit cards routinely, we make decisions on savings, we consider a form of investment in order to capitalize our funds in the short or long term. Life brings the need to decide on the suitable financial securities to fix ourselves and our close relatives. In addition to other skills and key competencies permanently increases the importance of the financial literacy. The world around us, and not only the financial world, demands new skills to hold up in life. According to the OECD (OECD, 2012), we can say, that „Skills have become the global currency of 21-st century.”

Financial literacy is generally considered as the ability to understand finance and so it belongs to the essential human abilities. In the literature, one can find more definitions of the financial literacy. For

example Giesler & Veresiu (2014) define the financial literacy as the ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others. More specifically, it refers to the set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of finances. Mandell (2007) defines, that financial literacy is "the ability to evaluate the new and complex financial instruments and make informed judgments about both: choices of instruments and extent of use that would be in their own best long-run interests". For purposes of our article, we adopt the concept of the financially literate person in accordance with Kozubíková (2015, p. 432). "It is a man who uses his ability to make a qualified judgment on the basis of the knowledge, skills and experience gained thus enabling him to smooth financial security throughout life." This requires planning of financial flows. The result of preference of planning cash flow is more uniform consumption throughout life, depending on the stage of his/her life cycle.

Here are as well many works, that are concerned about the deeper connections among the financial literacy and socio-demographic characteristics. A strong positive relationship between financial literacy and wealth of households is reported by van Rooij, Lusardi, & Alessie (2012). "Our findings provide evidence of a strong positive association between financial literacy and net worth, even after controlling for many determinants of wealth." This work as well confirmed, that "Financial knowledge increases the likelihood of investing in the stock market, and positively related to retirement planning, and the development of a savings plan." Lusardi, Mitchell & Curto (2010) write also that: "Specifically, a college-educated male whose parents had stocks and retirement savings was about 45 percentage points more likely to know about risk diversification than a female with less than a high school education whose parents were not wealthy."

2. Data

Data collection was conducted through the questionnaire survey method, which was the extension of the pilot survey published in Kozubíková (2016). In the survey, we focused on two faculties of higher education with similar study programs focused on management and informatics. One of the universities concerned is located in the Czech Republic, the other in Slovakia. Overall, we have distributed 800 questionnaires among the students. After sorting the questionnaires and removing of the maliciously or incomplete filled questionnaires in the survey we obtained a sample of 684 questionnaires. So we have reached a response rate of 85.5%.

The questionnaire itself was divided into two parts. The role of the first part was to collect the personality characteristics of the respondents, such as age, gender, achieved education, etc. Within this first part of the questionnaire, we also asked for self-assessment of the extent to which respondents feel financially literate and how they decide when solving financial decision-making problems. As an answer to the question, "How do you assess your level of financial literacy yourself?", we offered a total of 6 alternatives: a) Fully financially literate, b) In most cases, I am able to decide correctly, c) Average, d) I feel a certain deficit, e) Very little, and f) not at all. To the question, "How do I deal with important financial decisions?" we have offered 5 optional answers: a. I know how to decide myself, b. I have a family counseling, c. I have a counseling with my friends, d. I look for a specialist adviser, e. I consult in a bank, insurance company etc.

As a significant factor, we also took into account the importance, that respondents attribute to financial literacy. To the question "What importance do I attribute to financial literacy?", we also offered 5 alternate answers. Possible choices were a. vital, b. very important, c. important, d. little important, and e. unnecessary.

The second part of the questionnaire was aimed at verifying real competencies in financial decision making. It contained simple, computationally easy questions. As possible answers, 4 options were always offered, always including only one correct choice and one option was also the option I do not know (I do not want to answer).

Thematically, one can divide the questions into four categories:

- simple and compound interest,
- the time value of money and inflation perception,
- annuities and debt payments,
- basics of the investing.

3. Data analysis and methods

As has been said above, we received in total 684 completed answer sheets. Their breakdown from the socio-demographic point of view is presented in Table 1. Here we can see relatively balanced numbers of students from the Czech Republic and from Slovakia. In gender breakdown, we see a certain predominance of male students, but this is in line with the higher number of technical disciplines over the management. These figures also correspond to the fact that technical study fields are still the domain of men and are not in a great favor of the female part of the population.

TAB. 1: Structure of the sample

Gender	Number	Field of study	Number	Ethnicity	Number
Female	263	Management	290	Czech	303
Male	421	Informatics	252	Slovak	381
		Other technical	142		

Source: own processing

How we mentioned in the introduction, we want to focus on a deeper analysis of the performance in the relation to several self-reflective factors. Instead of a general performance survey that was published by Kozubík, Kozubíková & Rybička (2017), we focus mainly on the level of financial literacy in relation to:

- own assessment of their financial literacy,

- the importance attributed to this competence,
- the form of the decision-making in financial matters.

Since each of these factors may acquire multiple levels, we apply the variance analysis instead of common statistical hypothesis tests. The one-way analysis of variance (ANOVA) is used to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups. The one-way ANOVA compares the means between the disjoint groups we are interested in and determines whether any of those means are statistically significantly different from each other. Specifically, let us assign as $\mu_i, i = 1, \dots, k$ the group means and k the number of groups. Then we test the one-way ANOVA null hypothesis:

$$H_0: \mu_1 = \mu_2 = \dots = \mu_k$$

against the alternative hypothesis (H_A), which states that there are at least two groups, whose means statistically significantly different from each other.

Formally, let us suppose we have to compare k random samples

$$\begin{array}{ccc} X_{11}, \dots, X_{1n_1} & \sim & N(\mu_1, \sigma^2) \\ \vdots & & \vdots \\ X_{k1}, \dots, X_{kn_k} & \sim & N(\mu_k, \sigma^2) \end{array}$$

and let

$$n = n_1 + n_2 + \dots + n_k.$$

Let us further denote

$$X_{i.} = X_{i1} + \dots + X_{in_i}, x_{i.} = \frac{X_{i.}}{n_i}, i = 1, \dots, k$$

and

$$X_{..} = X_{i.} + \dots + X_{k.}, \bar{X} = x_{ii} = \frac{X_{ii}}{n}.$$

The complete algorithm of the one way ANOVA is described in detail for example by Anděl (2007). For the practical computation, it is necessary at first state the total sum of squares

$$S_T = \sum_i \sum_j X_{ij}^2 - \frac{X_{..}^2}{n},$$

and the row sum of squares

$$S_A = \frac{\sum_i X_{i.}^2}{n_i} - \frac{X_{..}^2}{n}.$$

The residual sum of squares we can express as $S_e = S_T - S_A$. So we get the testing

$$F_A = \frac{(n - k)S_A}{(k - 1)S_e} \sim F_{k-1, n-k},$$

that has the Fisher distribution, if the hypothesis holds.

Usually, it is also necessary to determine the pairs μ_i, μ_j , which have caused the rejection, i.e. those for which it is possible to statistically verify that $\mu_i \neq \mu_j$. The Tukey honest significance test is the most frequently applied tool for such purposes.

The testing statistics for Tukey's test is:

$$Q = \frac{\mu_A - \mu_B}{SE},$$

where μ_A is the larger of the two means being compared, μ_B is the smaller of the two means being compared, and SE is the standard error of the sum of the means. This Q value can then be compared to a critical q value from the studentized range distribution.

4. Results

In our research, we focused on the level of financial literacy in relation to the self-assessment of the respondents. We monitored 4 groups of students, divided according to their study fields. One group consisted of computer science students, the second group included students of the other technical branches, the third group contained students of all technical fields of study together and in the fourth group were the students of the management.

The average performances achieved in each group separated also by self-assessment, are summarized in the table 2. It is clear that respondents who rated themselves to be fully financially literate did not achieve significantly better results than others, or even worse than those who are assessed at a lower level. Significantly lagging only those respondents who declared to be completely financially illiterate.

TAB. 2: Average performance according to the level of selfassessment

Field of study	Self-assesment					
	Fully	Mostly	Average	Some deficit	Very little	Not at all
All technical	46.154%	47.976%	44.821%	41.88%	39.799%	21.154%
Informatitcs	50.769%	50.119%	45.774%	42.402%	41.346%	15.385%
Other tech.	39.231%	44.196%	43.144%	40.909%	36.264%	26.923%
Management	54.545%	54.348%	55.458%	53.068%	46.154%	-

Source: own processing

TAB. 3: Analysis of variance table with respect to the factor of the self-assessment for all technical fields of study

Source of variability	Sum of squares	Degrees of freedom	Mean square	Statistics F_A	p -value
Self-assessment	0.487	5	0.09775	3.6937	0.00281
Residual	10.2679	388	0.02646	–	–
Total	10.7549	393	–	–	–

Source: own processing

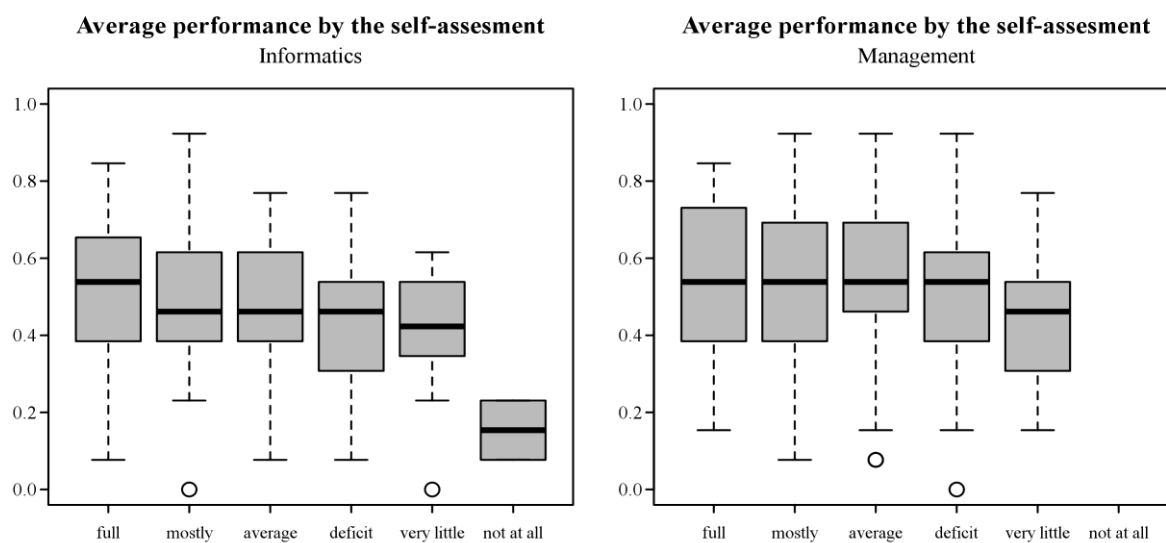
We have subsequently confirmed this view by the one-way variance analysis. We present its results for each of the study fields in the tables 3–7. Here we see that the self-assessment factor is insignificant for management students as well as for the students of the other technical fields, and the zero hypothesis of the same level of skills can be rejected for informatics, all technical fields together, and for all fields of the study together. This is easily observable from the boxplots presented on Figure 1 and Figure 2.

TAB. 4: Analysis of variance table with respect to the factor of the self-assessment for the informatics study field

Source of variability	Sum of squares	Degrees of freedom	Mean square	Statistics F_A	p -value
Self-assessment	0.4629	5	0.09258	3.6323	0.00345
Residual	6.2700	246	0.02549	–	–
Total	6.7329	251	–	–	–

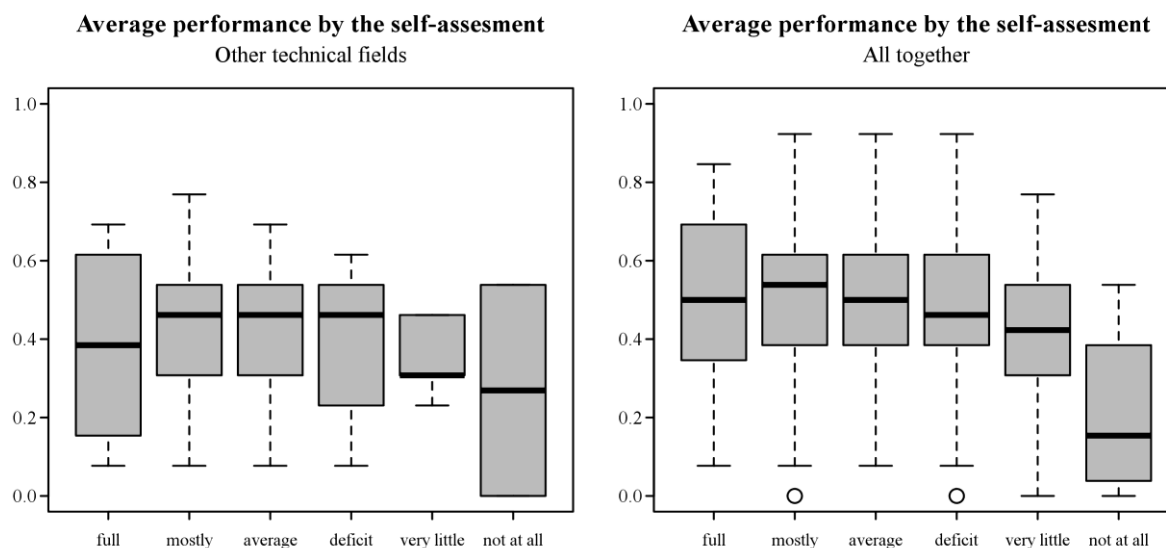
Source: Own processing

FIG. 1: Average performance boxplots, created due to the self-asesment of the repondents for Informatics and Management study fields



Source: Own processing

FIG. 2: Average performance boxplots, created due to the self-asesment of the repondents for the other technical study fields and all respondent together



Source: Own processing

TAB. 5: Analysis of variance table with respect to the factor of the self-assessment, the other technical fields of study together.

Source of variability	Sum of squares	Degrees of freedom	Mean square	Statistics F_A	p -value
Self-assessment	0.1095	5	0.0219	0.7949	0.5551
Residual	3.7455	136	0.0275	–	–
Total	3.8550	141	–	–	–

Source: Own processing

TAB. 6: Analysis of variance table with respect to the factor of the self-assessment for the managerial fields of study

Source of variability	Sum of squares	Degrees of freedom	Mean square	Statistics F_A	p -value
Self-assessment	0.1096	4	0.02740	0.7291	0.5727
Residual	10.7122	285	0.03758	–	–
Total	10.8218	289	–	–	–

Source: Own processing

TAB. 7: Analysis of variance table with respect to the factor of the self-assessment, all fields of study together

Source of variability	Sum of squares	Degrees of freedom	Mean square	Statistics F_A	p -value
Self-assessment	0.5588	5	0.11180	3.3886	0.0049
Residual	22.3615	678	0.03298	–	–
Total	22.9203	289	–	–	–

Source: Own processing

In order to determine which levels of self-assessment result in the rejection of the zero hypothesis, we performed a series of Tukey HSD tests. Given that no statistically significant difference was found amongst management students and noninformatical technical fields of study, we conducted the tests only for informatics, all technical study fields, and all study fields together. Their resulting p-values are in Table 8. In all three cases, we easily see that the zero hypotheses are always rejected only due to the difference in comparison with the weakest group of those who feel completely financially illiterate.

It is also interesting to compare the respondents' self-assessing responses and their decision-making process. The numbers of respondents according to their self-assessment are summarized in Table 9 and the counts with respect to the mode of the decision-making in Table 10. Here we can observe, for example, that up to 210 respondents conceitedly declare, that they are able to make financial decisions themselves. When comparing the data in these two tables, we can see that up to 210 respondents say they are able to decide correctly in all situations alone, but only 36 respondents are rated as fully financial literate.

TAB. 8: The p-values of the Tukey HSD test for average performances according to the self-assesment, and study fields. Here a – fully, b – mostly, c – average, d – some deficit, e – very little, f – not at all

Self-asement level	Informatics	All technical fields	All study fields
a – b	0.9999	0.9954	0.9957
a – c	0.8756	0.9990	0.9998
a – d	0.5087	0.8766	0.9998
a – e	0.5713	0.7556	0.6336
a – f	0.0409	0.0514	0.0470
b – c	0.4623	0.5905	0.9978
b – d	0.1023	0.1264	0.7562
b – e	0.3248	0.2191	0.1101
b – f	0.0306	0.0156	0.0184
c – d	0.8802	0.8494	0.9292
c – e	0.9131	0.7495	0.1881
c – f	0.0874	0.0499	0.0238

d – e	0.9999	0.9952	0.5657
d – f	0.1834	0.1353	0.0466
e – f	0.2565	0.2813	0.2448

TAB. 9: Counts of respondents summarized according to their self-assessment

Self-assessment	Fully literate	Mostly	Average	Some deficit	Very little	Not at all
Number	36	244	232	132	36	4

TAB. 10: Counts of respondents summarized according to their mode of the financial decision-making

Decision mode	Alone	With family	With friends	Advisor	Advice in bank
Number	210	345	22	57	50

The detailed two-way sorting of these data is presented in Table 11. Its rows represent the individual groups according to the decision-making mode and the columns then correspond to the level of self-assessment. Here, we can see, for example, that the two respondents are convinced that they are financially illiterate, but they are still able to make the right decisions themselves. A similar situation is with four other people who admit a very little financial literacy, but throughout they also feel competent to make the right decisions themselves.

TAB. 11: Two way table of the counts with respect to the self-assessment level and mode of the financial decision-making

	Fully literate	Mostly	Average	Some deficit	Very little	Not at all
Alone	27	101	50	26	4	2
With family	5	105	138	75	21	1
With friends	0	5	8	8	1	0
With advisor	2	22	19	12	2	0
Advise in bank	2	11	17	11	8	1

5. Conclusion

The aim of our analysis was to verify the level of students' financial literacy in relation to their self-reflective assessment in this field. It turned out that here prevails some unhealthy self-confidence and overestimating of their real abilities. Our analysis has proven that respondents who feel full or predominantly financially literate do not achieve better results than others but rather the opposite gets true. Just perceiving their skills well above their true level may be one of the considerable obstacles to achieving a better level of literacy in financial education.

Literature:

Anděl, J. (2007). *Statistical Methods (4th ed.)* (In Czech). Praha: MatfyzPress.

Giesler, M., & Veresiu, E. (2014). Creating the Responsible Consumer: Moralistic Governance Regimes and Consumer Subjectivity. *Journal of Consumer Research*. 41(3). 840–857. <https://doi.org/10.1086/677842>.

Kozubík, A., Kozubíková, Z., & Rybička, J. (2017) *Financial literacy of the university students – the Czech and Slovak experience*. 8th World Conference on Psychology. Counseling and Guidance (WCPCG-2017). Grand Park Lara Convention Center. Lara – Antalya. Turkey. 28–30 April 2017 (in print).

Kozubíková, Z. (2015). *Financial Literacy as an Important Objective of the Education in Economics*. In Proceedings of the Conference: Knowledge for market use 2015: women in business in the past and present (pp. 429–439). Olomouc: Societas Scientiarum Olomucensis II.

Kozubíková, Z. (2016). *Financial Literacy in Selected Groups of the University Students*. In Proceedings of the Conference: Knowledge for market use 2016: Our Interconnected and Divided World (pp. 222–230). Olomouc: Societas Scientiarum Olomucensis II.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). *Financial literacy among the young: Evidence and implications for consumer*. *Journal of Consumer Affairs*. 44, 358–380. doi: 10.1111/j.1745-6606.2010.01173.x.

Mandell, L. (2007). *Financial literacy of high school students*. In J. J. Xiao (Ed.). *Handbook of Consumer Finance Research* (pp. 163–183). New York. NY: Springer.

OECD. (2012). *Better Skills. Better Jobs. Better Lives. A Strategic Approach to Skills Policies*. OECD Publishing.

van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2012). *Financial Literacy. Retirement Planning and Household Wealth*. *The Economic Journal*, 122(560), 449–478. <https://doi.org/10.1111/j.1468-0297.2012.02501.x>.

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LABOR COSTS AND THEIR RULES OF OPTIMIZATION IN POLAND

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Abstract: *Labor costs are a significant item in the total cost structure of an enterprise. It is a concept far broader than the remuneration, covering many items in the traditional cost by origin system. Labor costs have both an economic aspect, through its influence on the business results, but also broad psychological and social dimensions through the concept of sustainable development or CSR. The aim is to show the conflict between the economic and social dimensions of labor costs, and to present ways of dealing with Polish entrepreneurs through the methods of cost optimization. The article presents labor costs in Poland in comparison with other European countries and the methods of their optimization in Poland. The article is based on the reports of audit firms and public institutions as well as literature on the labor and payment market. The method of the source analysis, the descriptive analysis, the method of deduction and own observations in business practice were used.*

Keywords: *Labor costs in Poland, labor costs optimization.*

JEL classification: M40, M54, J30

Grant affiliation:

1. Labor costs in Poland compared to Europe

Labor costs do not have a uniform definition in the literature. Such terms as employment costs, labor costs, personnel costs, human factor costs can be found. As early as in 1925, German economist F. Laitner pointed out that labor costs are broader than remuneration itself, and include other indirect benefits to employees and their families [after Kolegowicz, Kulisa, Nehring, 2004, p. 7] In Poland, S. Sudol, as one of the first, noted that costs of wages do not represent full cost of maintaining the workforce [Sudoł, 1967, p. 8].

According to the International Labor Organization (ILO) definition, labor cost is the total cost incurred by an employer for employing an employee. Such defined labor cost includes: remuneration for work performed, remuneration for non-working time, bonuses and gratuities, cost of meals, beverages, payments in kind, employee housing costs, employers' expenses for social security, training costs

borne by the employer, social and other benefits such as transport costs, workwear, recruitment costs and taxes treated as labor costs.

Basic classification of labor costs in Poland is distinguished by the wage and non-wage components of labor costs (Table 1). Payroll components are an element of systematic cost accounting in each enterprise, but separation of some non-payables may already be difficult because of their consistency in the overall cost accounting [Kolegowicz, Kulisa, Nehring, 2004, p. 19]. Most of proposed definitions include costs that are tax deductible and are reflected in accounting records from the point of view of accounting and tax law.

TAB. 1: Wage and non-wage components of labor costs

	Component name			M/ O	Type of cost
Wage components	FOR TIME WORKED	Remuneration		M	Remuneration
		Bonuses and awards		O	
		Apprenticeship		O	
		Overtime		M	
		For the night hours		M	
		Sickness compensation		M	
	FOR TIME NOT WORKED	For holidays		M	
		Severance payment		M	
		Compensation		M	
	SALARY OVERHEADS	Social Security Contributions		M	Social Security Contributions
		Contributions to LF, GEBF, BPF		M	
		Occupation, Safety and Health costs		M	
		Cost of medical examination		M	
Non-wage components	OTHER EMPLOYEE BENEFITS	Expenditure on business delegations		M	Other costs
		Cost of personnel administration		M	Salaries, social security and other employee benefits, other costs
		Costs of recruitment		M	Salaries, external services

Costs of education, improvement and retraining of staff	O	Social security and other employee benefits
Costs of living: transport, accommodation staff	O	
Costs of additional medical care, group life insurance, insurance and pension schemes	O	
Costs of social activities	O	
Additional non-financial expenses such as a company car, business telephone, recreation	O	

M- mandatory; O – optional
Source: self elaboration

According to the Polish accounting law (Accounting Act) cost records are performed in the following systems:

natural - by type of cost - under group 4 Corporate Chart of Accounts

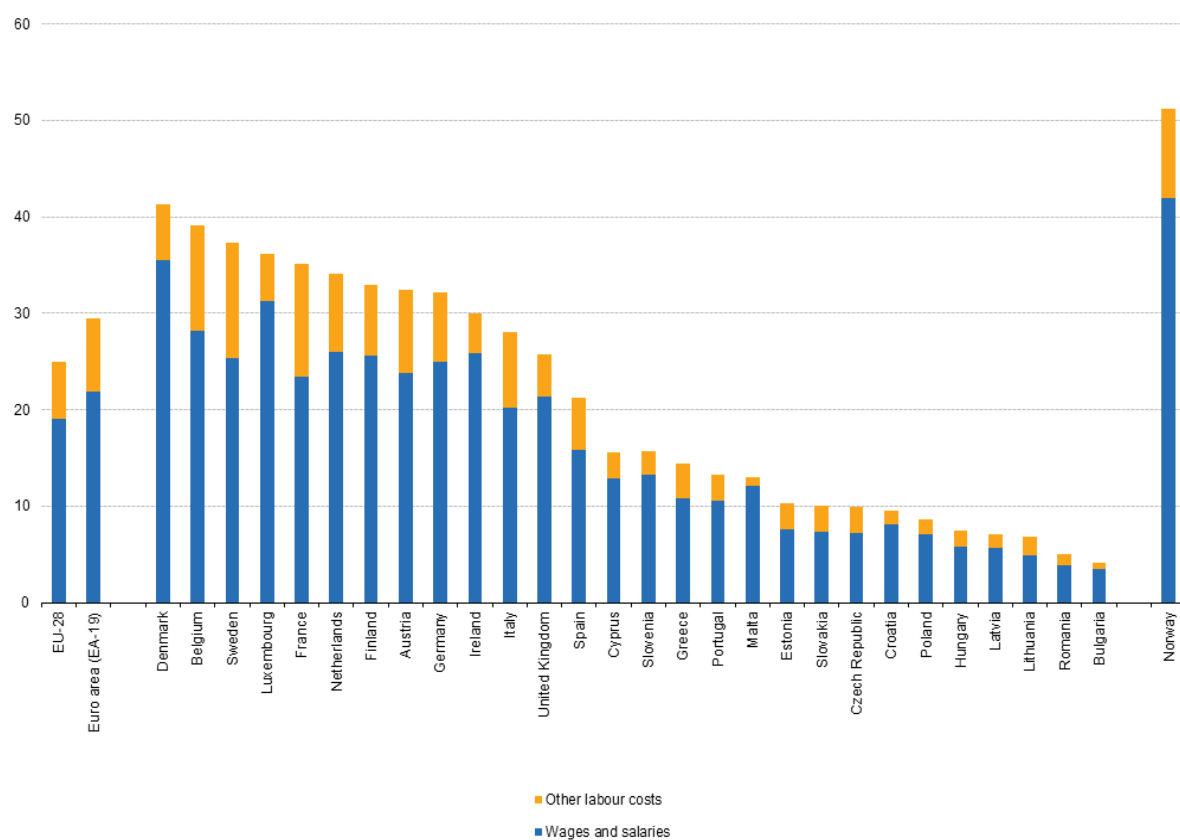
according individual cost center – under group 5 CCA

according to manufactured products - under group 5 CCA

First two criteria are for reporting purposes, while the last one for calculation purposes. However, some human capital expenditures are worth to analyse from the point of view of company's activities and processes, which does not always translate into direct readings from the accounts. Such as, for example, cost of staff fluctuations [Szarska, 2009, p. 22-23] or the costs of archiving and storing payroll and employee payroll records. For the purpose of identifying and measuring such cost categories, one should distinguish managerial accounts of costs of labor [Rubik, 2012, p. 49]. Appropriateness of cost accounts according to the model chart of accounts can be increased also through the use of analytical accounts [more: Pfaff, 2012, pp. 41-43].

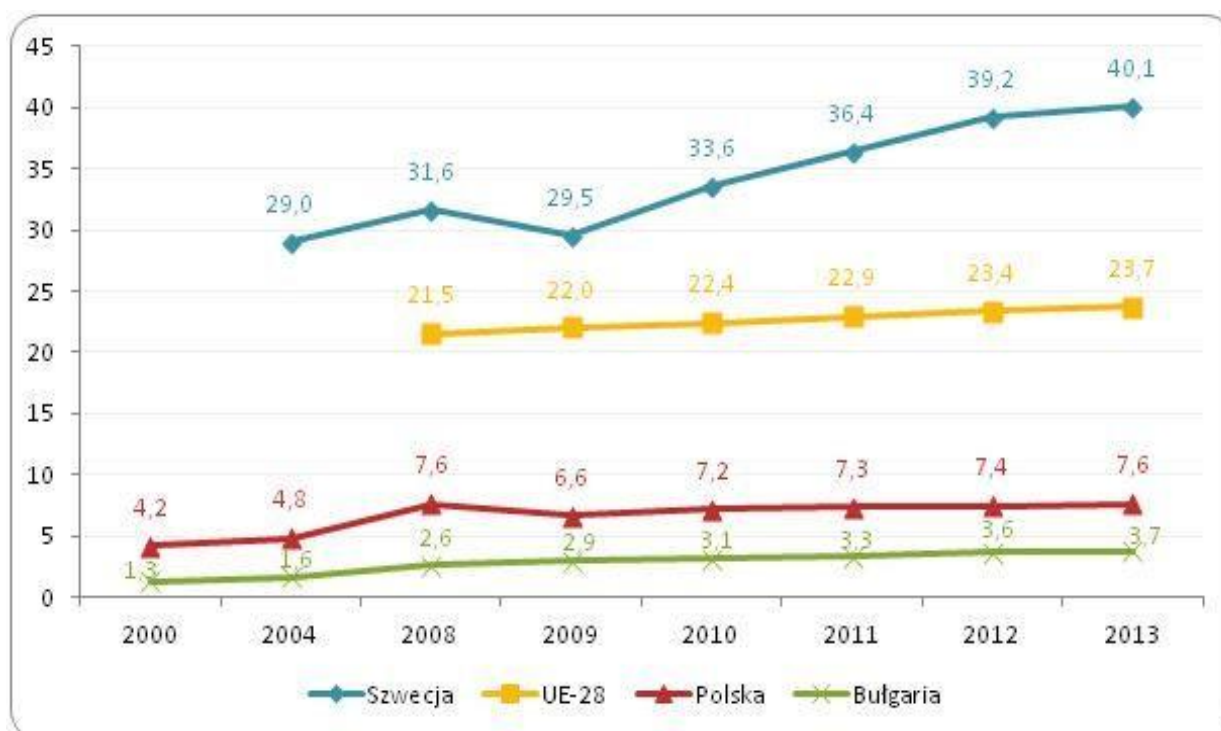
Poland is one of countries with the lowest labor costs in Europe (Fig. 1, 2). However, if we consider share of total cost of work as mandatory contributions paid jointly by employees and employers, it appears that the burden of non-wage labor costs in Poland is among the highest in Europe, ahead of countries such as Sweden and the United Kingdom.

FIG. 1: Labor costs in Europe (data of April 2016)



(*) Enterprises with 10 or more employees. NACE Rev. 2 Sections B to S excluding O. Provisional data.
Source: Eurostat (online data code: lc_lci_lev)

FIG. 2: Labor costs in the years 2000-2013 - Poland compared countries with the lowest and highest unit labor costs (a survey conducted every 4 years)



Source: Elaboration: Agencja Sedlak & Sedlak based on Eurostat, 2016

Labor costs in EU countries, also in Poland, will gradually increase in line with economic growth and the level of standard of living [Grzegorzcyk, 2010, p.23]. This increase on the one hand is a desirable trend - it demonstrates an increase in the standard of living of population. On the other hand, it can cause a barrier to job creation, development of "gray zone" and rise of unemployment [Report of the Ministry of Economy, Warsaw, 2014] and for companies means an increase of total costs, decrease of profitability and thus reduction of competitiveness [Rubik, 2012, p. 49]. It is therefore important to look for and use available labor cost optimization methods.

2. Optimizing labor costs in economic and social terms

Labor costs, apart from the economic aspect, have a legal aspect and a broad psychological and social dimension. Finding a compromise between them is a challenge for managers, business owners, HR departments, or controllers, as it is essential for maintaining business efficiency and competitiveness in the marketplace.

Optimizing labor costs is an ad hoc adjustment of employment to current needs of production scale, taking into account increase in labor costs associated with increased employment only in the case of significant productivity growth [Grzegorzcyk, 2010, p.23]. Optimization usually involves reduction of employment or wage and non-wage benefits, which can lead to undesirable effects such as the outflow of valuable staff, discouragement of crew, loss of productivity. Rationalization is a long-term activity aimed at efficient management of labor costs, such as elasticity of employment forms and

adjustment of remuneration systems and social benefits to prevailing market conditions [Rubik, 2012, p.51-52]. Optimization is a necessity in the event of a market crisis or business financial troubles, when rationalization is always helpful.

Global economic crisis of 2009 forced management boards of companies to pay more attention to cost aspects of their operations, and reducing interest in long-term development-oriented actions. The dilemma was whether to cut costs radically, accepting the risk of negative consequences in future, or addressing long-term cost-cutting efforts, realizing that this may not yield significant savings in the coming months. [KPMG Report, 2009].

After several years, conditions of labor market have changed - employer market has become an employee's market. Generation that entered labor market has dictated its terms, requiring employers to develop, promote, employ employer branding, work life balance, and CSR policies (more in: Rubik J., 2015, 2016). Companies must rethink principles of organization, recruitment, development, management and engagement of 21st century employees in a changing social, demographic, economic and digital environment [HR Trends 2017, Deloitte, 2017]⁵. In 2017, the most important global challenge is building organization of the future, which has become a priority for nearly 90 percent of respondents. On the other hand, biggest challenge faced by Polish companies is career and training and acquisition of talents and professionals with key competences. Companies must treat employees as clients, they should also adhere to principles of sustainable development and corporate social responsibility. Psychological and social aspects have become as important as economic ones, and taking into account image of companies - both fashionable and necessary [more in: Rubik, 2015]. According to the KPMG survey [2016 KPMG report], conducted by 161 executives and managers in Poland, the key human capital management area will be employee retention in 2017. This challenge is a priority for 77% of HR managers and 73% of board members.

3. Methods of labor costs optimization in Polish companies

Labor costs, apart from the economic aspect, have a legal aspect and a broad psychological and social dimension. Finding a compromise between them is a challenge for managers, business owners, HR departments, or controllers, as it is essential for maintaining business efficiency and competitiveness.

Cost optimization methods used must balance economic and social dimensions and current legal requirements of the country. In Poland, entrepreneurs have many opportunities to optimize labor costs, bringing measurable benefits, both in operational and strategic terms (Table 2).

TAB. 2: Methods of labor cost optimization in Poland

FORM	BENEFITS
Optimization methods - economic aspect	
- admission of students	Lower remuneration and resulting burden of subsidies from: Labor Office, Town and Commune

⁵The study covered more than 10 000 representatives of HR industry and executives from 140 countries, including Poland.

- employment of graduates
- employment of unemployed
- employment of disabled people,

Office, PFRON. Possibility of using EU programs financed by the Social Fund, whose main pillar is the Human Capital program.

Flexible forms of employment:

- Commissioning, assignment, outsourcing, agency, acquisition, enterprise management, managerial contract,
- self-employment,
- teleworking,
- secondment,
- outsourcing,
- employee leasing. temporary work.

- reduction of costs in the area of payroll overheads, i.e. social security contributions and employee recruitment costs, maintenance of permanent jobs, social welfare costs and administration and human resources.

- some of these forms are associated with so-called non-employee employment where people do not have rights nor obligations of employees under the Labor Code, e.g. pay for leave, severance pay, compensation

- outsourcing eliminates costs of workplace equipment and social-living costs

- secondment, teleworking or leasing allow companies to make employment more flexible and adapt to current business needs.

Optimization methods - social aspect

- Applying CSR rules
- Employer branding
- Work life balance

- a positive image of the company

- employees who identify with company, loyal, motivated, efficient

- reduction of staff fluctuation costs

Source: self elaboration; more: Rubik, 2012

According to 2009 KPMG report, most entrepreneurs in Poland have gone the easiest way to reduce costs: they cut jobs, salaries, optional non-salary benefits. This certainly did not affect company's image nor built relationships with employees. Changes in the labor market and new trends in management (more: Rubik, 2016) in the last two years generated pro-social and entrepreneurial orientation of companies with regard to efficient management of human resources costs.

4. Conclusion

Finding and retaining best employees is the most valuable asset (John D. Rockefeller) Contemporary management trends show that people are most important element of company's market advantage. Human resources costs are mostly measurable, but it is harder to measure effectiveness of human

activities. Good reputation and image of the company translate into good economic results, and the first information about the company comes from its employees. Therefore, companies should find a balance between economic and social aspects of labor cost optimization, so that they can count on the long-term positive effects of its methods.

Literature:

Grzegorzczak A. (2010). *Racjonalizacja i optymalizacja kosztów pracy w controllingu personalnym*, Controlling i rachunkowość zarządcza, no 5/2010.

Kolegowicz K., Kulisa B., Nehring A. (2004). *Aspekty ekonomiczno-prawne kosztów pracy w Polsce*, Wydawnictwo AE w Krakowie, Krakow.

Pfaff J. (2012). Identyfikacja kosztów pracy na potrzeby decyzyjne. [w:] *Zarządzanie kosztami przedsiębiorstwa w warunkach globalizacji*, red. Nauk. J.Chluska, Wyd. WWZPCz, Częstochowa.

Sudoł S. (1967). *Metody analizy kosztów pracy w przedsiębiorstwie przemysłowym*, PWE, Warsaw.

Szarska E. (2009). *Szacowanie kosztów fluktuacji pracowników*, Controlling i rachunkowość zarządcza nr 6/2009, Infor.

Raport Przedsiębiorczość w Polsce, Ministerstwo Gospodarki, Warsaw, September 2014.

Raport Redukcja kosztów – doraźna potrzeba czy długofalowe działanie?, KPMG 2009.

Raport Trendy HR 2017, Deloitte, 2017.

Raport Key Employer Challenges 2017 - jak firmy w Polsce budują doświadczenie pracownika?, KPMG 2017.

Rubik J. (2012). *Optymalizacja kosztów pracy [in:] Zarządzanie kosztami przedsiębiorstwa w warunkach globalizacji*, red. Nauk. J.Chluska, Wyd. WWZPCz, Częstochowa

Rubik J. (2014). Wpływ tradycyjnych i alternatywnych form zatrudnienia na koszty pracy [in:] *Zarządzanie kosztami przedsiębiorstwa w warunkach ryzyka*. Aspekty teoretyczne. Monografia. Red. nauk. Jolanta Chluska, Jolanta Rubik, wyd. WZ PCz, Częstochowa

Rubik J. (2015). *Zarządzanie kosztami pracy a wymogi CSR*, Prace Naukowe UE we Wrocławiu no 398, Wrocław

Rubik J. (2016). *Nowe kierunki zarządzania kapitałem ludzkim*, Studia Ekonomiczne Zeszyty Naukowe UE w Katowicach, Rachunkowość - Zarządzanie - Nowe Technologie, no 300, Katowice

Eurostat – data 04/2016, retrieved from www.ec.europa.eu.

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MODIFICATION OF THE HEIGHT, STRUCTURE AND ALLOCATION OF PUBLIC INVESTMENT IN EDUCATION - THE IMPERATIVE OF TODAY

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Abstract: *Investment in education can be considered as an organic part of investing in human capital, and public investment in education can be considered as one of the most important components of sources of investment in education. The aim of the paper is to identify the potential macroeconomic and microeconomic benefits of investment in education and to specify the possibility of converting into real benefits; to specify the possibilities of increasing the efficiency of investments in education; to identify the possibilities of motivating individual subjects to change behaviour in the field of investment in education, and to contribute to the ongoing debate on the need to reverse the negative trend of low public investment in education as well as inadequate structure and allocation of public investment in education. The comparison of the level, structure and allocation of public investment in education across EU countries confirms or disproves the hypothesis that it is mainly about the efficiency of public investment in education and its appropriate structure and allocation.*

Keywords: *Public investment in education, benefits, human capital, employment, competitiveness.*

JEL classification: *I 25, I 26, H 52*

Grant affiliation: *The paper was elaborated within the project VEGA 1/0014/16 International migration high-skilled workers in the context of globalization process and creation of knowledge economy.*

1. Introduction

The new era, called also as the Fourth Industrial Revolution, or Big Shift has fundamentally transformed the broader economy and society. Radical changes in labor, work organization and labor market requirements cannot be ignored, especially if growth of productivity remains low despite the introduction of new technology into the business environment. The problem lies in a strategy of forming human capital that does not meet current demands. If investing in education is an organic part of investing in human capital we need to pay extra attention to them. Not only height of investment, but especially the structure of investment in education as well as the effectiveness of their allocation are extremely important. Recognizing that, without understanding their mutual

conditionality, it is not realistic to expect a positive reversal in productivity growth, in the growth of the competitiveness of economies, as well as in the growth of well-being and quality of life.

2. Investment in education as an organic part of investment in human capital

Investing in human capital goes beyond an economic necessity. It is the basis for all individuals to live up to their full potential. In the present, the radical changes in economy require a radical change of mind. Demand for workforce is changing significantly, therefore it is also necessary to change significantly a supply of workforce. Workforce is more digital, more global, diverse, and social media - proficient. At the same time, these changes create new job opportunities. Knowing basic trends is objective necessity. But, an objective necessity and real willingness to invest in education are confronted with the available resources. This is no full consensus about whether investment in education should be made only from domestic sources, especially public sources or they should have a greater role private and foreign sources.

2.1. Potential macroeconomic and microeconomic benefits of investment in education

Discussions include a wide range of arguments that justify the need for investment in education. The arguments justifying the potential macroeconomic benefits of investment in education are as follows. Investments in education create: a scope for improving the quality of resources, their productivity and thereby increasing the competitiveness and economic performance; a space for greater labor mobility; a scope for increasing the possibility of the application of new scientific knowledge into practice, acceleration the conversion of inventions of different orders on innovations that create a space for the use of previously unknown sources, or the use of new advanced technologies that save the existing resources; a space for the implementation of structural changes that have been subject to the availability of skilled labor; a scope for increasing employment and decrease pressure on public social expenditure; a space for securing the long-term equilibrium rate of economic growth and ensure the growth of the welfare of society as a whole and its individual members.

The arguments justifying the potential microeconomic benefits of investment in education are as follows. Investments in education create a more realistic chance: of placing in the labor market; of achieving higher than average labor income; to achieve greater wealth; as well as a space for: growth of labor productivity; a creative behavior; flexible adaptation to changing labor market conditions; intergenerational transfer of knowledge, and a more realistic chance of placing in the labor market of future generations; more options to find employment on the global labor market, a space to achieve greater competitiveness in the labor market.

2.2. Several remarks to the transformation of potential macroeconomic and microeconomic potential benefits of public investments in education into real benefits

Investment in education indicates the level of resources available to education providers to deliver education. It is interesting how these resources are apportioned between different levels of education.

The general government expenditure on education in the EU-28 amounted 4.9% of GDP in 2015. The highest public expenditure on education as a percentage of GDP can be seen in the Nordic countries, in Belgium, in Estonia, in Latvia, and in Portugal. The lowest expenditure is recorded by Romania (3.1%), Ireland (3.7%) and Italy (4.0%). The highest public spending on tertiary education is in the following EU countries - Finland, Denmark, Poland, the Netherlands, Estonia, and Cyprus. On the other side, the lowest expenditures are in United Kingdom and in Italy. In the case of public expenditure on education as percentage of total public expenditures, 17 countries spend more than is the average EU countries (10.3%). In contrast, lower than the average share exists in 10 countries, in Hungary is equal to the average share. The lowest share exists in Greece (7.8%) and in Italy (7.9%). A crucial part of public spending on education is spent on securing primary and secondary education. The highest share of public spending on tertiary education out of total public spending (over 3%) is related to the following EU countries: Poland, Latvia, Lithuania, Estonia, Denmark, Finland, Cyprus, and the Netherlands (Eurostat, 2016).

Tertiary education can play an essential role in society. In the EU-28 countries there were 19.5 million tertiary educational students of which 7.2% were following short cycle tertiary courses, 61.4% were studying for Bachelor's degrees, 27.8% were studying for Master's degrees, and 3.7% were studying for Doctoral degrees. In terms of needs related to the fourth industrial revolution, the need of the students with tertiary education grows. At the same time, students with higher tertiary education should also have a better chance of succeeding in a national, regional or global labor market. In EU-countries, the bulk of students receive a bachelor's degree or equivalent. In contrast, in the case of a master's degree, the situation is not so favorable. Among the EU countries, the most favorable outcomes at this level of tertiary education have been achieved in countries (above 35%): Luxembourg, France, Italy, Hungary, and Slovak republic. In the nine countries, the master's degree exceeded 30% share. On the contrary, the lowest number of students wishing to achieve Master's degree can be seen in six EU-countries, of which it has the lowest share – 8.1% Greece (Eurostat, 2017).

The Human Capital Index gives a number of key issues that can support better design of education, productive and healthy workforce. Finland effectively developing and utilizing 85.86% of their full human capital potential. The country benefits from a well-educated young population with a near-universal basic education survival rate and the highest score for the quality of primary schools. Its 25-54 age group core working population shows the highest tertiary educational attainment rate in the Western Europe region and fourth best overall in the world. Also other Nordic countries are very successful (Sweden 83.29% and Denmark 82.47%). A good situation is in Belgium and the Netherlands. However, the Netherlands has a problem with relatively low labour force participation and relative high unemployment rate among 55-64 years. Human Capital Index shows that only 12 EU countries are able to use 80% of their human capital potential or more, 16 EU countries 70% or more but less than 80% (Human Capital Report, 2017).

The part of human capital potential remains undeveloped due to lack of learning or employment opportunities or both. In many countries, investment in education have not resulted in high employment. Several EU countries address the problem of considerable unemployment, especially of young people. In age group 15 – 24 years, rate of unemployment young people is 46.6% in Greece, 38.6% in Spain, 37% in Italy, and in six EU countries rate of unemployment of young people was

higher than 20%. The average of EU-28 is less than 20%. The unfavorable results were also reached in age group 25-64 (Eurostat, 2017).

In 2015, in the EU Member States, the highest employment rate (82.7%) was applied to persons who had completed some of the tertiary education. On the contrary, the lowest employment rate (52.6%) was associated with persons who completed primary education or lower secondary education. The employment rate of person with secondary education was 70.7% (Eurostat, 2015).

With regard to the structure of education, stereotypes persist, making it difficult to find work in the labor market. Across the EU – 28, almost one third (32.3%) of all students in tertiary education were studying social sciences, journalism, information, business, administration or law in 2015. There are differences between the Member States of EU. The share of graduates in these fields was relatively low in Finland and Spain (over one quarter of all graduates), while much higher shares were registered in Luxemburg (45.8%) and Bulgaria (49.8%). The differences exist between the EU Member States also in other fields.

3. Conclusion

Economic theory does not have an unambiguous definition of human capital yet it can specify the basic attributes: the congenital and acquired skills and knowledge, innate talent, the acquired ability to think creatively as well as be adaptable to constantly changing conditions and inventive in creating new values, but also personality characteristics, ability to establish contacts with other people, teamwork, good health and respect for moral principles. In this sense, investment in human capital can be perceived as an investment in versatile personalities.

In today's complex and globally interconnected world, there is a bigger chance for those who have decided to invest in education. Expectations, however, may not be fulfilled if the real need of the labor market have not been respected when deciding on investment in education. In other words, the demand for specific graduates at different levels of education has not been taken into account when deciding about investment in education. Insufficient use of the potential of human capital is evidence of inadequate allocation of investment in education across EU Member States.

Literature:

Deloitte Global Human Capital Trends. (2017). *Rewriting the rules for the digital age*. UK, Deloitte University Press.

Government expenditure on education. (2017). Retrieved from file:///F:/Goverment%20expenditure%20on%20education%20-%20sta.

Tertiary education statistics. (2017). Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/tertiary_educ.

The Human Capital Report (2016). *Switzerland, Geneva: World Economic Forum*. Retrieved from <http://reports.weforum.org/Human-capital-report-2016/high/>.

Youth unemployment. (2017). Retrieved from <http://ec.europa.eu/eurostat/statistics-explained/index.php/Educational>.

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REGIONAL FOOD LABELING IN AUSTRIA: CONSUMERS RECOGNITION OF THE LABEL WALDLAND

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Abstract: *Regional labelling is one of the effective marketing tools for increasing competitiveness, especially for small and medium-sized enterprises. In Austria are currently several good working and effective regional labelling systems. The article analyzes the recognition of the Regional label Waldland among consumers in Lower Austria in terms of strategic brand management with an emphasis on managing their marketing communication activities. The results, despite the selected socio-demographic characteristics, show that the recognition of this label is very similar for each group of respondents and the general recognition by the consumers is very small - the smallest of all competing brands. It turns out that the marketing activities of this label do not show any signs of specific targeting to a specific target group of consumers and there is opportunity for changing the way of marketing communication by this label.*

Keywords: *Marketing, labelling, food, consumers, Austria.*

JEL classification: *Q13, M31*

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1. Introduction

Regional labelling is one of the effective marketing tools for increasing competitiveness, especially for small and medium-sized enterprises. In Austria are currently several good working and effective regional labelling systems. The formation of the first food labeling systems, focused on regional food labeling only, is in Austria dates back to 1998, when it was in Lower Austria introduced a brand of regional food producers - Gutes vom Bauernhof. Its aim was and still is to make small and middle-sized food producers more visible and more easily identifiable by consumers. Kögl and Tietze (2010), among others, state that, market saturation from global as well as local products, product indistinguishability, the increasing awareness and demands of consumers. Developing regional brands and certifying goods is one of the ways regions are seeking to react to new marketing trends.

Food quality and its origin are the central issues in the current EU food economics (Markovina, Stewart-Knox and Rankin et al., 2015), it is possible to talk about the shift of the entire food system from „food from elsewhere“ to „food from here“, defining a food patriotism (Schermer, 2015). Van Ittersum et al. (2007) define a regional product as one whose quality and (or) fame can be attributed to its region of origin, important attribute is that the product is marketed using the name of the region of origin. Regional food may also be viewed as a part of regional identity or a manifestation of the cultural and economic heritage (Minta, 2015). Since the beginning of the century an increasing demand for regional products have been observed in EU countries (e.g. Loureiro and Umberger, 2005; McEntee, 2010).

The article analyzes the recognition of the Regional label Waldland among consumers in Lower Austria in terms of strategic brand management with an emphasis on managing their marketing communication activities. The results, despite the selected socio-demographic characteristics.

1.1. Waldland

The Waldland label is a trademark of WALDLAND Naturstoffe GmbH (see Figure 1). The Waldland label is also the only regional brand with local activity in only part of the Lower Austria region. This label is defined exclusively by the Waldviertel area and covers the agricultural and food producers in the region. Waldland works close with the So Schmeckt Niederösterreich initiative which is the most known regional food label in Lower Austria and is managed directly by the local government.

FIG. 1: Waldland logo



Source: Waldland GmbH [online] [cit. 15. 07. 2016]. Available at: <http://waldland.at>

The goal of the Waldland label is a comprehensive service for affiliated producers (marketing, distribution, sales, processing). The purpose of it is to support traditional and specific food production, which is characteristic of the region of Waldviertel. The goal of the brand is to deliver high-quality production to the food market. An advantage for affiliated agricultural and food producers is the constant high-priced collection and branded branding (Waldland products are among the most expensive products compared to other Austrian products). A specific criterion for branding is the annual fee (proofing) membership for the new producer.

2. Data and Methods

This paper presents the results of research into the impact of socio-demographic factors on the brand recognition of "Waldland". At the turn of 2014 and 2015, primary research was undertaken among consumers aged 18-65 years in all the main provincial towns in Lower Austria. Respondents were selected on the basis of quotas for specific socio-demographic characteristics (age, sex, monthly family income, education). The responses of 450 participants who took part in the survey were selected for further analysis. The data were analyzed using the Pearson's Chi-square test of

independence to test the null hypothesis. The null hypothesis was determined as follows: “Recognition of the regional brand “Waldland” does not depend on the chosen socio-demographic factor”.

This paper presents the results of the Pearson’s Chi-square test of independence on the following hypotheses:

H1: Recognition of the regional brand “ Waldland ” does not depend on the respondents’ gender.

H2: Recognition of the regional brand “ Waldland ” does not depend on the respondents’ age.

H3: Recognition of the regional brand “ Waldland” does not depend on the respondents’ net income.

H4: Recognition of the regional brand “ Waldland ” does not depend on the respondents’ level of completed education.

Categorical data were obtained during the analysis of the questionnaire survey. In order to apply the Pearson’s Chi-square test, a maximum of 20% of the expected frequencies must be less than five (see Řezanková, 2007; and Agresti, 1990). Where this test could not be applied, Fisher’s exact test was used or the simulated p-value of the χ^2 statistic was calculated (see Anděl, 2005).

The p-value for each hypothesis was calculated by means of the Statistica software. Where $p < 0.05$, the null hypothesis was rejected in favour of an alternative hypothesis on the basis of the assumption of the dependence of the variables.

3. Results and Discussion

The results show, that more than half of all respondents (consumers) in Lower Austria do rather know the label Waldland. This brand is known by 240 (53,33 %) of the addressed respondents.

TAB. 1: Recognition of the brand Waldland according to respondents’ gender

Recognition of brand	Answer “Yes” (%)	Answer “No” (%)	Total
Waldland			
Man	110 (54,17)	185 (45,83)	210
Woman	130 (52,38)	213 (47,62)	240
Total	240 (53,33)	210 (46,67)	450
	Chi-square	df	P-value
Pearson Chi-square	0,05	df=1	0,70

Source: authors

Table 1 shows that recognition of the label Waldland not depend on the respondent's gender. 110 men (54,17 %) and 130 addressed women (52,38 %) said they know the brand. P-value of Pearson's Chi-square test of independence came 0,83, thus the hypothesis of independence is not rejected on the level of independence 5 %. The hypothesis H1 Recognition of regional brand "Waldland" does not depend on the respondents' gender is accepted.

TAB. 2: Recognition of the brand Waldland according to respondents' age

Recognition of brand	Answer "Yes" (%)	Answer "No" (%)	Total
Waldland			
18 - 35 years	75 (50,00)	75 (50,00)	150
36 - 50 years	80 (53,33)	70 (46,67)	150
51 - 65 years	85 (56,67)	65 (43,33)	150
Total	240 (53,33)	210 (46,67)	450
	Chi-square	df	P-value
Pearson Chi-square	0,05	df=2	0,51

Source: authors

Table 2 shows that according to results of the research the label Waldland is best known by the oldest consumers of age category 51 - 60 years (56,67 % respondents in this category recognize the label). But the brand is only little less known by the respondents of age category 36-50 years (53,33 %) and the youngest consumers of age category 18 - 35 years (50,00 % respondents in this category recognize the label). When considering dependence of knowing the brand on age, P-value of Pearson's Chi-square test of independence is significantly higher than defined level of significance. Hypothesis H2 is not rejected at the level of significance 5%. The hypothesis H2 Recognition of regional brand "Waldland" does not depend on the respondents' age is accepted.

TAB. 3: Recognition of the brand Waldland according to respondents' net family monthly income

Recognition of brand	Answer "Yes" (%)	Answer "No" (%)	Total
Waldland			
Up to EUR 2000 incl.	97 (53,01)	86 (46,99)	183
EUR 2001-4000	111 (52,61)	100 (47,39)	211
EUR 4000 and above	32 (57,14)	24 (42,86)	56

Total	240 (53,33)	210 (46,67)	450
	Chi-square	df	P-value
Pearson Chi-square	9,29	df=2	0,01

Source: authors

The results presented in Table 3 show that the brand Waldland is best known by the respondents with net income over 4000 EUR (57,14 %). The respondents with income 2001 – 4000 EUR and respondents with income up to 2000 EUR recognise the brand very similar about 52-53%. Table 3 involves P-value of Pearson's Chi-square test being 0,83. The hypothesis of independence was therefore not rejected at a level of significance 5%. The H3 hypothesis - Recognition of the regional brand "Waldland" does not depend on the respondent's net family monthly income – was therefore confirmed.

TAB. 4: Recognition of the brand Waldland according to respondents' completed education

Recognition of brand	Answer "Yes" (%)	Answer "No" (%)	Total
Waldland			
Elementary school	23 (51,11)	22 (48,89)	45
Apprenticeship	93 (56,36)	72 (43,64)	165
High school	82 (48,24)	88 (51,76)	170
College/University	42 (60,00)	28 (40,00)	70
Total	240 (53,33)	210 (46,67)	450
	Chi-square	df	P-value
Pearson Chi-square	9,29	df=3	0,29

Source: authors

On the basis of the results in Table 4 it can be concluded that brand recognition is the highest among those respondents with the highest education i.e. university and college (60,00% of the respondents in this education group). The brand recognition levels among respondents with completed elementary school and high school were very similar, ranging between 48,24 and 51,11%. It is interesting that recognition by consumers with level of education apprenticeship was 56,36 - the second highest. The p-value of Pearson's Chi-square test of independence is 0,29. The hypothesis of independence was therefore not rejected at a level of significance 5%. The H4 hypothesis - Recognition of the regional brand "Waldland" does not depend on the respondent's highest level of completed education – was therefore confirmed.

3.1. Discussion

The label Waldland is the regional brand of Lower Austria with one of lower recognition of the brand. I. e. the most recognized label of the Lower Austrian region by the same respondents are So schmeckt Niederösterreich – 65,6 %, Genuss Region Niederösterreich – 64,9 %, Gutes vom Bauernhof – 64,4 % (Rojík et al, 2016). Compare the Czech regional brands in neighboring region (South Moravian Region) in Czech Rep. (tested on sample with same quota and socio-demographics characteristics)- recognition of the label Waldland is the highest: The label Regionální potravina Jihomoravský kraj was recognized less than half of the respondents (46.9%) and the recognition by labels Moravský kras Regionální produkt, Zlatá chuť Jižní Moravy and Znojensko Regionální produkt was only between 9,33-14,9 % (Rojík et al, 2016 and 2017). The results show, that the brand Waldland is more focused on older consumers and consumers with higher income like show the results of Zámková and Prokop (2014) on other quality labelling.

4. Conclusion

Regional labeling in the Czech Republic and Lower Austria is experiencing different stages of development. While at the level of the Czech Republic is the level of development of the regional brands lower than in the traditional countries where this marking has been in operation for a longer period or more focused on traditional specialties. Austria, on the other hand, shows that even regional labeling can successfully be placed among the branded systems that operate on the market and play an important role for consumers. Regional labelling is thus a way to draw consumers to high-quality production and at the same time to show consumers a sense of belonging when buying food from local producers. These initiatives are funded in the Czech Republic as well as in Austria to invest considerable resources aimed at increasing the competitiveness of predominantly small and medium-sized local entrepreneurs in agriculture and food. The brand Waldland shows one of the ways how to manage a regional brand. This brand is focused on traditional specialties (agricultural and food mainly) and includes local farmers (members of the Waldland community) from Waldland region only and supports them in marketing. It is the only label in Lower Austria which works as a cluster. The aim of the label is to be a brand of origin and quality together and bring the quality local products from Waldland on market. Because of very specific support in Lower Austria where there are less supported brands and the government support is mainly focused on the governmental brand So schmeckt Niederösterreich, the recognition of so small and just a local label Waldland is very interesting and it can be used as a suggestion for Czech brands - mainly Znojensko regionální produkt and Moravský kras Regionální produkt or other small brands coordinated by Asociace regionálních značek or for Czech agricultural cooperatives how to cooperate with small local farmers and be bigger and more visible and successful on the market.

Literature:

Kögl, H. & J. Tietze, (2010). *Regionale Erzeugung, Verarbeitung und Vermarktung von Lebensmitteln*. Universität Rostock. ISBN 978-3-86009-086-2.

Markovina, J., Stewart-Knox, B. J., Rankin, A., Gibney, M., De Almeida, M. D. V., Fischer, A., Kuznesof, S. A., Poínhos, R., Panzona, L. & Frewer, L. J. (2015). Food4Me study: Validity and reliability of Food Choice Questionnaire in 9 European countries. In *Food Quality and Preference* Vol. 45 No. 10. Retrieved September 14, 2015, from DOI: 10.1016/j.foodqual.2015.05.002.

Minta, S. (2015). Regional food products: only for tourists or also for residents. In *Agriculture & Forestry*, vol. 61, no. 1, pp. 51 – 58. Retrieved September 6, 2015, from DOI: 10.17707/AgricultForest.61.1.06.

McEntee, J. (2010). Contemporary and Traditional Localism: Conceptualisation of Rural Local Food. *Local Environment: The International Journal of Justice and Sustainability*, vol. 15, no. 9–10, pp. 785–803.

Rojík, S., Pilař, L. Balcarová, T. Chalupová, M. and Prokop, M. (2016) *“Preference and recognition of the regional food brand “Genuss Region” in Lower Austria.”* Proceedings of the Agrarian Perspectives XXV, Prague. pp. 298-303.

Rojík, S., Pilař, L., Kaueroová, L., & Prokop, M. (2016). *Recognition of the regional brand Regionální potravina by customers in the Region of South Moravia*. Litera Scripta, vol. 9, no. 1. pp. 111-123.

Schermer, M. (2015). From „Food from Nowhere“ to „Food from Here“: changing producer-consumer relations in Austria. In *Agricultural Human Values*. Vol. 32. pp. 121-132. [Retrieved 2015-09-11]. Retrieved from: DOI 10.1007/s10460-014-9529-z.

Waldland GmbH [online]. Retrieved July 7, 2016 from <http://waldland.at>.

Van Ittersum, K., Meulenberg, M. T. G., Trijp, H. C. M. & Candel, M. J. J. M (2007). Consumers' Appreciation of Regional Certification Labels: A Pan-European Study. *Journal of Agricultural Economics*, Vol 58 No 1, pp. 1-23. [Retrieved 2015-08-06]. Retrieved from: DOI: 10.1111/j.1477-9552.2007.00080.x.

Zámková, M. & Prokop, M., (2014). *Comparison of Consumer Behavior of Slovaks and Czechs in the Market of Organic Products by Using Correspondence Analysis*. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. Vol. 62 (4).

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INTERGENERATIONAL COOPERATION IN SELECTED CZECH SMALL AND MEDIUM ENTERPRISES - RESEARCH RESULTS

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Abstract: *The consequence of ageing process over European countries includes ageing of the labour force, which means, in a longer perspective, occurrence of labour shortages, particularly in the younger age groups. Conditions in which teams in organisations are developed and managed undergo dynamic changes. This study describes research results in the field of intergenerational cooperation in Czech small and medium enterprises. The aim of this study is to find answers to the questions: Are Czech small and medium enterprises age friendly? Do the employees have preferences regarding the age of their colleagues? Do the employees perceive or experience any disadvantage regarding their age or gender in their organisations? Does management of the Czech enterprises enable work –life balance conditions for employees? The sample consisted of 168 respondents from twelve Czech small and medium enterprises operating in Moravian region. All respondents filled questionnaire focused on their perception and experience with intergenerational cooperation. Hypotheses were tested with IBM-SPSS software. According to the results, the young team experienced the disadvantage more often than the diverse team. Intriguing results were found also regarding the age of colleague preferences and work-life balance needs. The practical implications of the results are also discussed in the paper.*

Keywords: *The age differences, intergenerational cooperation, population ageing, age disadvantages and discrimination, work-life balance.*

JEL classification: J24

Grant affiliation: *This paper was supported by Technology Agency of the Czech Republic, project: TB05MPSV004 titled Research in the quality of life of seniors in the Czech Republic and by The Ministry of Education, Youth and Sports, Prague, Czech Republic: LD – COST CZ, project: LD15065 titled Gender dimension of active ageing implementation in the Czech private and public sector in comparison with western countries.*

1. Generation in life and at work

A generation is defined as a large group of people socialized at about the same time with similar life styles, thinking patterns, social perceptions, etc. The people in a generation are approximately of the same age. According to Sak (2012), the concept of generation was part of cultures and languages long before sociology came into being. The age difference between generations is given by the time

needed for a newborn child to start biological reproduction. In this country, this is about twenty years. The concept of a generation also reflects important social events shared. The Great Depression, World War, space shuttle Challenger disaster, fall of the iron curtain may be taken as examples. Similarly, Jandourek (2012) defines generation as a conglomerate of close age groups whose members perceive important moments of their lives in the light of the same historical and cultural circumstances. According to Jandourek (2012), the concept of a generation may be defined in a number of ways one of them being based on the calendar age, another on previous experience. Tuček (2003) believes that generations should preferably be regarded as historical generations defined in terms of important historic landmarks. He assumes a generation to be formed within the maturing period of its members, age being just an approximate specification (see Table 1).

TAB. 1: Generation names and timelines

Generation name and timeline	aka ...
veterans (born 1922 to 1943)	traditionalists, biggest generation
baby boomers (born 1944 to 1960)	
generation X (born 1961 to 1980)	13th generation, baby busters
generation Y (born 1981 to 1999)	echo boomers, millennium generation, Internet generation
generation Z (born 2000 to 2010)	plurals, generation M, generation I, 9/11 generation
generation alpha (born 2010 to 2020)	

Source: Adopted by authors according to Covarrubias Venegas, 2011

Veterans

According to Zemke (1999), people of this generation are called the actual traditionalists at present. Their principal values include hard work, adaptability, law and order, respect for authorities, honour and patience. Veterans are considered very loyal employees, as they prefer obedience to individualism at work. This means that their management style is rather directive. They are accustomed to working in a team led by a strong leader telling them exactly how, and when to do what. They are a much disciplined generation, which is a challenge for young senior employees. According to Yager (2012), veterans have been influenced by two key historical events. The Great Depression and the Second World War. They were able to make sacrifices, postponing their dreams and goals, overcoming financial dire straits, and working in a country with considerable military commitments. A subsequent retirement spent in warm countries, playing golf and relaxing was the ultimate goal of most of the traditionalists. The economic depression of 2008 made them resume their jobs.

Baby boomers

Baby boomers, as a generation, are thought of as service-oriented. They are considered good team players compared with other generations says Zemke (1999). Baby boomers prefer soft skills. They can work many hours to honour their commitments. By Kopecký (2013), baby boomers are part of a numerous, but also affluent and influential generation. In the United States, they still belong to the highest income bracket. In Great Britain, they owned 80 percent of the country's wealth at the end of the first decade of this century. They are still major trendsetters influencing the world affairs. Now this generation is at a stage of refusing ageing and death leaving a considerable economic burden to their children. They also enjoy high quality. Their characteristics include luxury, high-end products, and indifference to discounts (Pelsmacker 2003).

Generation X

By Jandourek (2012), these are mostly the children of the working parents who still actively promoted welfare. Generation X lived in the time when the world started to be frightened of AIDS. They entered employment at the time of recession. Generation X shares new cultural interests, being environment friendly and responding well to companies with social responsibility. Although desiring success, it is less materialistic preferring experiences to property. These people are romantics seeking better quality in life. In the Czech Republic, the generation X children are dubbed Husák's children. According to Kotler (2013), this generation received its name after a 1991 novel by Douglas Coupland. Generation X was clearly brought up in more troubled times, when the children of working parents had to go to kindergartens or after school care or were left alone at home. Members of this group have a feeling that the ability to cope with every situation is of key importance for them. They are more pragmatic and individualistic. They are aware of exaggeration and promises.

Generation Y

Průcha (2014) writes that generation Y grows up in a digital world amid computers, TV, information and communication technologies. Using such devices is a matter of course for them. Their learning is visual rather than verbal. According to Majer (2007), on the other hand, this generation is economically very active at present. Demanding a higher level, they want to be more responsible for social welfare. They place emphasis on self-assertion while being very concerned with their own lives. Although wishing to grasp all the opportunities offered to them by society, they refuse any limitations on their personal lives. For this reason, they prefer flexible working hours. Communicating over the Internet and creating various Internet communities, they are open to new ideas. Important for generation Y is meaningful work, education, and experiences. Seeing money only as a means, they do not hesitate to take out mortgages and loans. They postpone starting a family, as generation X did. However, rather than giving up their careers, they try to achieve work life balance. This generation is very concerned with long-term effect as well as the efficiency of time and means (Rezlerová 2009).

Generation Z

The most fragmented and heterogeneous generation. Being shaped by the Internet and multiculturalism, generation Z adopts a downright hostile attitude towards society. Consisting of today's teenagers, it is a continuation of generation Y, whose members were maturing at the

beginning of the 21st century. They share perceiving digital technologies as a natural habitat and parts of their lives. But generation Z, goes even further in depending on technology with the present teenagers having no problems switching between up to five different screens (TV, Smartphone, PC, laptop, and game console). More than half of them use YouTube and social networks to seek information such as for school projects. Their priorities include education and development of skills. This generation is confident, inclined to be impatient and self-centred. They are obsessed with hands-on experience, being intellectually advanced and maturing too fast. They have a subconscious feeling that they must build their own world. They have inherited aversion to sexism from generation Y and aversion to racism from generation X. They are expected to change their attitudes towards education and finance. They believe in their ability to deal with their own issues on their own (Chum 2013).

Generation Alpha

The first generation born in 21st century is still a mystery. Most experts see it as a groundbreaking phenomenon in the history of humanity. These children grow up in a world riddled with information and communication technologies on the eve of an environmental and humanitarian crisis. They are expected to make changes in globalism and complete the decline of nationalism (Chum 2013). Mark McCrindle was the first to call them generation Alpha. This generation grows up to live amid screens. Multiscreening is the standard for them and social media second nature. It seems that they will grow to be rather discriminating and hard to please.

Intergeneration cooperation

According to Čeledová (2016), intergeneration cooperation concerns a whole spectrum of activities across society. It leads to better social coherence helping improve social and healthcare services and can have a positive effect on economic development. Intergeneration cooperation can be much enhanced by volunteering. Matoušek (2003) says that family provides the best education for intergeneration cooperation. Everybody who is on good terms with their own grandparents can better understand, less criticise and be more open to other senior citizens, too. If a young person can picture their own granny hearing about a senior citizen, they cannot be hypercritical. Old people and adolescents, for example, can find a common language quickly as both age groups are experiencing a big change. While adolescents, for the first time, face responsibility for supporting a family, a partner, and for the development of society, old people, on the other hand, abandon active life looking for ways of continuing to be needed and useful despite frequent health impediments. But, why is intergeneration cooperation so important? Because, out of the five generations, three are needed for work.

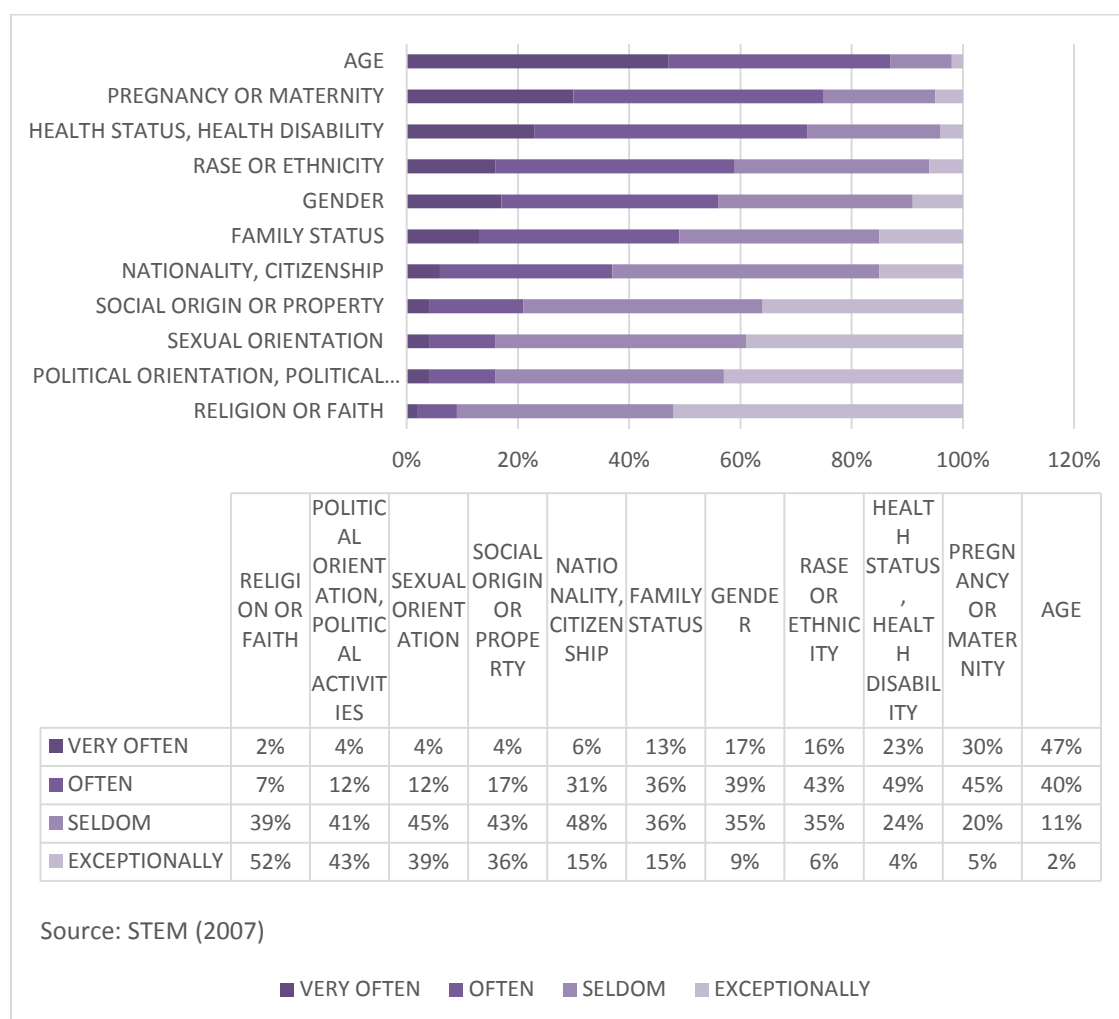
TAB. 2: Five work priorities for the baby boomers, generation X and Millennials (generation Y)

Priority	Boomers	Gen-X	Millennials
1	Retirement Savings Plan	Career Advancement	Career Advancement
2	Base Pay	Base Pay	Skill Enhancements
3	Quality of Work	Working for a respectable organization	Base Pay
4	Skill Enhancements	Skill Enhancements	Quality of Work
5	Career Advancement	Quality of Work	Working for a respectable organization

Source: Prashant, 2013

Many employees in the Czech Republic are latently or even explicitly discriminated against. According to some research projects, in the Czech labour market, this is mainly age discrimination (STEM, 2007, see Graph 1). Nine out of ten citizens (87%) believe that people are often or very often put at a disadvantage on the grounds of age (Graph no. 1). Roscigno (2007) says that age discrimination begins to be focused on by age management researchers with the results of enquiries detecting the overall presence of age stereotypes and myths of age (Rašticová, Kolářová, 2015). A similar research conducted by Duncan (2004) suggested that age discrimination effects depend on the age and gender of an employee. The age discrimination cases reported were most numerous in the young and oldest age groups.

Graph 1: The reasons for discrimination in the Czech Republic



Source: STEM (2007)

2. Research

2.1. Research goal

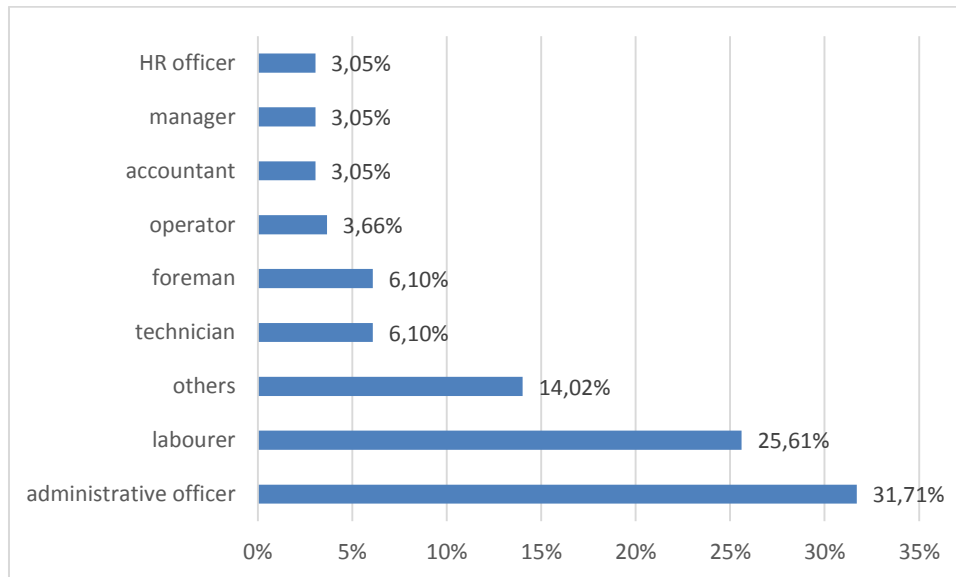
The aim of the study was to find about the perception of discrimination in promotions and compensations depending on the working team age diversity (young, middle, old, and age diversified team) and for which age category teams, cooperation with older colleagues is most convenient.

2.2. Description of research sample and the methods employed

The research sample consisted of employees of sixteen small and medium Czech Republic based companies. The total number of respondents was 167, including 53.29% of men and 46.71% of women. The age of the respondents ranged between 18 and 65 years with the majority of respondents belonging to the 31 – 49 age group (44%), the second largest group being formed by young employees aged 18 to 30 (42%), and 14 percent being older than 50 years. Almost half of the respondents (49%) had worked with the company for 6 to 14 years, about one third (32%) for less than 5 years, 19% of the respondents had stayed with the company longer than 15 years. The

respondents' working positions were diverse (see the Graph), about one third of them (31.71%) being administrative officers, 25.61% workers, and 14% of the respondents gave other (unspecified) position type.

Graph 2: Working positions of respondents



Source: author's own research

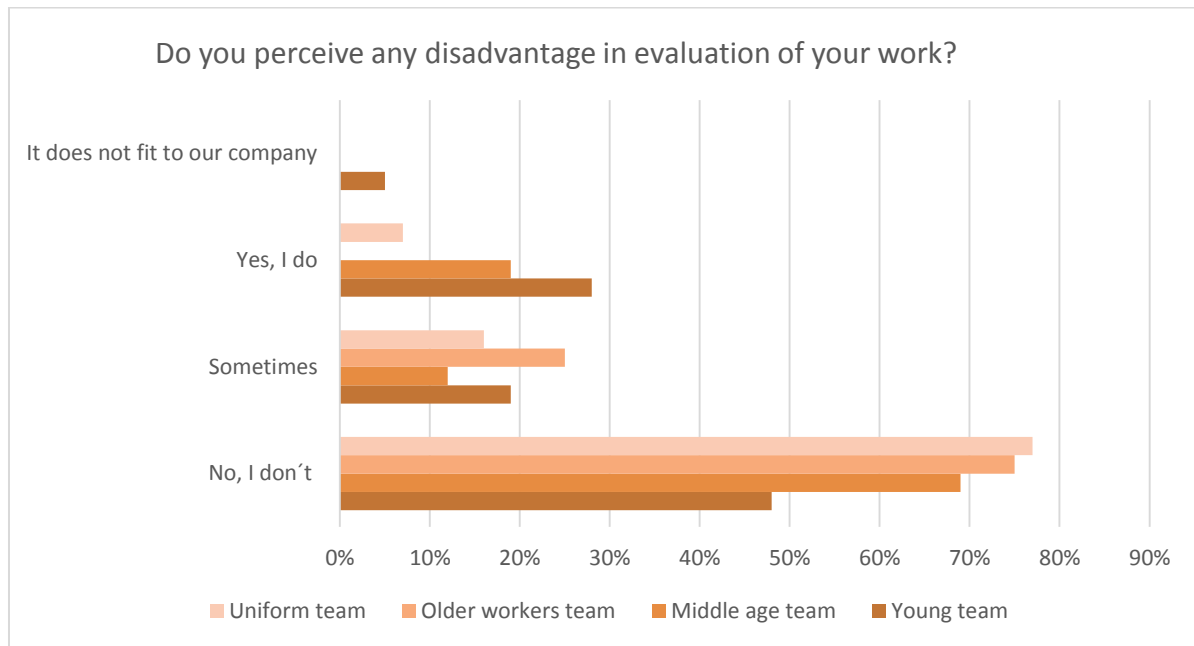
The research was conducted as an enquiry from October to December 2016. Computer Assisted Web Interviewing (CAWI) or Pen and Paper Interviewing (PAPI) were the methods used to collect data. The data were processed by an IBM-SPSS processor.

2.3. Research results

The analysis of the data collected focused on the perception of discrimination against some employees in pays and promotions as related to the age diversity of the working team.

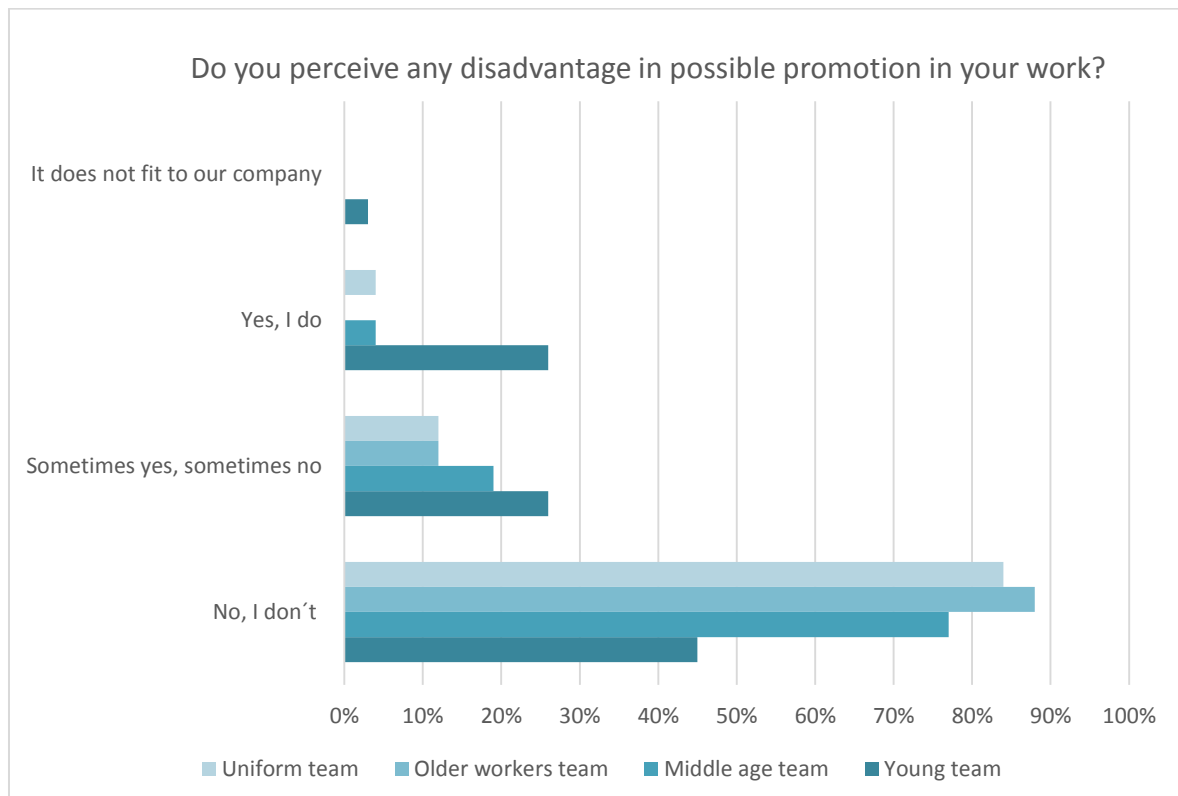
In compensations, discrimination is perceived often or sometimes by 46.66 percent of the respondents working in a young team and almost one third of the respondents working in a mid-aged team (30.76%). One fifth of the employees in older teams said that they do sometimes perceive discrimination. Most of the respondents (77.78%) who said to be working in a team with even age distribution do not perceive any disadvantaging in promotions (Graph no.). The differences between respondent groups were statistically determined at a significance level of 1%.

Graph 3: Perception of discrimination in compensations among different age specific teams



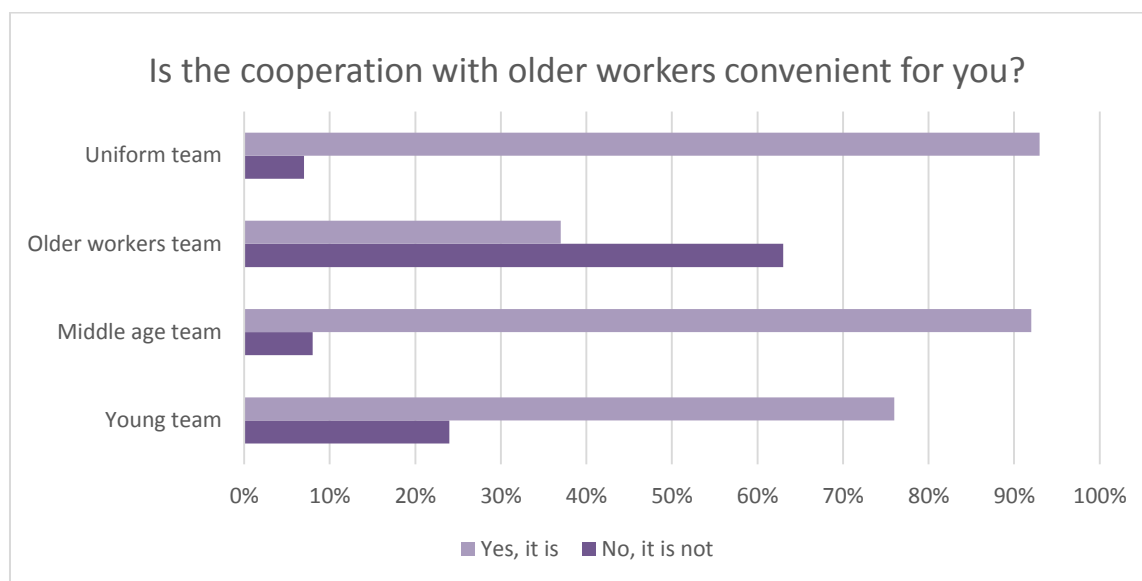
In promotions, discrimination is perceived the most by a respondent working in a young team, with 51.36% of them feeling discriminated against often or sometimes. No discrimination is perceived in promotions by most of the respondents working in an older team (87.5%). The differences between respondent groups were statistically determined at a significance level of 1%.

Graph 4: Perception of discrimination promotions among different age specific teams



Interesting were the results of the data analysis concerning the perception of cooperation with an older colleague. Cooperation with an older colleague is convenient for respondents working in a mixed team (93%) or in a mid-aged team (92%) with most of the respondents working in a young team (76%) saying that they had no objections to working with an older colleague. On the other hand, employees working in older teams more often said that they did not feel at ease working with an older colleague (63%). The differences between the respondent groups were statistically determined at a significance level of 1%.

Graph 5: Satisfaction with cooperation with older workers among different age specific teams



3. Discussion

The results of the inquiry clearly indicate that discrimination in the workplace, in both compensations and promotions, is perceived mostly by the young respondents, no discrimination in compensations or promotions is perceived by more than three quarters of the employees working in mixed teams. Concerning promotions, again, young employees in younger teams feel to be more discriminated, the employees of older teams do not feel to be discriminated in promotions. It might be worthwhile to find out how big a role in the perception of discrimination (in both compensations and promotions) is played by the expectations of employees in different age groups. It is clear from past research that old employees have not big expectations concerning compensations and promotions. They are rather afraid of being laid off and getting outside the labour market. Old employees are also characterized by more loyalty and less pay requirements (Rašticová, Kolářová, 2015). Interesting was the analysis of the data on cooperation with an older colleague. Such cooperation is most convenient for employees of an age-mixed team, surprisingly however, it is least convenient for those in older teams. This result would deserve further qualitative inquiry to better understand the arguments for and against cooperation with older employees. In keeping with the theory of management diversity (ibidem) that the most resistant and, as can be assumed, most efficient working team is an age-mixed one.

4. Conclusion

Intergeneration cooperation is an area that is likely to be increasingly targeted by researchers and HR managers in the near future. The mingling of generations in the labour market and the necessity of their cooperation is evident; the present study indicates, however, that it is not only the oldest generation of employees that perceives disadvantaging and for which specific measures should be adopted. The related issues are more complex requiring a more detailed study of discrimination, apprehensions, as well as opportunities, expectations, and value rankings of the generations.

Literature:

Covarrubias ,V., B., In Rašticová, M. (2011). *Diversity is reality: effective leadership of diverse teams in a global environment*. Brno: Akademické nakladatelství CERM, 2011. ISBN 978-80-7204-775-8.

Čeledová, L., Kalvach Z., a Čevela R. (2016). *Úvod do gerontologie*. Praha: Univerzita Karlova v Praze, nakladatelství Karolinum, ISBN 978-80-246-3404-3.

Duncan, C.; Loretto, W. (2004). *Never the right age? Gender and age-based discrimination in employment*. Gender, Work & Organization, 11.1: 95-115.

Chum, S. (2013). *Současné generace X, Y a Z - krátké seznámení*. Retrieved May 5, 2017, from: <http://sebastianchum.blog.idnes.cz/blog.aspx?c=372981>.

Jandourek, J. (2012). *Slovník sociologických pojmů*: 610 hesel. Praha: Grada, ISBN 978-80-247-3679-2.

Kopecký, L. (2013). *Public relations: dějiny - teorie - praxe*. Praha: Grada, Žurnalistika a komunikace, ISBN 978-80-247-4229-8.

Kotler, P., Keller, K. L. (2013). *Marketing management*. [4. vyd.]. Přeložil Tomáš Juppa, přeložil Martin Machek, Praha: Grada, ISBN 978-80-247-4150-5.

Majer, J. (2007). *NOVÝ KLIENT: GENERACE Y*. Retrieved June 5, 2017, from <http://finmag.penize.cz/penize/261670-novy-klient-generace-y>.

Matoušek, O. (2003). *Metody a řízení sociální práce*. Praha: Portál, ISBN 80-7178-548-2.

Nastupuje generace alfa a s ní interakce nových rozměrů [online]. (2016). Retrieved June 5, 2017 from <https://www.mediaguru.cz/2016/07/nastupuje-generace-alfa-a-s-ni-interakce-novych-rozmeru/>.

Pelsmacker, P. de, Geuens, M., a Joeri van den Bergh. (2003) *Marketingová komunikace*. Praha: Grada, Expert (Grada), ISBN 80-247-0254-1.

Prashnat, J. (2013). *Engaging Gen-Y: The 'Millennial' Challenge* (Part 3 – The strategies) [online]. Retrieved August 3, 2017, from <https://blog.kwench.com/2013/07/26/engaging-gen-y-the-millennial-challenge-part-2-the-strategies/>.

Průcha, J. (2014). *Andragogický výzkum*. Praha: Grada, Pedagogika (Grada), ISBN 978-80-247-5232-7.

Rašticová, M., Kolářová, I. (2015). *Myths about ageing population. In Innovation Vision 2020: from Regional Development Sustainability to Global Economic Growth*. Amsterdam, Netherlands: International Business Information Management Association (IBIMA), pp. 3896 / 3902. 2015. ISBN: 978-0-9860419-4-5.

Rezlerová, J. (2009). *Příchod generace Y na trh práce* [online]. Retrieved June 5, 2017 from <http://kariera.ihned.cz/c1-37310860-prichod-generace-y-na-trh-prace>.

Sak, P., Kolesárová, K. (2012). *Sociologie stáří a seniorů*. Praha: Grada, Sociologie (Grada), ISBN 978-80-247-3850-5.

STEM. *Diskriminace na trhu práce* [online]. (2007). Retrieved June 7, 2017 from <https://www.stem.cz/diskriminace-na-trhu-prace-973/>.

Tuček, M. (2003). *Dynamika české společnosti a osudy lidí na přelomu tisíciletí*. Praha: Sociologické nakladatelství, Studie (Sociologické nakladatelství), ISBN 80-86429-22-9.

Yager, J. (2012). *Produktivní vztahy: 57 strategií pro upevňování obchodních kontaktů*. Olomouc: ANAG, c2012. ISBN 978-80-7263-761-4.

Zemke, R., Raines, C. a Filipczak, B. (1999). *Generations at work: Managing the clash of veterans, boomers, xers, nexters in your workplace*. New York, London: AMOCOM, McGraw-Hill. [worldcat.org](http://www.worldcat.org) [online]. Retrieved April 25, 2013, from <http://www.worldcat.org/oclc/222553779>.

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THE CURRENT SITUATION OF PUBLIC BUDGETS OF MUNICIPALITIES AND LOCAL GOVERNMENT UNITS IN THE CZECH REPUBLIC

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Abstract: *Public economics examines the influence of the state on economic equality and efficiency, and on conduction of business entities in connection with the various tax systems and individual behavior in private consumption. To manage the public economy is thorough knowledge of the real decision-making and allocation mechanisms. From a budgetary perspective, the public economy in the Czech Republic is characterized mainly by the state budget, 6,249 municipal budgets and 14 budgets of local government units. These all units are together subject to annual statutory audit, which mainly represents the analysis of the system of the Audit informative and monitoring indicators (ASIMI). The paper analyzes the outcome of the audit with the use of absolute and relative indicators and suggests possible changes and consolidation of municipal and local government budgets in the Czech Republic.*

Keywords: *Municipality, local government unit, public budget, debt, GDP.*

JEL classification: *H60, H63*

Grant affiliation: *Work on this article was supported by the grant from Faculty of Arts of Palacký University o Olomouc, IGA_FF_2017_011 Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

The public sector is part of the national economy, whose main area of interest is to carry out a public service, who are funded from public funds as well as are managed and administered in public administration. Decisions within public sector are made on public option and are subject to public control (Volek, 2005). From a material standpoint, the issue of control of public administration is more difficult than controlling the business sector of the national economy, and moreover, is subject to the principles of publicity, the principles associated with the obligation to give public entities the requesting information (Becker et al., 2005). Public sector represents one of the hallmarks of public administration and its name is derived from the fact that it is implemented in the public interest (Barro, 2014).

By the end of 2016 there is a total of 6,249 municipalities and 14 Local Government Units (LGU) in the Czech Republic. The task of each municipality is to allocate sufficient funds to finance the activities that the municipality has in its scope and activities, as well as those which are transmitted by the state (Rektorik and Selesovsky, 1999). Municipalities and LGU seek comprehensive development of its territory and ensure the needs of its citizens through public goods and services.

On July 1st 2004 came into effect law No. 420/2004 Coll., on the Act on the audit of municipalities and LGU, where articles 1-9 of § 4 oblige the rule to provide (till 30th June of current year) the audit management for the past year. The audit shall be conducted in accordance with law No. 93/2009 Coll., on Auditors and the International Auditing Standards and related application clauses of the Czech Chamber of Auditors.

2. Objectives and methods

For the preparation and fair presentation of financial statements in accordance with accounting standards of the entity, there are data sources obtained from the Czech Statistical Institute and the Czech Ministry of Finance. These data were analyzed using both the absolute and relative methods of managerial accounting. Based on these data and analysis the main objective of the paper is to evaluate the main results of audit of municipalities and LGU in the Czech Republic and determine possible directions of its future reform. Part of this responsibility is designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate accounting policies and making reasonable accounting estimates (Pospisil, 2013).

3. Principles of budget survey

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks that the financial statements contain material misstatements due to fraud or error (Krugman and Eggertsson, 2012). When assessing these risks, the auditor considers internal control relevant to the preparation and fair presentation of the financial statements. The aim of the assessment of internal controls is to propose appropriate auditing procedures, not to comment on the effectiveness of internal controls. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management as well as evaluating the overall financial statement presentation.

The auditor shall, in accordance with these regulations, to comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement (Lucas and Moll, 2014).

The role of the auditor is to issue the audit opinion on the financial statements.

Data review on the annual management of municipalities and LGU, which forms part of the final account are based on law No. 420/2004 Coll, § 2, article 1-2:

- the income and expenditure of the budget, including cash transactions relating to budget funds,
- financial transactions related to the creation and use of monetary funds,
- the costs and benefits of business,
- cash transactions related to pooled funds expended under an agreement between two or more municipalities or LGU or under contract with other legal entities or individuals,
- financial transactions related to foreign sources within the meaning of the legislation on accounting,
- management and disposal of funds provided from the National Fund and other funds from abroad provided under international treaties,
- the billing and settlement of financial transactions to the state budget, the municipality and LGU budgets other budgets, state funds and of other persons.

The further audit and examination include:

- the trading and management of property owned by territorial unit,
- the trading and management of state assets under the management of a territorial unit,
- placing and execution of public contracts,
- the status of obligations and claims and their trading,
- liability for the obligations of individuals and legal entities,
- pledging of movable and immovable assets in favor of third parties,
- the establishment of easements on the property of a territorial unit,
- accounting of municipalities and LGU.

Subject of the review referred to in § 2 are audited in terms of:

- the compliance with obligations under special regulations, especially regulations on financial management of municipalities and LGU on the management of their assets, accounting and on remuneration,
- the compliance of the management of funds in comparison with the budget,
- the compliance with the purpose of a received grant or a refundable financial assistance and the conditions of their use,
- substantive and formal correctness of documents examined transactions.

Financial management in the context of this paper is characterized by basic financial indicators and the relationships between them as the following (including the types of financial documents where the indicators can be found). Table 1 shows the list of used and analyzed indicators of municipal and LGU budgets in the Czech Republic at present.

TAB. 1: Analyzed indicators of municipalities and LGU

Municipality profile	Balance sheet	Budget
Identification number	Fixed assets	Tax revenues
Number of inhabitants	Current assets	Non-tax revenues
Performs state administration or not	Total assets	Capital revenues
	Total current accounts	Accepted transfers
	Own sources	Total revenues
	External sources	Current expenditures
	Total liabilities	Capital expenditures
		Total expenditures
		Annual budget balance

Source: own processing

For analyzing the financial management of municipalities, auditors use basic financial analysis ratios, such as the following balance sheet indicators:

- Fixed assets / Total assets;
- Current assets / Total assets;
- Own sources / Total liabilities;
- External sources / Total liabilities;
- Total current accounts / Total liabilities.

In adding to the indicators mentioned above, beginning from July 2004 Czech government approved municipal debt regulation through the debt service ratio (DSR). The actual formula for the calculation is:

$$DSR = \frac{\text{debt service}}{\text{debt base}} \times 100 = \frac{\text{interest} + \text{principal and bond instalment} + \text{leasing instalment}}{\text{tax revenues} + \text{nontax revenues} + \text{received transfers}}$$

4. Results

The Ministry of Finance of the Czech Republic calculates the debt service ratio for each municipality and in case the ratio overruns 30 % than the minister of finance sends a letter to the municipality. The debt service ratio was first calculated in April 2004 from the 2003 data. Table 2 shows current indebtedness of municipalities in the Czech Republic in 2015 divided in different size group.

TAB. 2: Indebtedness of municipalities in 2015

Size group	Number of municipalities	Distribution of debt to assets ratio (%)			Distribution of debt to income ratio (%)		
		Median	75th percentile	95th percentile	Median	75th percentile	95th percentile
< 200	1456	1	4	19	7	22	110
201-500	1998	3	8	27	14	45	130
501-1000	1361	4	10	30	25	57	149
1001-5000	1161	6	10	24	32	61	134
5001-10000	141	6	11	21	35	52	104
>10000	132	7	11	17	41	57	96

Source: own processing

The municipality is required to explain within three months the reasons for this overrun and suggest measures to improve the situation (Maaytova et al., 2015). At the same time the municipality submits the audit report and the multi-annual budget outlook. Then the ministry evaluates these documents together with the total debt, debt per capita, tax revenues per capita, debt in the past years, size of the municipality and its overall financial situation (Barro, 2013). In case of overrun of the debt service ratio in the next year the Ministry of Finance will put the municipality on a list, which will be passed on to the grant providers (ministries or state funds). The grant providers should consider this list when providing new grants. There is no absolute prohibition of grant provision to these municipalities, but it may be a factor of grant rejection. The described procedure is effective only for a short time, however several problems arose (Lucas Jr., 2003). The debt service ratio does not say much about the total indebtedness and about the ability to pay off the debt (Lucas and Moll, 2014). The ministry did not inform the municipalities sufficiently about the whole procedure and its goals. In our understanding the procedure should have alert both the Ministry of Finance and the particular municipality, that the debt is too high and that some measures should be applied. However

many municipalities, which regularly pay off their debt, felt unfairly accused. At the same time the “debt service ratio” is not very concrete and is therefore often confused with “indebtedness”.

Audit system of informative and monitoring indicators(ASIMI)

The Ministry of Finance of the Czech Republic, on the basis of Government Resolution dated November 12, 2008 no. 1395 on audit of the management of municipalities and repealing Government Resolution of 14 April 2004 no. 346 on the regulation of indebtedness of municipalities and counties through the debt service, annually performs Audit system of informative and monitoring indicators (ASIMI) for all municipalities and contributory organizations established by them and evaluate the results of the calculation, building always on data 31.12. relevant year (after final enrollment). ASIMI indicators are divided into two separated parts and are audited and evaluated all together:

Informative indicators:

- population of the municipality,
- total income (after consolidation),
- interest,
- payment of installments for bond and borrowed funds,
- total debt service,
- debt service indicator (%),
- total assets,
- liabilities,
- balance at bank accounts in total,
- loans and municipal bonds,
- received repayable financial assistance and other debts,
- total debt,
- the debt to foreign sources (%),
- 8-year balance,
- current assets,
- current liabilities.

Monitoring indicators:

- share of foreign sources to total assets (%),

- total current liquidity,
- 5-year development if indebtedness,
- annual change of indebtedness.

The Ministry of Finance of the Czech Republic performs annually - from the submitted financial and accounting statements - calculation of ASIMI for all municipalities and evaluates the results of the calculation. Municipalities whose indicator of overall liquidity will be by 31.12. of the current year in interval $<0; 1>$, while the share of foreign sources to total assets will be greater than 25 %, will receive a letter from the Minister of Finance and asked for an explanation of this state and the opinion of the council of the municipality. The Ministry of Finance will, upon receipt of the municipalities concerned, inform the government of the Czech Republic on results of monitoring of municipal finances for the current year.

The Ministry of Finance also evaluates the operations of other municipalities (including their subordinate governmental organizations), with the indicator of the overall liquidity in the interval $<0; 1>$ using the above indicators, paying attention especially to municipalities that are in this interval occurred repeatedly. Municipalities who were identified with serious problems with their solvency, will be offered assistance focused on analyzing problems arising with the draft recommendations on possible solutions. Auditing of municipal management does not require additional administrative or financial demands on budgets and run municipalities. Municipalities are required to currently send to the Ministry of Finance of the Czech Republic completed ASIMI table.

Timetable of ASIMI audit:

- calculation of Audit system of informative and monitoring indicators (March),
- distribution of letters of Ministry of Finance of the Czech Republic (April),
- justification unsatisfactory status (June),
- information for members of the government (3rd. Quarter).

In 2016 Audit of ASIMI included all 6,249 municipalities and 14 LGU. By the 31. 12. 2015 there were 176 municipalities with the indicator of the overall liquidity in the interval $<0; 1>$ and also 226 municipalities with the share of foreign sources to total assets higher than 25 %. These two indicators all together exceeded the 28 municipalities. It is an annual fall of 2 municipalities, while 12 municipalities had exceeded those values in some previous years. The resulting values of the indicators are only indicative of the potential risk of economic problems, but it does not necessarily mean that the municipality is in a difficult financial situation. This can be assessed only after a thorough audit of the financial and accounting reports, and especially the additional documents provided by the municipalities themselves.

Based on the provided analysis, it is possible to state that:

- from the point of terms of solvency the most vulnerable municipalities are those, which were mandated contribution for breach of budgetary discipline and municipalities and those, that have made the wrong investment decisions (Rogoff et al., 2012),
- the greatest risks to the economic situation of municipalities is seen in non-compliance with the conditions of grant projects supported by EU funds and also from national programs. These risks arise both from errors in the preparatory and implementation phases,
- most municipalities with exceeding the given values of ASIMI, should not get into serious trouble with their solvency, because these identified risk proved only temporary,
- high insolvency risk was identified just in 2 municipalities of 6,249 total: Prameny and Turovice.

Municipalities (including their subordinate governmental organizations) reported at the end of 2015 the total debt of EUR 3,10 billion. Compared to the previous year with a decrease of 2.3%, in absolute terms, the debt declined by EUR 71,4 million. The total volume of municipal debt includes bank loans from financial institutions, issued municipal bonds, repayable financial assistance received and other debts, incl. loans from state funds. Table 3 shows summary data on indebtedness of municipalities in the Czech Republic in 2010-2015.

TAB. 3: Summary indebtedness of municipalities in the Czech Republic (billion EUR)

Variable/Year	2010	2011	2012	2013	2014	2015
Loans	2,14	2,18	2,44	2,46	2,42	2,36
Municipal bonds	0,56	0,50	0,49	0,54	0,42	0,38
Received repayable financial assistance and other debt	0,27	0,27	0,28	0,30	0,34	0,36
Total	2,97	2,95	3,21	3,30	3,18	3,10

Source: Czech Statistical Office; own processing

In the structure of the debt of municipalities have the greatest weight the long term loans, whose share during 2015 decreased by 0,1 percentage points to 76,1 %, the share of municipal bonds issued decreased by 1,0 percentage points to 12,3 % and the remaining part of the debt of municipalities (11,6 %) were consisted of repayable financial assistance and other debts. Total debt of municipalities in 2015 contributed 4 largest city of the Czech Republic by 50,4 %, the value of their debt amounted to EUR 1,55 billion.

Loans that municipalities have adopted from financial institutions, similarly to previous years, chiefly aimed at reconstruction and construction of technical infrastructure for pre-investment projects co-financed from EU funds and the regeneration and construction of housing (Reinhart and Rogoff,

2010). Municipalities also used these funds for reconstruction, insulation and expansion of educational facilities, sports arenas and other public facilities (Stiglitz, 2015). These loans are characterized by relatively low interest rate and very long maturities. Debt itself cannot be evaluated negatively (Stiglitz, 2016). Without a loan or credit, many municipalities cannot fund its development (gasification, local roads, sewers, water mains, sewage, preschool and school facilities, etc.). So it depends on what municipalities can borrow, whether the loans are repaid seamlessly and how well the project is ready.

Indebtedness in 2015 was showed in 3,255 municipalities out of a total of 6,249 municipalities (52,1%). Number of municipalities that have shown indebtedness in recent years remains broadly stabilized, although in the last year there has been a slight increase (by 20 municipalities).

According to the applicable laws governing budgetary responsibility meets the 92 % of municipalities the rule on budgetary responsibility for municipalities and LGU (ie. debt to average income in last 4 years shall not exceed 60 %). According to the monitoring of municipal management for the year 2015 - which among other things monitors the level of debt and liquidity municipalities - operate with a higher degree of risk only 28 municipalities.

LGU (counties) including contributory organizations established by them, reported at the end of 2015 total debt EUR 0,943 billion. From 2014 to 2015 the value of debt fell by EUR 42 million (4,4 %). On the line of credit was recorded decrease debt by EUR 20 million. The share of loans in total debt reached up to 92,0%. LGU did not issued any bonds in 2015. Table 4 shows summary data on indebtedness of LGU in the Czech Republic in 2010-2015.

TAB. 4: Summary indebtedness of LGU in the Czech Republic (million EUR)

Variable/Year	2010	2011	2012	2013	2014	2015
Loans	593	700	793	839	871	868
LGU bonds	9	14	7	26	24	5
Received repayable financial assistance and other debt	80	82	75	91	90	70
Total	682	796	875	956	985	943

Source: Czech Statistical Office; own processing

Some LGU continued drawdown of loans granted by the European Investment Bank, which pre-finance and co-finance massive investments in regional infrastructure. These loans are generally disbursed in several tranches with different maturities, typically in excess of 10 years. Other LGUs have taken loans mainly from the biggest Czech banks like Czech Savings Bank, Inc., which belongs to Erste Group, or Commercial Bank, Inc., which belongs to Societe Generale Group for the purpose of pre-investment of projects for the repair of roads or flood damage.

5. Conclusion

Municipal and LGU regional budgets in aggregate by the end of 2015 showed indebtedness of EUR 4,043 billion, which is by 3,0 % (EUR 122 million) more than in the previous year. The total volume of loans taken by the territorial budgets was increasing in 2015 as well (non governmental organizations) amounted to EUR 3,228 billion.(increase of 1,9 % over the previous year).

In the institutional area of public finance, the Czech Republic has been criticized for a weak budgetary framework for several years although it has always met its obligations in terms of general government sector performance over the last years. Since the termination of the excessive deficit procedure with the Czech Republic in June 2014, the medium-term budgetary objective has been met every year. A set of proposals for regulations on budgetary responsibility (a draft constitutional law on fiscal responsibility, a draft law on rules for fiscal responsibility and a draft law amending certain laws in connection with adoption of fiscal responsibility regulations) was approved by the Czech government already in February 2015, and after then it was under consideration in the Chamber of Deputies of the Parliament of the Czech Republic until October 2016.

Literature:

Barro, R. J. (2013). Inflation and Economic Growth, *Annals of Economics and Finance. Society for AEF*, vol. 14(1), p. 121-144, May.

Barro, R. J. (2014). [Human Capital and Growth), *Beperi Sermaye ve Büyüme, Journal of Economics and Political Economy*, KSP Journals, vol. 1(2), p. 351-358, December.

Becker, G. S., Murphy, K. M., Werning, I. (2005). The Equilibrium Distribution of Income and the Market for Status. *Journal of Political Economy*, University of Chicago Press, vol. 113(2), p. 282-310, April.

Krugman, P., Eggertsson, G. B. (2012). Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach, *The Quarterly Journal of Economics*, Oxford University Press, vol. 127(3), p. 1469-1513.

Lucas, R. E., Moll, B. (2014). Knowledge Growth and the Allocation of Time. *Journal of Political Economy*, University of Chicago Press, vol. 122(1), p. 1 - 51.

Lucas, R. E., Jr. (2003). Macroeconomic Priorities. *American Economic Review*, American Economic Association, vol. 93(1), p. 1-14, March.

Maaytová, A., Pavel, J., Ochrana, F. (2015). *Public finance in theory and practice*. Prague: Grada.

Pospíšil, R. (2013). *Public economics – present and perspective*. Prague: Professional Publishing.

Reinhart, C. M., Rogoff, K. S. (2010). Growth in a Time of Debt. *American Economic Review*, American Economic Association, vol. 100(2), p. 573-78, May.

Rektorik, J., Selesovsky, J. (1999). *Strategy of development od municipalities and local government units and their organizations*. Brno: Masaryk university.

Rogoff, K. S., Reinhart, C. M., Reinhart, V. R. (2012). Public Debt Overhangs: Advanced-Economy Episodes since 1800. *Journal of Economic Perspectives*, American Economic Association, vol. 26(3), p. 69-86, Summer.

Stiglitz, J. E. (2015). *Devolution, independence, and the optimal provision of public goods*. Economics of Transportation, Elsevier, vol. 4(1), p. 82-94.

Stiglitz, J. E. (2016). An agenda for sustainable and inclusive growth for emerging markets. *Journal of Policy Modeling*, Elsevier, vol. 38(4), p. 693-710.

Summers, L. H. (2000). *International Financial Crises: Causes, Prevention, and Cures*. American Economic Review, American Economic Association, vol. 90(2), p. 1-16, May.

Volek, T. (2005). *Audit of cooperatives and municipalities*. Prague: Druzstevnictvi.

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FARMERS' MARKET AT FLICKR SOCIAL NETWORK

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Abstract: Knowledge of Social networks is important for farmers because it will help them gain deep insights about social, cultural and environmental issues about people's activities at the area of the farmers' market. The objective of this paper is to determine communication content of Flickr social network. The results of the study are based on a sample of 552 most used hashtags in this network, based on the analysis of messages sent from around the world. The results identified top hashtags, that are associated with vegetables, fruit, flowers and the support of local farmers. Practical applications for marketing and business management are discussed at the end of the article.

Keywords: Farmers' market, Flickr, Social Network, Food.

JEL classification: L14, M31, Q13

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1. Introduction

The social networks are becoming an ordinary part of our lives. 79 % of American internet users have facebook, which is 68 % of all US adults ("100+ SOCIAL MEDIA STATISTICS YOU'LL WANT TO SEE (2017)", 2017). Understanding of social networks users can help us understand their motives, needs and behaviour in relation to the object observed, in this case Farmers Market. This article follows studies analyzing human behaviour on social networks Instagram (Pilař, Balcarová, & Rojík, 2016) and Facebooku (Cui, 2014; Pilař, Rojík, Balcarová, & Tichá, 2016) and broadens our knowledge of these social networks users.

2. Farmers Markets and Social Networks

The number of farmers markets grows globally and the successful concept shortens the supply chain from farmers to customers (Åsebø, Jervell, Lieblein, Svennerud, & Francis, 2007). For instance, the number of farmers markets in the USA increased from 1775 in 1994 to 8476 in 2014 (Yu, Gibson, Wright, Neal, & Sirsat, 2017). The growing consumer awareness of health food and environment helps the farmers markets (Cassia, Ugolini, Bonfanti, & Cappellari, 2012) survive in the tough competition of multinational chains (Lovreta, Končar, & Stanković, 2016). The farmers markets are not only a place to sell local products, yet also a place where people seek a positive customer relationship and build communities (Balcarová, Pilař, Pokorná, & Tichá, 2016).

Flickr is a social network enabling users to create and share photos and video with a commentary (Spyrou & Mylonas, 2016). In 2015, there were more than 10 billion images uploaded on Flickr and about 1 million users uploaded a photo every day (Smith, 2016). The social network analysis is important as it helps us deepen insights about social, environmental and cultural issues and activity (Hu, Manikonda, & Kambhampati, 2014), or farmers markets, in our case.

3. Materials and Methods

NodeXLPro software was used to analyse the data (NodeXLPro, 2017) with the Flickr module - Flickr Hashtag Explorer. The hashtag #farmersmarket was used for the data import. 552 of the most used hashtags in Flickr were extracted based on this import. The data were put into Gephi 0.9.1 program (Gephi, 2017). For a network analysis, the following statistical methods were applied: The Average Degree (Carrington, Scott, & Wasserman, 2005), Network Diameter (Brandes, 2001), Graph Density (Scott, 2000) and Modularity (Knoke & Yang, 2008). For Component Analysis Modularity detection algorithm (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008) was used. Force Atlas 2 was used for graphical representation with the definition of network crowds based on visual characteristics (Smith, Rainie, Shnederman, & Himmelboim, 2014).

4. Result and Discussion

The main sample consists of 552 nodes, which are connected by 2463 edges.

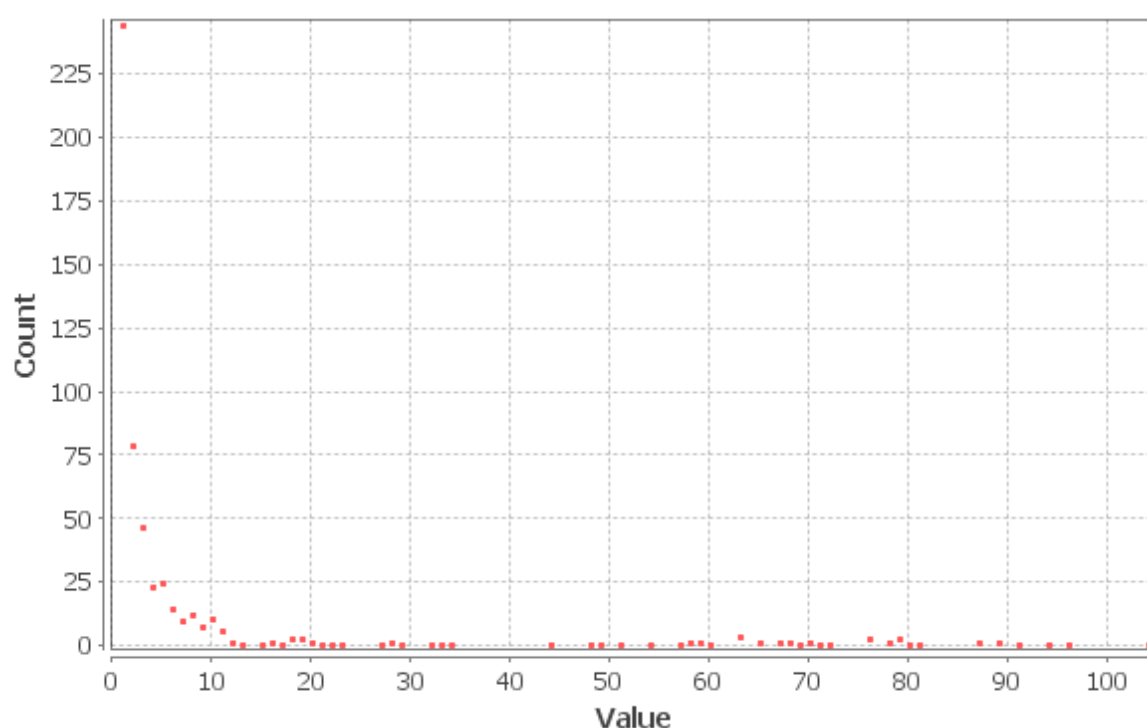
TAB. 1: Basic statistical characteristics of the sample

Charasteristics	Value
Average Degree	8.924
Network Diameter	6
Graph Density	0.008
Modularity	0.43
Number of Components	5

Source: Own calculation

Average degree is at level 8.924, which corresponds to each hashtag being linked to other 9 hashtags on average. The degree distribution fits standard long tail characteristics (Kordumova, van Gemert, & Snoek, 2016) - see Figure 1.

FIG. 1: Degree Distribution of hashtags



Source: Own calculation

When analyzing hashtags based on the degree size, p hashtags vegetables and fruit are on the first and second place respectively. This fits the products the most often bought from farmers markets (Pavia, 2009). The third highest degree is #food. This stems from the fact that people buy mostly food at farmers markets (Spiller, 2012). The first three positions are linked to food as it is the most often sought commodity at farmers markets.

The following positions are taken by localities, which is in accordance with the results of Pilař et al. (2017), where one of the reasons to use a hashtag was to self-promote (show to others where I'm and what I'm doing).

The hashtags #Fresh and #Green correspond with the research in the field of Value Proposition of Farmers Markets, where the motive to shop at farmers market is to buy Fresh and Healthy food (Pokorná, Pilař, Balcarová, & Sergeeva, 2015).

TAB. 2: Top 10 hashtags on Flickr related to #Farmersmarket

Hashtag	Degree	Hashtag	Degree
Vegetables	165	seattle	91
Fruit	154	washington	89
Food	104	Market	87
Losangeles	96	Fresh	81
Ca	94	Green	80

Source: Own calculation

Network Diameter is at value 6, which means that the maximum number of hashtags between two independent hashtags is 6, which signifies a very close relation of hashtags.

The value of modularity is at level 0.43. This result shows that the hashtags of individual communities are connected about half as much as hashtags within one community. 5 communities explaining 100 % of the sample analysed were extracted based on Component Analysis.

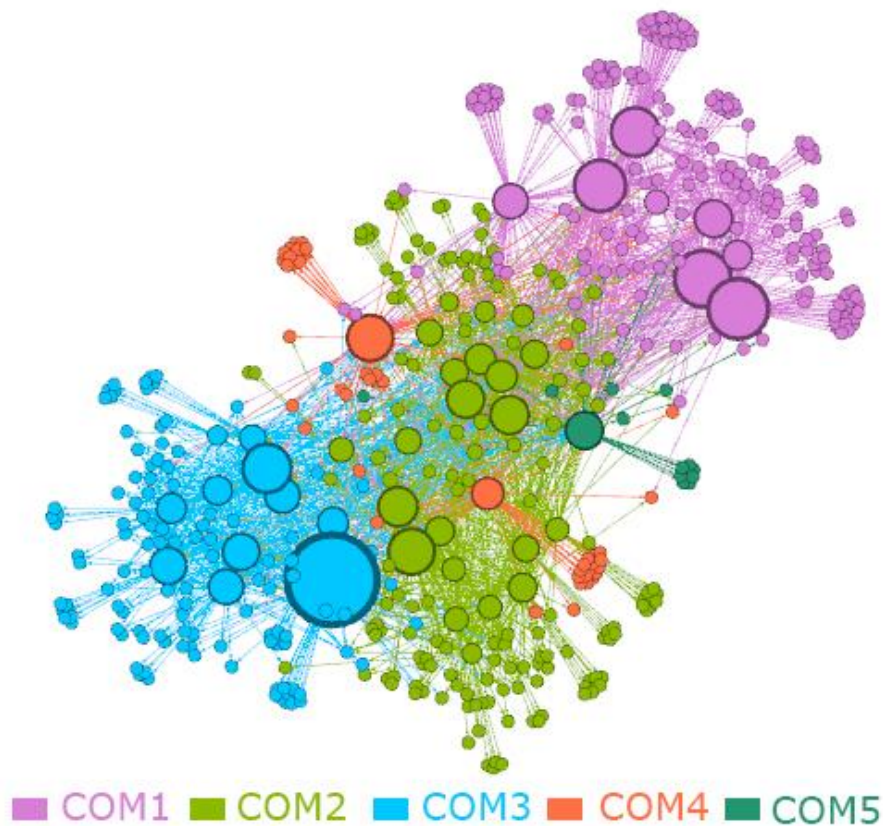
TAB. 3: Communities

Communities	%
Communities	35.69
Product properties	30.62
Localities	22.64
Local Support	8.51
Time location	2.54

Source: Own calculation

The largest community are the hashtags of the products sold at farmers markets (#food, #vegetable, #fruit, #tomatoes etc.), which explain 35.69% of communication in the hashtag sample. Another group is formed by properties of these products (#organic, #fresh, #green etc.), which explains another 30.62% of communication in the sample observed. The third largest community is the community of hashtags with the users' locations (#losangeles, #ca, #seattle etc.). The fourth community explaining 8.51% is the community focusing on local products and producers support (#local, #eatlocal). The last community of 2.54 % is time location (#summer, #evening, #morning etc.).

FIG. 2: Visual representation - ForceAtlas2



Source: Own calculation

We can conclude, based on the visual representation of the network structure, that communities are connected to each other and do not form homogenous compact bundles linked and separated only by hashtags. This is also supported by the value of modularity 0.43. As shown on the visual representation, COM1 (Products) and COM2 (product properties) are linked the most, COM 4 (Local Support) is in the middle of COM2 (product properties), which corresponds with the fact that local food is an important property of products sold at farmers markets.

5. Conclusion

Based on the analysis of 552 the most often used hastags on Flickr social network, it is possible to define the main areas of these hashtags. It is as follows: (1) products (2) product properties (3) locations (4) local support (5) time location. A significant finding lies in the fact that the community of Local Support separated itself from the community Product Properties and stands in the middle of this community. It means that people perceive the characteristics of 'local' as salient and it's use for marketing purposes is advisable. It is possible to identify the most interesting products sold at farmers markets from the user perspective based on the analysis of individual hashtags' degree. It is

vegetables and fruits. The hashtag analysis also identified #fresh as 9th the most used hashtag, which is important as it is the characteristics, which is closely examined by the users. We can conclude that 'fresh local products' have competitive advantage at farmers markets.

Literature:

100+ SOCIAL MEDIA STATISTICS YOU'LL WANT TO SEE (2017) [Online]. (2017). Retrieved July 26, 2017, from <https://www.bluecorona.com/blog/social-media-statistics-2017>.

Åsebø, K., Jervell, A. M., Lieblein, G., Svennerud, M., & Francis, C. (2007). Farmer and Consumer Attitudes at Farmers Markets in Norway. *Journal Of Sustainable Agriculture*, 30(4), p. 67-93. https://doi.org/10.1300/J064v30n04_06.

Balcarová, T., Pilař, L., Pokorná, J., & Tichá, I. (2016). *Farmers Market: Customer Relationship*. In Agrarian Perspectives XXV. – Global and European Challenges for Food Production, Agribusiness and the Rural Economy. Prague: PEF ČZU.

Blondel, V. D., Guillaume, J. L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of communities in large networks. *Journal Of Statistical Mechanics: Theory And Experiment*, 2008(10), P10008-. <https://doi.org/10.1088/1742-5468/2008/10/P10008>.

Brandes, U. (2001). A faster algorithm for betweenness centrality*. *The Journal Of Mathematical Sociology*, 25(2), p. 163-177, retrieved from <https://doi.org/10.1080/0022250X.2001.9990249>.

Carrington, P. J., Scott, J., & Wasserman, S. (2005). *Models and methods in social network analysis*. New York: Cambridge University Press.

Cassia, F., Ugolini, M., Bonfanti, A., & Cappellari, C. (2012). *The Perceptions of Italian Farmers' Market Shoppers and Strategic Directions for Customer-Company-territory Interaction (CCTI)*. *Procedia - Social And Behavioral Sciences*, 58, p. 1008-1017, retrieved from <https://doi.org/10.1016/j.sbspro.2012.09.1081>.

Cui, Y. (2014). Examining Farmers Markets' Usage of Social Media: An Investigation of a Farmers Market Facebook Page. *Journal Of Agriculture, Food Systems, And Community Development*, p. 1-17, retrieved from <https://doi.org/10.5304/jafscd.2014.051.008>.

Gephi [Online]. (2017). Retrieved July 25, 2017, from <https://gephi.org/>.

Knoke, D., & Yang, S. (2008). *Social network analysis* (2nd ed.). Los Angeles,: Sage Publications.

Kordumova, S., van Gemert, J., & Snoek, C. G. M. (2016). Exploring the Long Tail of Social Media Tags. *International Conference On Multimedia Modeling*, 51-62. https://doi.org/10.1007/978-3-319-27671-7_5.

Lovreta, S., Končar, J., & Stanković, L. D. (2016). *Effects of Increasing the Power of Retail Chains on Competitive Position of Producers*. *Acta Polytechnica Hungarica*, 13(4).

NodeXLPro [Online]. (2017). Retrieved July 25, 2017, from <https://nodexl.codeplex.com/>.

Pavia, A. (2009). *Farmers' Markets: About the Trend* [Online]. Hobby Farms. Retrieved from <http://www.hobbyfarms.com/farmers-markets-about-the-trend/>.

Pilař, L., Balcarová, T., & Rojík, S. (2016). *Farmers' Markets: Positive Feelings of Instagram Posts*. Acta Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis, 64(6), p. 2095-2100. <https://doi.org/10.11118/actaun201664062095>.

Pilař, L., Rojík, S., Balcarová, T., & Tichá, I. (2016). Farmers Market – Facebook text analysis. In *Conference: Agrarian Perspectives XXV. – Global and European Challenges for Food Production, Agribusiness and the Rural Economy* (pp. 277-283). Prague: ČZU v Praze.

Pokorná, J., Pilař, L., Balcarová, T., & Sergeeva, I. (2015). *Value Proposition Canvas: Identification of Pains, Gains and Customer Jobs at Farmers' Markets*. Agri On-Line Papers In Economics And Informatics, 7(4), 123-130.

Scott, J. (2000). *Social network analysis: a handbook* (1st ed.). California: SAGE Publications.

Smith, A. C., Rainie, L., Shneiderman, B., & Himelboim, I. (2014). *Mapping Twitter Topic Networks: From Polarized Crowds to Community Clusters* [Online]. In Pew Research Center. Retrieved from <http://www.pewinternet.org/2014/02/20/mapping-twitter-topic-networks-from-polarized-crowds-to-community-clusters/>.

Smith, C. (2016). *Flickr Stats* [Online]. Dmr. Retrieved from <http://expandedramblings.com/index.php/flickr-stats/>.

Spiller, K. (2012). *It tastes better because ... consumer understandings of UK farmers' market food*. Appetite, 59(1), 100-107, retrieved from <https://doi.org/10.1016/j.appet.2012.04.007>.

Spyrou, E., & Mylonas, P. (2016). *A survey on Flickr multimedia research challenges*. Engineering Applications Of Artificial Intelligence, 51, 71-91, retrieved from <https://doi.org/10.1016/j.engappai.2016.01.006>.

Yu, H., Gibson, K. E., Wright, K. G., Neal, J. A., & Sirsat, S. A. (2017). *Food safety and food quality perceptions of farmers' market consumers in the United States*. Food Control, 79, 266-271, retrieved from <https://doi.org/10.1016/j.foodcont.2017.04.010>.

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MANAGERIAL UTILITY FUNCTION AND ITS IMPACT ON DECISION-MAKING IN THE COMPANY

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Abstract: *This paper focuses on the comparison of current theories of the firm, which are further used as inputs for the managerial utility function. The quantification of this function is also based on the principal-agent problem. The individual approaches to the problem of firm's theory are represented by Baumol's and Williamson's model, whose mathematical expression of maximization utility benefits is implemented into one function of the managerial utility, as the main output of this paper. The result is the function of utility, which depend on four variables (total revenue, employee expenses, minor benefits and personal preferences). In addition, the paper represents a possible implementation of this function into the company's decision-making process. The assumption for this implementation is multiple-criteria decision analysis (MCDA). The paper uses the principles of multiple-criteria decision making, especially Saaty's matrix.*

Keywords: *Decision-making process, Utility function, Managerial behaviour, Baumol's model, Williamson's model.*

JEL classification: D90, C30, M10

Grant affiliation:

1. Theoretical background

This chapter represents the basic theoretical basis that was used to build the manager's utility function. These are based in particular on alternative approaches in the theory of firm.

1.1. Baumol's model

Baumol's behavioral model is specific by focusing on maximizing revenue (sales) rather than profit maximization. In particular, it is mentioned that managers can be rewarded according to the market share of the company, which by its nature is identified with the size of the sales. A revenue-decreasing business may be less attractive to investors which may mean a further risk of future revenue cuts. Another reason to track revenue growth is that companies are forced to reduce wage costs as well, but above all this may mean an increase in the dismissal of managers themselves or in a lower job position. This fact is also related to the problem of prestige when a department with a

higher number of employees is more attractive to the manager and vice versa. The assumption of this model is the minimum required earnings that are explicitly set.

The solution to this approach can be applied in a static or dynamic version (Kyer, 1989; Skála 2010). The paper will focus on the static version only. The manager maximizes total revenue (TR)

$$TR = P * Q,$$

where P is the price and the Q quantity, under the condition $Q \geq 0$ which represent positive output, and $\pi \geq \pi_0$ as the second condition that presents the required minimum level of profit. The second condition can then be simply edited into $\pi_0 - (TR - TC) \leq 0$. Assuming the real profit is equal to the required minimum profit, the model can be solved by using the Lagrange function as follows

$$L(Q, \lambda) = P * Q + \lambda [(TR - TC) - \pi_0]$$

The basis of this model could be implemented in the decision-making process simply by the preferring the option that brings higher overall revenues (sales) under the conditions of maintaining the minimum required profit. This is basically a preferential arrangement of individual variants according to the expected size of total sales.

1.2. Williamson's model

E. O. Williamson's model (Pošta, 2006; Skála, 2010) builds a managerial utility function consisting of the following components: wage, certainty, status, power, prestige, social service, high professional performance. The components of status, power and prestige are then summarized in one term of dominance. According to Williamson, social service is not significant and therefore will not be included in the final function. The nature of the individual components can be relatively simply evaluated qualitatively, but due to the nature of the problem solved, it is necessary to apply the mathematical tools and quantify individual components or groups of components.

It is appropriate to use three equivalents for quantification, which are employees expenditures, other benefits, and discretionary profit. Expenditure for employees is understood within the whole company or within the department that the relevant manager (for whom the function of the function is set up) leads (see also Skupinová, 2015). Employees expenditure (S) should represent all components of a dominant position. Other (secondary) benefits (M) are non-monetary rewards for managers, which are also an important element, for two basic reasons. The first is that financial rewards are generally subject to taxation. Non-cash rewards and bonuses for managers are then less noticeable to business owners, making them easier to get. The last equivalent is the discretionary profit, which is defined as the difference between the actual profitability and the required minimum profit. This can be derived from real profit, which is defined as

$$\pi_a = TR - TC - S,$$

where π_a represents the value of the actual profit, TR is the total revenue (sales) and the TC total cost. Williamson goes on to analyze further and differentiates between actual earnings and reported earnings. Profit reported has the form

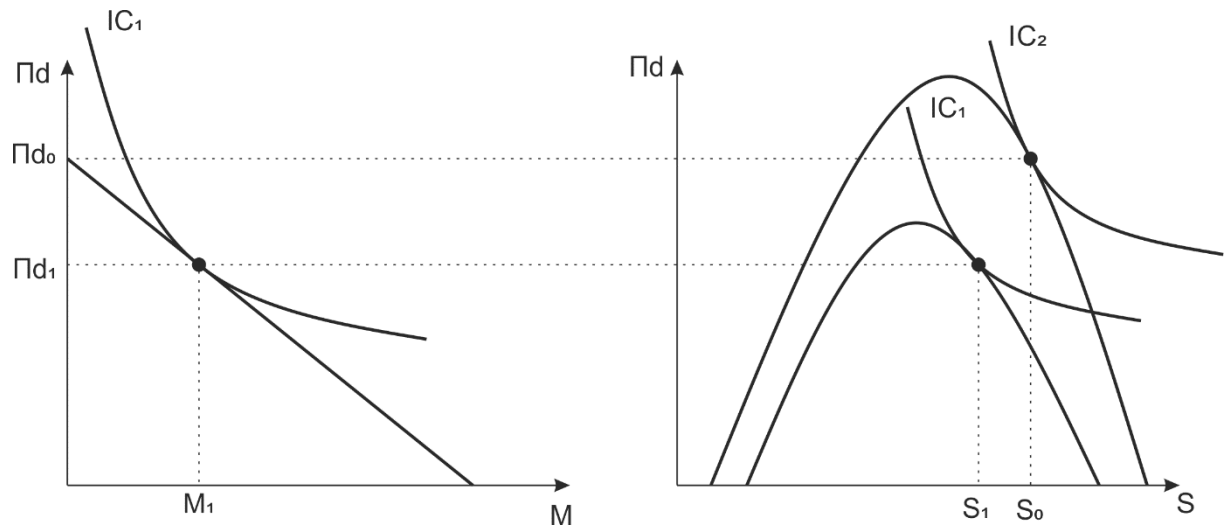
$$\pi_r = \pi_a - M$$

From the above, it follows that

$$\pi_d = \pi_r - \pi_0 - T$$

where π_0 represents the minimum required profit and the T value is the tax considered (both autonomous and income). The whole model output can be presented in the following picture.

PICT. 1: Williamson's model



Source: Skála, 2010

This is the final model in which both employees and other (secondary) benefits are expected. The left chart is the model with other (secondary) benefits. This is the relationship between discretionary profit (π_d) and the other benefits of managers (M). The budget line curve represents the opportunity for managers to substitute for other benefits and discretionary profit. The manager's preference then captures an indifference curve (IC). The output of this part of the model is an optimal combination of discretionary gains and other benefits. The right chart is a model with employees expenditure. The chart suggests that Williamson predicted profit growth to some extent with employee spending, and from a certain amount of spending, costs began to grow faster than earnings, and earnings decline. Managerial preferences represent an indifference curve that shows the optimum in higher employee costs than those that maximize profit.

If we combine the assumptions described above, we get the output of the entire model. This output first describes the situation assuming $M = 0$, which then reaches value M_1 . This leads to the original S_0 employee costs being reduced to S_1 . The managerial utility function has then the following form

$$U = U(S, M, \pi_r - \pi_0 - T)$$

The condition of the minimum profit required for which the benefit is maximized has the following form

$$\pi_r \geq \pi_0 + T$$

The final utility function has then the following form

$$U = U[S, M, (1-t) * (TR - TC - S - M - TA) - \pi_0]$$

The solution under maximization conditions is partial derivation according to quantity (Q), other benefits (M) and employees expenditure (S) which equal to zero (equations follows).

$$\frac{\partial TR}{\partial Q} - \frac{\partial TC}{\partial Q} = 0$$

$$U_1 + (1-t) * U_3 * \frac{\partial TR}{\partial S} - (1-t) * U_3 = 0$$

$$U_2 - (1-t) * U_3 = 0$$

Using the above described, the final managerial utility function then combines these approaches described.

2. The managerial utility function

This chapter represents the output of the entire paper - the managerial utility function. This utility is connected to the one variant during the decision-making process. Because of different approaches with different variable variables are combined, this chapter uses primarily the Greek alphabet to describe variables. This is only a simplifying assumption for the resulting function of utility. The managerial utility function has the following form

$$TMU_A = TMU_A(TR_A, \varepsilon_A, \omega_A, \rho_A)$$

where TMU (Total Managerial Utility) is a managerial utility function, which is dependent on total revenue (TR), employees expenditures (ε), other benefits (ω) and personal preferences of the decision maker (ρ). Index A indicates a given option. For each option, individual function have to be set. Total revenue (TR) represents the expected revenue (sales) from a given variant that the manager considers (option A, B, etc.). The value of total sales is based on the Baumol's model. The component described as employees expenditures is either known to the manager, or the value of variable costs can be considered for this (depending on the type of decision-making process and the whole business). Other benefits (ω) indicate what Williamson considered to be a qualitative aspect that enters the managerial utility function. Their quantification is an extremely subjective and it is affected by a number of variables, Therefore it will be assumed to compare the value of the other benefits of the individual variants. This procedure is both universal and sufficient for this variable to

be quantified. For this comparison, it is appropriate to use, for example, the Saaty's matrix (Saaty, 1980). The last variable of a managerial utility function is personal preferences (ρ). Explanation of this variable in the manager's utility function can be performed using two approaches. The first assumes that the decision maker has personal preferences for the individual variant that are not captured in any of the above elements of the manager's utility function. The second way to use personal preferences is to use this variable as a prohibitive rate in a utility function. However, there is no guarantee that even if the value of this variable is too high (negative), the variant will be so negative evaluated that it will be uncompromising from the entire decision-making process. Therefore, the values of this variable can logically also have negative values and it is recommended (Fiala, 1994) to indicate such rates at least higher than the value of our function. In this case, personal preferences should have a value in the interval

$$(-\infty, -10) \cap (10, +\infty)$$

In order for the individual components in the utility function to be relatively correctly used, most of them should be normalized to one. The resulting utility function of the manager has then the following form

$$TMU_A = \frac{TR_A}{\sum_{i=1}^N TR_i} + \frac{\varepsilon_A}{\sum_{i=1}^N \varepsilon_i} + \omega_A + \frac{\rho_A}{\sum_{i=1}^N \rho_i}$$

The utility function combines the managers' minor goals in decision making that are quantified according to the above relationships. For simple interpretation, the same weight of the individual inputs is assumed. In other words, the same importance of all the variables mentioned. If this was practically possible, it would be advisable to further regulate these partial variables by some of the other procedures known in the context of the multicriteria evaluation (see Edwards, W. et al., 2007).

3. Conclusion

The managerial utility function (TMU) combines the main problems of the approaches, which are known as the theory of alternative goals of the company. These approaches are based on the Baumol's and Williamson's models, which are described in the introductory section of the paper. The resulting utility function of the manager then represents the value of the benefit of one expected variation within the decision-making process. This value of utility from a given variant can be used as a single decision criterion or as a variable which serves to compare the different options from the utility point of view for the manager.

Literature:

Edwards, W. et al. (2007). *Advances in decision analysis: from foundations to applications*. New York: Cambridge University Press.

Fiala P. et al. (1994). *Vícekritériální rozhodování*. 1. vyd. Praha: Vysoká škola ekonomická v Praze.

Kyer, B. (1989). *A test of the baumol model of unbalanced growth*. Atlantic Economic Journal.

Pošta, V. (2006). Manažerské modely firmy. *Politická ekonomie*.

Saaty, T. L. (1980). *The Analytic Hierarchy Process*. New York: McGraw-Hill International Book Company.

Skála, M. (2010). *Problémy současné teorie firmy*. Vyd. 1. Liberec: Technická univerzita v Liberci.

Skupinová, S., et al. (2015). The Issues of Unemployment in Modern History of the Czech Republic. International Scientific Conference on Knowledge for Market Use. Olomouc.

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IMPACT OF GENDER AND PERSONALITY TRAITS ON USE OF COUPONS

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Abstract: *Coupons are used for sales promotion for over a hundred years. The aim of the paper is to investigate influence of Big Five Inventory personality traits on use of coupons. The latter is measured in two ways - as the number of coupons used by respondents in the last 6 months, and whether they use savings offered to frequent customers (e.g. cards with which they get saving each 10th time they shop). Reported past behavior was used rather than intention to use because it is a more reliable indicator. The research was conducted in the Czech Republic using an on-line questionnaire. With regards to the findings, extraversion has a significant impact on use of coupons in both ways it was measured, and the impact is positive. Moreover, savings offered to frequent customers use significantly more used by women. Gender did not significantly influence the number of printed coupons used.*

Keywords: *Coupons, personality traits, Big Five Inventory, questionnaire survey, quantitative research.*

JEL classification: M31

Grant affiliation: *Paper was processed with the contribution of long term support of scientific work on Faculty of Informatics and Statistics, University of Economics, Prague.*

1. Introduction

Coupons are classified as sales promotion in the promotional mix framework. In the past, only printed coupons existed. Digital coupons are linked to the advent of (daily/flash) deal sites; they are also called social coupons, the term was popularized by Kumar and Rajan (2012a, 2012b). According to a recent study cited by Kotler et al. (2017), "digital coupons now outpace printed newspaper coupons 10 to 1". On the other hand, it means that printed coupons are still used, also in the United States.

Although most of literature on coupons is, actually, about printed coupons (because of historical reasons), surprisingly, there seems to be no research linking use of printed coupons with personality traits. Search within the Web of Science and Scopus databases for coupon* and personality trait* or

"big five" or BFI (Big Five Inventory being the most used personality traits framework) as a topic did not yield any relevant results.

Therefore, the aim of this paper is to investigate impact of personality traits on use of printed coupons, in order to close the identified gap. Gender is used as a control variable. Moreover, the paper addresses a related area - use of savings offered to frequent customers that is typically paper-based and requires stamps (in both meanings of the word).

The rest of the paper is organized as follows: The next section describes the questionnaire and the analysis, the following section contains results, the penultimate section discusses these results and the final section summarizes the findings.

2. Data and methodology

Data were collected in December 2016-January 2017 using an on-line questionnaire. Respondents were 264 university students from the Czech Republic, of whom 117 were male and 147 female. SurveyXact was used for the questionnaire. The questionnaire was split into two pages and it contained also questions which were not used in the analysis presented in this paper. Independent variables were on the first page, and the dependent variables were on the second page. Seven respondents stopped after the first page and one respondent provided arbitrary high numbers as answers for multiple open-ended questions - this row was excluded from the analysis. So, the effective sample size was 256.

Use of coupons was measured in two ways, therefore, there will be two models tested. The dependent variable for model 1 was measured using the question "Do you use discount coupons in printed form (leaflets or offers sent by mail)? How many of them did you use during the last 6 months?". The dependent variable for model 2 was measured using the question "Do you use discount offers for frequent customers (for example, cards where you get a discount for the 10th purchase)?".

Personality traits were measured using Rammstedt and John's (2007) Big Five Inventory-10, i.e. a 10-item version of the Big Five Inventory questionnaire developed by John and Srivastava (1999), and translated to Czech by Hřebíčková et al. (2016). The instruction was to rate "How well do the following statements describe your personality" with statements "I see myself as someone who..."

1. ... is reserved,
2. ... is generally trusting,
3. ... tends to be lazy,
4. ... is relaxed, handles stress well,
5. ... has few artistic interests,
6. ... is outgoing, sociable,
7. ... tends to find fault with others,

8. ... does a thorough job,
9. ... gets nervous easily,
10. ... has an active imagination

on a 1-5 Likert scale where 1 meant strongly disagrees and 5 stood for strongly agree. Extraversion was calculated as an average of the 1st (reversed-scored) and the 6th answer, agreeableness as an average of the 2nd and the 7th (reversed-scored) answer, conscientiousness as an average of the 3rd (reversed-scored) and the 8th answer, neuroticism as an average of the 4th (reversed-scored) and the 9th answer, and openness to experience as an average of the 5th (reversed-scored) and the 10th answer. Cronbach alphas for personality traits will not be reported since the Big Five Inventory-10 (Rammstedt and John, 2007) was not constructed with this statistic in mind.

With regards to model 1, a general linear model (GLM) was used to analyze impact of gender and of five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) on the number of used printed discount coupons in the previous 6 months. Parameter estimates tables will be provided (instead of ANOVA-style tables) in order to be able to see signs of parameter estimates (not only p-values). The results should be equivalent to a multiple linear regression model estimates in case the dummy variable is set to 1 for male and to 0 for female. R² and R²_{adj} are provided in order to be transparent about how much a model explains though it may be significant.

With regards to model 2, logistic regression was used to analyze impact of gender and of five personality traits on use of discount offers for frequent customers. For practical reasons, multinomial logistic regression procedure was use - in order to be able to choose the reference category, i.e. non-use (coded as 2). The output is indistinguishable from the binary logistic regression.

In both cases, a multivariate approach to testing was used. SPSS software was used for all the tests.

3. Results

Parameter estimates for the generalized linear model analyzing impact of gender and of personality traits on the number of used printed discount coupons are provided in TAB. 1.

TAB. 1: Parameter estimates for model 1

Parameter	B	Std. Error	T	Sig.
Intercept	1.620	1.646	.984	.326
Extraversion	.415	.190	2.183	.030
Agreeableness	-.307	.218	-1.411	.160
Conscientiousness	-.143	.212	-.672	.502
Neuroticism	-.193	.175	-1.104	.271
Openness to experience	.107	.196	.548	.584

Gender	-.554	.384	-1.443	.150
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The model per se is not significant (p-value = .127), and with regards to the explanatory power, $R^2 = .039$, $R^2_{adj} = .016$. Carlson and Wu (2012) suggest to exclude independent variables that are not significant. Parameter estimates for the streamlined model - containing only extraversion - are provided in TAB. 2.

TAB. 2: Parameter estimates for streamlined model 1

Parameter	B	Std. Error	T	Sig.
Intercept	-.538	.690	-.780	.436
Extraversion	.442	.188	2.356	.019

The streamlined model is significant (p-value = .019), and with regards to the explanatory power, $R^2 = .022$, $R^2_{adj} = .018$.

Parameter estimates for the logistic regression model analyzing impact of gender and of personality traits on use of discount offers for frequent customers are provided in TAB. 3.

TAB. 3: Parameter estimates for model 2

Parameter	B	Std. Error	Wald	Df	Sig.
Intercept	-.988	1.324	.557	1	.455
Extraversion	.461	.158	8.456	1	.004
Agreeableness	-.045	.179	.065	1	.799
Conscientiousness	.209	.172	1.474	1	.225
Neuroticism	-.061	.139	.194	1	.659
Openness to experience	.035	.156	.050	1	.823
Gender	-1.390	.308	20.333	1	.000

The model per se is significant (p-value < .001), Cox and Snell pseudo- $R^2 = .139$, Nagelkerke pseudo- $R^2 = .188$, McFadden pseudo- $R^2 = .112$. Submodels were tested to see whether omissions of certain independent variables could improve p-values. Parameter estimates for the best submodel are provided in TAB. 4.

TAB. 4: Parameter estimates for streamlined model 2

Parameter	B	Std. Error	Wald	Df	Sig.
Intercept	-.582	.567	1.055	1	.304
Extraversion	.479	.157	9.359	1	.002
Gender	-1.381	.277	24.823	1	.000

The streamlined model is also significant (p-value < .001), Cox and Snell pseudo-R² = .133, Nagelkerke pseudo-R² = .180, McFadden pseudo-R² = .106.

To sum up, extraversion had a positive effect on both dependent variables, i.e. on use of printed coupons and on use of savings offers for frequent customers. Moreover, men are less likely to use savings offers for frequent customers.

4. Conclusion

The research presented in this paper focused on impact of personality traits on use of printed coupons and on use of offers for frequent buyers. The motive for such research was a gap in literature.

Big Five Inventory was used to measure personality traits because it probably most used framework for personality traits. Moreover, there exists a short, 10-item, instrument (Rammstedt and John, 2007) for its measurement. A newer framework for personality traits is HEXACO. But the shortest instrument for its measurement (De Vries, 2013) contains 24 items.

According to our findings, extraversion had a positive effect on use of printed coupons and also on use of discount offers for frequent customers. Moreover, women are more likely to use discount offers for frequent customers, and this effect is stronger than the effect of extraversion.

Literature:

Carlson, K. D. & Wu, J. (2012). The Illusion of Statistical Control: Control Variable Practice in Management Research. *Organizational Research Methods*, 15(3), p. 413-435.

De Vries, R. E. (2013). The 24-item Brief HEXACO Inventory (BHI). *Journal of Research in Personality*, 47(6), p. 871-880.

Hřebíčková, M., Jelínek, M., Blatný, M., Brom, C., Burešová, I., Graf, S., Mejzlíková, T., Vazsonyi, A. T. & Záborská, K. (2016). Big Five Inventory: Základní psychometrické charakteristiky české verze BFI-44 a BFI-10. *Československá Psychologie*. 60(6), p. 567-583.

John, O. P. & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In Pervin, L. A. & John, O. P. (Eds.), *Handbook of personality: Theory and research*, 2nd edition (pp. 102-138). New York, NY: Guilford Press.

Kotler, P., Armstrong, G., Harris, L. C. & Piercy, N. (2017). *Principles of Marketing*, 7th European ed. New Jersey, NJ: Pearson Publishing.

Kumar, V. & Rajan, B. (2012a). The perils of social coupon campaigns. *MIT Sloan Management Review*, 53(4), p. 13-14.

Kumar, V. & Rajan, B. (2012b). Social coupons as a marketing strategy: a multifaceted perspective. *Journal of the Academy of Marketing Science*, 40(1), p. 120-136.

Rammstedt, B. & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), p. 203-212.

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ILLEGAL WORK AND ILLEGAL EMPLOYMENT UNDER THE CONDITIONS OF SLOVAK REPUBLIC

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Abstract: *The authors deal with the analysis of illegal work and employment, as well as the employer's responsibility, customers of services from the point of view of the legislative enshrinement in Slovak legal order, as well as the application in practice in the article. Illegal work and illegal employment pose a serious economic and social problem for our society. The aim of this study was to investigate an association and reasons of illegal work and illegal employment. We present the results of a survey in which we investigated views on illegal work and illegal employment in the article. The responses were evaluated by descriptive statistics. We have found that illegal work is particularly attractive as an option not to pay contributions. Although the market for illegal work can not be totally eliminated, it is necessary to address this issue with increased attention, in particular due to the reduced social and economic protection of illegally employed people, negative consequences for the labor market, as well as public finance losses.*

Keywords: *Illegal work, Illegal employment, Employment, Unemployment, Tax evasion, Labor contract.*

JEL classification: K31, J6, J83

Grant affiliation:

1. Introduction

It is necessary to take into account such issues such as migration of employees to work abroad, work illegally, monthly contribution, in the analysis of unemployment. Just topics of illegal employment and illegal work are extremely debated issues in recent years. (Ivanová, 2010; Habánik, 2014) This problem is widespread not only in Slovak Republic but increased attention is paid to it in the European Union as well as in the whole world. (Windebank, Horodnic, 2017; Kojouharov, Dzhekova, 2017) Illegal employment or work called "black" statistically most often refers to small companies with one to nine employees, with notably the construction and trade sector and also accommodation and food services. Often the unemployed who perform seasonal work or who have officially earn a minimum, respectively, a certain wage, but actually receive more money "on hand". (Alm, Torgler, 2011; Alm, McClelland, Schulze, 1992)

There was no legal definition of undeclared work, the definition of which is a prerequisite for its effective detection by the competent control authorities until 2005. The issue of illegal work is legislatively regulated in Act no. 82/2005 Coll. and amendments to some laws on illegal work and illegal employment since 2005. In connection with this, a natural person has the prohibition to work illegally and natural and legal person has the prohibition of illegal employment. The main theme for increased attention is the reduced social and economic protection of illegally employed people, losses in public finances, negative consequences for the labor market. (Gullerová, Pšenková, 2015)

Normally, illegal employment is considered to be work without the existence of a contract of employment, an employment contract outside the employment relationship or a commercial contract. This includes cases of employment of a foreigner without a residence permit, or without a work permit, if such a permit requires special legislation.

Since November 2013, illegal employment has been also failure to fulfill the social insurance registration obligation, even if the conditions of employment under the Labor Code have been met. No registration but also late registration is considered as illegal employment according to the practice of labor inspectorates.

The law from June 18, 2016 brought another novelty, according to which all service providers can be held responsible for illegal employment (not just employers), whether or not they know about illegal employment of their contractor. If an entrepreneur accepts service from a contractor who uses the work illegally, he will break the law bill. This is the so-called "Absolute objective responsibility". It is assumed without proof that the entrepreneur knew or ought to know (regardless of whether he really knew) and therefore did not oblige an illegal employer to take up services and work through illegally employed employees. The service provider is obliged, upon request, to the buyer - the entrepreneur who delivers the job or provides the service without delay to provide the documents and personal data of the natural persons through whom he delivers the work or provides the service. Documents are needed to check whether the provider does not violate the ban on illegal employment. In our opinion, the practical application of this provision will be complicated. There are problems, for example, when verifying the person who will perform the service. The actual submission of a contract of employment is not sufficient to conclude that employment is legal.

On the contrary, legislation also regulates what is not considered illegal employment. This is the case, where a natural person who is an entrepreneur (eg. tradesman) works his or her relative in a direct manner (eg. son, father), sibling or husband, who is retired, pensioner under special regulations, pupil, or students under the age of 26.

2. Negative consequences of illegal work

Illegal work has a lot of negatives, especially for the employee himself, but also for the state. (Simek, Machu, 2013). Anyone who is doing illegal work is committing an offense. He may be penalized for this offense. Another effect that the illegal workers often do not realize is that their illegal work does not include or only limited include them in the system of social and labor protection and they lose out on social security (eg the right to work, the right to pay wages or the remuneration paid for work, adherence to the limits of working time, right to leave, right to food, right to health and safety at

work, right to compensation for health damage, etc.). The main motives of people to accept illegal work include existential uncertainty, an attempt to improve their economic situation by accepting any paid work or improving their economic aspect by increasing their income, often by simultaneously receiving wages and benefits (eg unemployment, material need and contributions to these benefits) or the receipt of the official minimum wage, but in fact they receive additional money "on hand".

Whoever illegally employs is also committing violation of the law. Illegal employment is considered to be an administrative offense. Infringement of the ban on illegal employment is subject to fine. However, the fine is not only one negative consequence (Pšenková, Gullerová, 2016). In case of repeated illegal employment, the Trade Licensing Office may revoke the trade license. Repeated violation of the prohibition of illegal employment is considered to be a particularly serious violation of the law for the purpose of abolishing a trade license. Another undesirable effect is that the entrepreneur can get on the list of natural persons and legal entities who have violated the illegal employment ban in the past five years, the list is publicly available. The fact that an enterpriser appears on the list is untrustworthy for business partners, costumers and buyers, and also potential employees.

Legislative standards, tax and levy payouts (efforts to increase wages / profits through insurers' savings), administrative procedures (reduction of administrative burden, elimination of accounting), as well as individual preferences or cultural standards are the motivation for such employment (Ciccarone, Giuli, Marchetti, 2016; Okreglicka, Gorzen-Mitka, Ogrian, 201; Varvarigos, 2017; Basu, Chau, Siddique, 20125).

It is necessary to mention the negligence of illegal work in the form of tax losses, levies, unemployment benefits, benefits in material need, but also in the production of future poor old-age pensioners, early retirees or invalids. It can not be neglected either the negative impact on the young person's developing personality and his current and future working habits and preferences.

3. Objective and Methods

Several methods are used in the article - study of literature as well as comparative analysis, questionnaire and statistical methods. We used the questionnaire method to gain views on illegal work.

We used the following research methods to process the article:

Quantitative methods, especially mathematical and statistical methods.

Qualitative methods, such as secondary analysis of documents, laws, research materials, and other relevant domestic and foreign documents, etc.

We used information sources from the National Labor Inspectorate, the Statistical Office of the Slovak Republic, the Ministry of Labor, Social Affairs and Family.

4. Incidence of illegal work and illegal employment

The number of work inspections carried out in 2015 to monitor compliance with the ban on illegal employment has increased in comparison with the previous three years. The number of checks performed is 3.25% higher in 2015 compared to 2014 (142.12% higher than 2012). 1347 employers were detected for violating the ban on illegal employment in 2015, it represents 7.36% of the number of all inspected entities. This percentage of illegally employing employers has an increasing trend compared to previous years.

TAB. 1: Controlled entities and illegal employers

Year	2012	2013	2014	2015
Checks carried out	8801	15974	20638	21309
Controlled entities	7655	13840	17746	18298
Illegal employers	276	541	1097	1347

Source: National Labor Inspectorate

Illegal employment was found in 2501 natural persons, it represents 5.10% of all 49,014 controlled natural persons.

TAB. 2: Controlled natural persons and illegally employed natural persons

Year	2012	2013	2014	2015
Controlled natural persons	29651	47002	50488	49014
Illegally employed natural persons	563	1056	2138	2501

Source: National Labor Inspectorate

An important indicator that completes the overall picture of the structure of illegal work and illegal employment is the number of findings according to the most significant risk sectors of economic activity. The most exposed illegal work was in the sectors - construction, wholesale and retail, accommodation and catering services, repair of motor vehicles. A general overview of the numbers of natural persons employed illegally by economic activity is shown in Table 3.

TAB. 3: Overview of the numbers of illegally employed natural persons by SK NACE

Year	2012	2013	2014	2015
Agriculture, forestry and fisheries	683	1 646	1 020	1 298
Mining and quarrying	68	35	30	39

Industrial production	6 814	8 477	9 303	8 543
Supply of electricity, gas, steam and cold air	223	132	128	93
Water supply; cleaning and waste-water drainage	179	412	542	284
Building and Construction	3 462	6 059	7 667	7 807
Wholesale and retail trade; Repair of motor vehicles	7 621	11 309	13 480	11 512
Transport and storage	2 010	3 366	3 011	3 375
Accommodation and catering services	2 544	4 959	5 992	6 040
Information and communication	213	264	459	404
Financial and insurance activities	114	103	186	149
Real estate activities	369	475	489	689
Professional, scientific and technical activities	741	1 616	1 955	1 946
Administrative and support services	1 225	2 248	2 458	2 452
Public administration and defense; Compulsory social security	592	712	491	551
Education	878	3 304	1 151	1 713
Health and social assistance	1 477	711	837	751
Arts, entertainment and recreation	251	574	575	626
Other activities	187	599	714	740
Extraterritorial organizations	0	1	0	2
TOTAL	29 651	47 002	50 488	49 014

Source: National Labor Inspectorate

Interestingly, the prohibition of illegal employment was violated by the most small employers with a number of employees from 1 to 9, it was 1 396 natural persons. This fact was also found in the previous 3 calendar years.

TAB. 4: Illegal employment by size of employer determined by number of employees (2015)

Control- led natural	Illegally employing natural	Control- led natural	Illegally employing natural	Control- led natural	Illegally employing natural person	Control- led natural	Illegally employing natural
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person	person	person	person	person			person	person
0	1 105	38	2 786	121	6 192	320	6 100	320
1 – 9	9 776	357	16 903	563	20 232	1 160	19 210	1 396
10 – 49	9 908	141	15 676	160	14 011	446	13 115	542
50 – 249	5 754	26	8 065	202	6 780	89	7 153	157
250 a viac	3 108	1	3 572	10	3 273	123	3 436	86
TOTAL	29 651	563	47 002	1 056	50 488	2 138	49 014	2 501

Source: National Labor Inspectorate

From the regional point of view, illegal employment has an increasing trend. In 2015 it was most common in the Bratislava region, the least in the Trenčín region.

TAB. 5: Illegal employment by region

Region / Year	2012	2013	2014	2015
Bratislava	86	131	267	654
Trnava	63	121	228	199
Trenčín	13	59	214	184
Nitra	36	137	305	316
Žilina	84	120	251	237
Banská Bystrica	114	103	330	204
Prešov	114	267	169	340
Košice	53	118	374	366
TOTAL	563	1 056	2 138	2 501

Source: National Labor Inspectorate

5. Survey results

We conducted the survey in January - March 2016. We have chosen a choice not based on probability, namely, occasional choice. For this type of selection, we decided because the sample was available to us as a researcher and we had access to it. The survey group consisted of 285

respondents from the Slovak Republic in productive age. Respondents were contacted by random choices via social networks based on their profile. The generated questionnaires were distributed electronically to respondents.

In terms of gender, women (173 respondents, i.e. 61%) were more represented than men (112 respondents, 39%). From the point of view of education it was 15 respondents with basic education (5%), 45 with secondary without GCE (16%), 135 with GCE (47%) and 90 with university education (32%).

In the survey, respondents were asked about the reasons for accepting illegal work. Two extreme boundaries for illegal work have been defined:

speculative motive - the main motive to have illegal employment is to avoid paying taxes and levies,

Existential necessity - the possibility to get work mainly in economically backward regions.

Nearly 70% of the respondents (199 respondents) took the position that they would take illegal work if they would avoid paying taxes and levies. 20% of respondents (57 respondents) would accept the work for reasons of existence, the remaining 10% could not decide.

Illegal work as an option to avoid paying taxes and levies was chosen by men (77% of all men, ie 86 men), women less (113 women, ie 65% of all women). From the point of view of education, this option is attractive rather for people with basic education.

55 respondents (19%) confirmed carrying out illegal work in the past two years. 123 respondents (43%) never carried out illegal work. Illegal work was carried out by 9 people with elementary education (ie 60% of respondents with basic education), 21 respondents with secondary without GCE (46%), 19 respondents with secondary education with GCE (14%), 6 respondents with university education (7%).

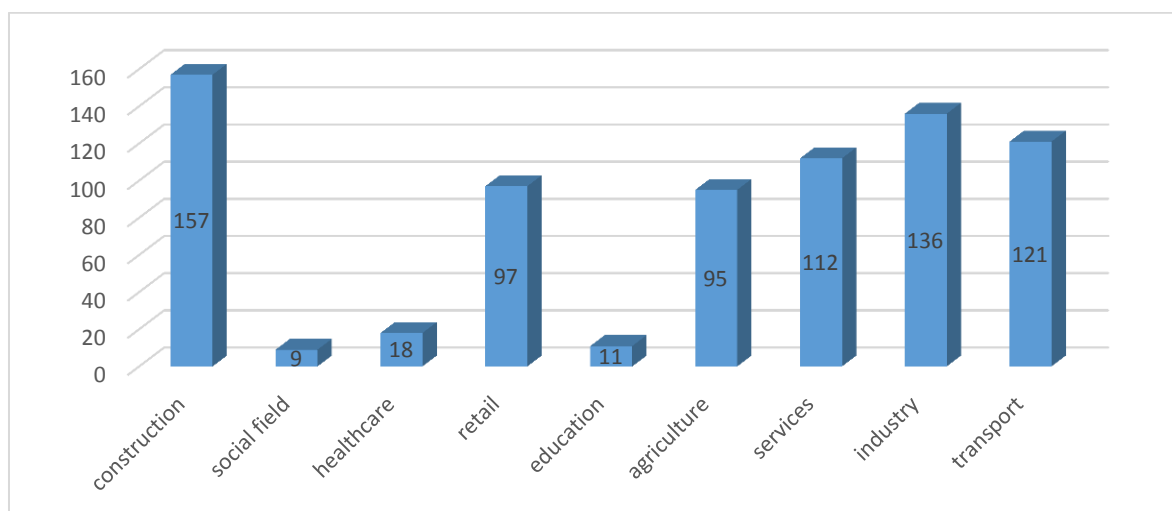
TAB. 6: Implementation of illegal work by education

	Elementary education		Without GCE		With GCE		University education		Total
	Wo-men	Men	Wo-men	Men	Wo-men	Men	Wo-men	Men	
I would accept - a speculative offer	4	8	18	21	73	31	18	26	199
I would accept - an existential offer	0	1	1	1	18	6	21	9	57
I do not know	1	1	1	3	7	0	11	5	29
In the past 2 years	4	5	8	13	11	8	5	1	55

Throughout life	1	3	7	8	53	9	22	4	107
Never	0	2	5	4	34	20	23	35	123

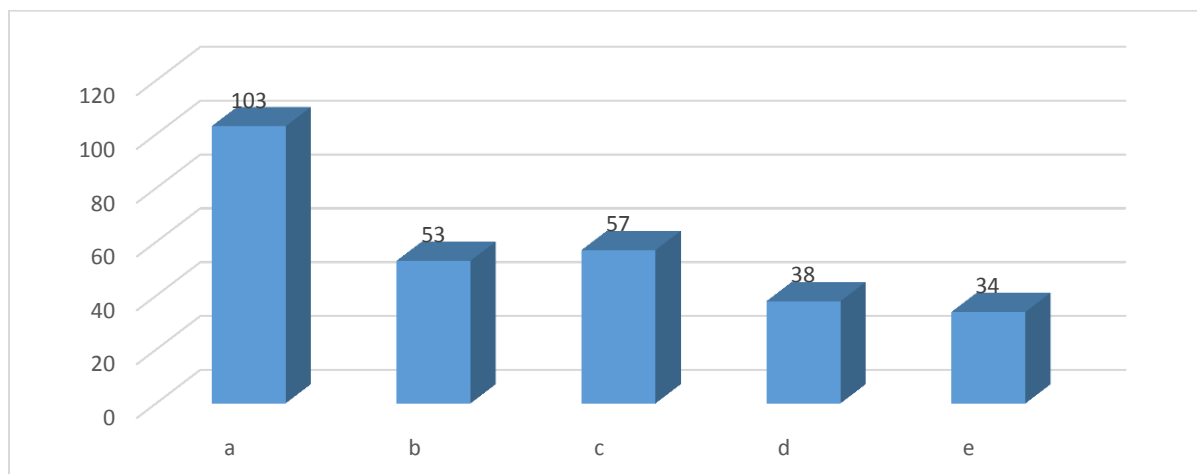
We were interested in what sectors, according to respondents is the most widespread illegal work. Respondents were able to identify 3 industries, and we received a total of 756 responses. Most respondents think that illegal work is found in construction (up to 157 responses, 21% of all respondents), industry (136 responses, 18%) and transport (121 responses, 16%). The least widespread illegal work by respondents is in the social field (9 responses, 1%).

FIG. 1: Sectors where illegal work is most often encountered



Respondents consider illegal work most often as negotiating a minimum wage and paying a higher wage (36%), illegal employment during the receipt of benefits (20%) and employment without a contract of employment (19%).

FIG. 2: The idea of respondents about illegal work



- a - The agreement on the minimum wage and payment of higher wage on hand
- b - Employment without the conclusion of an employment contract
- c - Illegal employment conditions of the unemployed while they receive benefits
- d - Unauthorized business
- e - Untaxed side earnings

6. Conclusion

It is essential to remember that illegal work and undeclared work related to unemployment. Slovak citizens are working illegally in particular in order to increase their income, not only as illegal employees, but also that they make agreement about minimum wage and receive other wage. At the same time illegal employment is an easy way to start and end the occupation, to minimize the administrative procedures, such as maintenance of accounting, registration of employees with social and health insurance companies, etc..

Every year, labor inspectorates find more cases of illegal employment. There are, however, cases of illegal employment that are unnoticed. Inspection results can not predict trends related to illegal employment in the Slovak Republic.

Act on Illegal Work and Illegal Employment and the amendment we perceive as efforts to fight against negative influences in society. However, in our opinion, the broad introduction of objective responsibility does not lead to the strengthening of justice and democratic principles, and this instrument requires sensitive use while considering its implications. The amendment may result in a deterioration of the business environment and a further increase in business administration.

Literature:

Alm, J., Torgler, B. (2011). Do Ethics Matter? Tax Compliance and Morality. *Journal of Business Ethics*. Vol. 101, Issue 4, pp. 635-651, July 2011, DOI: 10.1007/s10551-011-0761-9 ISSN: 01674544.

Alm, J., McClelland, G.H., Schulze, W.D. (1992). Why do people pay taxes? *Journal of Public Economics*. Vol. 48, Issue 1, pp. 21-38, June 1992, DOI: 10.1016/0047-2727(92)90040-M, ISSN: 00472727.

Basu, A. K., Chau, N. H., Siddique, Z. (2012). *Tax evasion, minimum wage noncompliance, and informality*. INFORMAL EMPLOYMENT IN EMERGING AND TRANSITION ECONOMIES. Book Series: Research in Labor Economics. Volume: 34 Pages: 1-53 DOI: 10.1108/S0147-9121(2012)0000034004 WOS:000319728000002 ISBN:978-1-78052-786-4.

Ciccarone, G., Marchetti, E. (2016). *Search frictions and labor market dynamics in a real business cycle model with undeclared work*. ECONOMIC THEORY. Volume: 62 Issue: 3 Pages: 409-442 DOI: 10.1007/s00199-015-0903-x WOS:000380369400001 ISSN: 0938-2259.

Gullerová, M., Pšenková, J. (2015). Illegal work and illegal employment in the regions of the Slovak Republic. In: *2nd international multidisciplinary scientific conference on social sciences & arts SGEM 2015*. Volume I: Political sciences, law, finance, economics & tourism. Sofia: STEF92 Technology Ltd., 2015. WOS:000374909600074 ISBN 978-619-7105-46-9. pp. 577-583.

Habánik, J. a kol. (2014). *Regionálna ekonomika a regionálny rozvoj*. Trenčín: TnUAD, 2014, pp. 136 - 137.

Ivanová, E. (2010). Vplyv Globálnej hospodárskej krízy na trh práce v SR. *Sociálno-ekonomická revue*. Vol. 8, Issue 3, pp.22-26 ISSN 1338-2195.

Kojouharov, A., Dzhekova, R. (2017). Institutional asymmetry as a challenge in tackling the grey economy in Bulgaria. *International Journal of Entrepreneurship and Small Business*. Vol. 30, Issue 4, pp. 608-628, DOI: 10.1504/IJESB.2017.082920 ISSN: 14761297.

Národný inšpektorát práce. Retrieved June 12, 2015, from <http://www.nip.sk/?t=46&s=133>.

Okreglicka, M. Gorzen-Mitka, I. Ogorean, C. (2015). Management challenges in the context of a complex view - SMEs perspective. *International scientific conference: BUSINESS ECONOMICS AND MANAGEMENT (BEM2015)*. Book Series: Procedia Economics and Finance. Volume: 34 Pages: 445-452. DOI: 10.1016/S2212-5671(15)01653-6 WOS:000381118100060 ISSN: 2212-5671.

Pšenková, J., Gullerová, M. (2016). Illegal work and illegal employment in the European context In: *Knowledge for market use 2016: Our interconnected and divided world: International scientific conference*. Olomouc: Societas Scientiarum Olomucensis II, 2016. WOS:000389757500055 ISBN 978-80-87533-14-7. p. 388-392.

Simek, M., Machu, M. (2013). Control of illegal employment in the Czech republic. *PROCEEDINGS OF THE 11TH INTERNATIONAL CONFERENCE: ECONOMIC POLICY IN THE EUROPEAN UNION MEMBER COUNTRIES, SELECTED PAPERS*. Pages: 313-323 WOS:000393737200030 ISBN:978-80-248-3095-7.

Varvarigos, D. (2017). *Cultural norms, the persistence of tax evasion, and economic growth*. Ecomic theory. Volume: 63 Issue: 4 Pages: 961-995 DOI: 10.1007/s00199-016-0976-1 WOS:000397037500006 ISSN: 0938-2259.

Windebank, J., Horodnic, I. A. (2017) Explaining participation in undeclared work in France: lessons for policy evaluation. *International Journal of Sociology and Social Policy*. Vol. 37 Issue: 3/4, pp. 203-217, doi: 10.1108/IJSSP-12-2015-0147 ISSN: 0144333X.

Zákon č. 82/2005 Z. z. o nelegálnej práci a nelegálnom zamestnávaní v platnom znení. Retrieved June 20, 2015, from http://jaspi.justice.gov.sk/jaspiw1/htm_zak/jaspiw_mini_zak_vyber_hl1.asp?clear=N.

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CRIME ECONOMICS: CASE OF THE CZECH REPUBLIC

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Abstract: *The article deals with a part of institutional economics known as crime economics. The crime economics exploits tools of the economic analysis to clarify behavior of criminals. First, the concept of rational criminal is described, in the agreement with the G. S. Becker theory. According to him, criminals are rationally thinking people who compare costs and returns from a crime. If the costs of breaking of institutions are lower than returns then breaking of rules will pay off. The article also pays attention to expecting costs of crime, which are very low in the Czech Republic. If we want to decrease crime, it is necessary to increase the expecting costs of crime. The crucial part of the article deals with problem of the economic factors influencing crime such as gross domestic product, inflation rate, unemployment rate, average gross monthly wage, public expenditures for safety and public order and the number of policemen. In agreement with economic theory, hypotheses are formulated and verified on data of the Czech Republic from the period of 1993-2015. The regression analysis is used for this purpose.*

Keywords: *Crime economics, rational criminal, costs of crime, returns of crime, factors influencing crime.*

JEL classification: B15, H50, K14

Grant affiliation:

1. Introduction

Crime economics is a part of the new institutional economics. Its main feature is imperialism of economics - it means penetration of economics into other science spheres, particularly family, policy, religion or crime. Crime economics uses tools of economic analysis to explain behavior of criminals and also suggests the most efficient way in the fight against crime. For analysing of criminals and crime a comprehensive approach - economic, legal, psychological, sociological - is needed. Different concepts of crime exist. From the legal aspect crime is "summary of the crimes committed in a certain area for a certain period" (ŠTEFUNKOVÁ & ŠEJVL, 2012). Sociological conception of crime is much wider. Crime includes also behavior which is not criminal but which is socially harmful and in the negative way influence quality of the life of the society (drug use, alcoholism, prostitution, truancy...). Although the word "crime" is used in the title to minimize terminological innovations, the analysis is intended to be sufficiently general to cover all violations, not just felonies - like murder,

robbery, and assault, which receive so much newspaper coverage - but also tax evasion, the so-called white-collar crimes, and traffic and other violations.

The aim of the article is to explain the meaning of the crime economics and also verify hypotheses formulated in accordance with the economic theory. These hypotheses are related to factors influencing crime such as gross domestic product, inflation rate, unemployment rate, gross average monthly wage, public expenditures for safety and public order and the number of policemen.

2. Concept of the rational criminal in the G. S. Becker theory

In the 1950s the views prevailed that crime is caused by mental illness and criminals are helpless victims of the social environment. "It was considered that criminals have taken their society to their actions, they grew up in unstable conditions and they did not have the opportunity to develop into a healthy individuals. Western society took an almost protective stance towards them." (MAJER, 2006) G. S. Becker, the most important representative of the crime economics, did not agree with this opinion.

G. S. Becker (1930 - 2014) was inspired by Dostoyevsky and in 1960 wrote article Crime and Punishment: An Economic Approach. Why Becker began to deal with this problematics? He himself justifies this: "I began to think about crime in the 1960s after driving to Columbia University for an oral examination of a student in economic theory. I was late and had to decide quickly whether to put the car in a parking lot or risk getting a ticket for parking illegally on the street. I calculated the likelihood of getting a ticket, the size of the penalty, and the cost of putting the car in a lot. I decided it paid to take the risk and park on the street. (I did not get a ticket.)." (BECKER, 1992)

G. S. Becker created concept of the rational criminal. According to him, criminals behave rationally. His approach is based on the cost-benefit analysis. Becker argues that "a person commits an offense if the expected utility to him exceeds the utility he could get by using his time and other resources at other activities. Some persons become "criminals", therefore, not because their basic motivation differ from that of other persons, but because their benefits and costs differ." (BECKER, 1992) According to Becker, criminals are economically-minded people, who rationally react to stimuli, which the society gives them. Crime is a rational decision when criminal compares benefits (money, feeling good work, joy) from crime with costs of crime (probability of being captured and convicted). If costs of breaking of institutions are lower than benefits then breaking of rules will pay off. Introducing more severe punishments increases the cost of crime and decreases crime. The concept of the rational criminal is better applicable to property crime than emotional or violent crime.

3. The cost of crime

The expected costs of crime are the cost of crime itself (buying of the weapon, hood, gloves, black glasses, map, internet), the opportunity cost (the loss of time associated with the preparing of the crime - going ahead to see the place advance), damage to reputable capital (the stigma of the prisoner), the loss of income, profit or pension, the loss of liberty (sentences of imprisonment are

particularly difficult for rich people), psychological costs of crime (compunction, fear, ache, feeling anxious).

The costs of crime in the Czech Republic are low and we know from economics that when something is cheap, it is a high demand for it. According to L. Dušek "the question is not, why crime is so high in the Czech Republic. We should ask why it is not much higher. Increasing of the probability of being discovered and convicted by one percent decreases the number of robberies by 0.5 percent and the number of thefts by 0.7 percent. It is not very low." (MAJER, 2006) If we want to decrease crime, it is necessary to increase the expecting costs of crime.

The opportunity costs of crime are lower in places where crime is higher, particularly in the poor neighborhoods, slums, ghettos. People live there in poverty and they have nothing to lose. On the contrary, in the places where people have employment and medium or high income, there crime is lower. Counting the cost of crime is difficult because the measurement is not accurate and not all crimes are reported. Crime decreases gross domestic product generally by the costs themselves and by the costs for prevention.

The opinion of G. S. Becker on the consequences of theft is rather questionable. Becker did not know why the theft is considered as socially harmful because the good only moves from one person to the other person. Property rights only move usually from rich person to poor person. Criminals have some expenditures connected with theft and this expenditures are non-productive because it does not create wealth but only violently redistribute it. Sometimes the theft is positive and leads to the Pareto improvement. This is the case when somebody has tins in the cottage and a hungry thief steals and eats them.

4. Factors influencing crime in the Czech Republic - model of regression analysis

The aim of the model is to find factors which have the highest influence on crime in the Czech Republic, particularly total crime, violent crime, property crime and thefts. In the Czech Republic we want to decrease all types of crime and that is why it is necessary to know factors influencing them. The aim of the model is to find variables which can explain behavior of output variables. The model can be used for prediction of all types of crime. The input variables are gross domestic product ($\uparrow \text{GDP} \rightarrow \downarrow \text{crime}$), inflation rate ($\uparrow \text{inflation} \rightarrow \uparrow \text{crime}$), unemployment rate ($\uparrow \text{unemployment} \rightarrow \uparrow \text{crime}$), gross average monthly wage ($\uparrow \text{average wage} \rightarrow \downarrow \text{crime}$), public expenditures for safety and public order ($\uparrow \text{public expenditures} \rightarrow \downarrow \text{crime}$), and the number of policemen ($\uparrow \text{number of policemen} \rightarrow \downarrow \text{crime}$). The reporting period was from 1993 to 2015. The input data, except inflation rate and unemployment rate, was converted to natural logarithm in order to decrease the inequality of character's distribution which is typical for economic indicators. This model was done at the 5 % level of importance. Step by step were eliminated variables with the highest p-value. This process was repeated so long until variables with p-value lower than 0.05 stayed in the model. Also the adjusted determination index and standard residues were monitored.

TAB. 1: Factors mostly influencing crime in the Czech Republic

Total crime	Violent crime	Property crime	Thefts
Number of policemen	Number of policemen	Number of policemen	Number of policemen
Public expenditures	Public expenditures	GDP	GDP
	Average gross monthly wage		

Source: own processing

Results are included into table 1, in which we can see the most important factors influencing various types of crime. The relationship between crime and each factor is shown in figure 1.

FIG. 1: Relationship between factors and total crime in the Czech Republic in 1993-2015



Source: own processing

In accordance with the hypothesis is the relationship between total crime and inflation, public expenditures, gross domestic product and average wage. In the case of unemployment rate and the number of policemen is the relationship opposite than we expected.

5. Conclusion

The all types of crime (total, violent, property and thefts) are influenced by the number of policemen. Total crime and violent crime are influenced also by the public expenditures for safety and public order and violent crime also by average gross monthly wage. Property crime as well as thefts are mostly influenced by the number of policemen and by GDP. The results are the same in this case - it is logical because thefts represent majority of the property crime.

Surprisingly the data from the Czech Republic do not confirm hypothesis - the increasing unemployment increases crime. On the contrary, results show that increasing of the unemployment decreases crime. That is why unemployment was eliminated from the model as the first one. The rate of unemployment may not be ideal explanatory variable because it includes only persons who are actively looking for a job and who are registered at the Labour Office. The rate of unemployment does not reflect the actual number of the unemployed, the number is higher, actually.

From data about Czech Republic we found out directly proportional relationship between number of policemen and crime and that is why previously formulated hypothesis does not apply. Increasing number of policemen increases crime in the Czech Republic. We should realize that the subject of the investigation is only recorded crime but also a large number of latent crime exists. The more policemen will be the more crimes will be revealed and recorded. There is about 40,000 policemen in the Czech Republic. If we wanted to decrease crime at the level before 1989, we should have seven times more policemen. I think that it is necessary to know which factors have the greatest influence on crime. Because if we want to decrease crime we know which factors to act on.

Literature:

Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *The Journal of Political Economy*. Vol. 76, No 2 (Mar.-Apr., 1968), p. 169-223.

Becker, G. S. (1992). The Nobel Lecture: The Economic way of Looking at Behavior. *The Journal of Political Economy*. Vol. 101, No 3 (Jun., 1993), p. 385-409.

Bradford, B. (2011). *Police Numbers and Crime Rates - a Rapid Evidence Review*. Retrieved July 5, 2011, from <https://www.justiceinspectorates.gov.uk/hmic/media/police-numbers-and-crime-rates-rapid-evidence-review-20110721.pdf>.

Klaer, J. & Northrup, B. (2014). *Effects of GDP on Violent Crime*. Retrieved April 23, 2014, from <https://smartech.gatech.edu/bitstream/handle/1853/51649/Klaer&NorthrupEconometricsReport.pdf>.

Majer, J. (2006). *Zločin a ekonomická racionalita*. Rozhovor s L. Duškem. Retrieved September 22, 2006, from <http://majer.blog.respekt.cz/zlocin-a-ekonomicka-racionalita/>.

Šilar, M. (2011) *Ekonomie kriminality: racionální pachatel*. Praha: Institut ekonomických studií UK. Retrieved September 13, 2011, from: <https://is.cuni.cz/webapps/zzp/detail/104993/>.

Štefunková, M. & Šejvl, J. (2012). *Základy prevence kriminality pro pedagogické pracovníky*. Praha: TOGGA.

ČSÚ. Retrieved February 14, 2017, from <https://www.czso.cz/>.

Policejní prezídium ČR. Retrieved April 3, 2017, from: <http://www.policie.cz/statistiky-kriminalita.aspx>.

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THE RETURN TO HIGHER EDUCATION: EVIDENCE FROM ROMANIA

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Abstract: Education is one of the most important components of the human capital, and an important determinant of the personal income. Estimating the rate of return to education is a main topic of economic research. In this paper we analysed the rate of return to higher education in Romania using the well-known Mincer equation. Besides the educational level and the number of years of experience on the labour market we also used a series of socio-demographic variables such as gender, civil status, the area of residence. We were interested mainly in calculating the rate of return to higher education, therefore we computed this rate for bachelor, master and doctoral degrees separately. We also investigated the rate of return to higher education on technical, science, economics, law, medicine, and arts fields. Our results showed that the rate of return to higher education has a greater value than most of the developed countries of EU and the field of higher education that brings the highest rate of return is medicine.

Keywords: Mincer equation; higher education; returns to education.

JEL classification: I26; J31

Grant affiliation:

1. Introduction

The labor market economy has undergone a major transformation during the last century. If in the beginning, labor as a factor was regarded as a homogeneous conglomerate of workers who became input into a production function across the economy, modern labor market approaches see work as a heterogeneous conglomerate of people with different labor productivity. As a result, economists studying the labor market are now trying to find a distribution of workers' income rather than studying how the economic outcome between labor and capital is distributed.

Mincer (1958) was one of the first economists who used the term human capital in his pioneering studies in which he attempted to model income distribution using mathematical tools of the neoclassical theory of capital. Using a simple model that involved only the number of years of

education and then the age and number of weeks worked per year by a person, Mincer was able to explain about 60% of the annual income variation for the US white population. This model was then applied in over 100 countries with the same success. According to this model, the rate of return to education was found to take values between 5% and 15%, just like commercial investments. He introduced the observation that an individual's choices in terms of labor options produce an income flow that can easily be measured using capital theory. If education and occupation on the labor market are treated as investment opportunities, the outcomes of investments made by an individual can be easily modeled. Assuming that people invest in education to the point where the cost of investment equals the present value of education gains, Mincer has achieved an econometric model that shows that a person's income increases at a decreasing rate over the lifetime, leading to a concave function of time.

Mincer (1958, 1974, 1978) managed to derive an empirical formula for a person's income over his lifetime. At any time t of a person's life, incomes can be viewed as a linear function of schooling years and concave of the number of years of experience on the labor market. This equation, called Mincer equation, is shown below:

$$\ln(Y_i(S, t)) = b_0 + b_1 S_i + b_2 t_i + b_3 t_i^2 + \varepsilon_i \quad (1)$$

where $Y_i(t)$ is the income of the person i , S_i is the number of years of education and t_i is the number of years spent on the labor market. The coefficient b_0 represents the initial capacity of earning money, b_1 the rate of return to education, and the coefficients b_2 and b_3 are related to the amount and rate of financial return on workplace training.

There are several empirical implications of the Mincer equation. The first one is that the income is directly correlated with the investment in human capital. The coefficient of the schooling variable in the Mincer equation is the internal rate of return to education. This can be understood as the discount rate at which education costs during the study period seen as opportunity costs are matched by future earnings. The second observation relates to the fact that the income function is concave on the number of years of experience on the labor market, which means that the income grows more quickly for young people, reaches a maximum, then it starts to decrease.

The rate of return to education has been calculated for many countries and time periods. Psacharopoulos and Patrinos (2004) presented the results obtained for 70 countries for a period of 25 years and they found that the rate of return on education has values between 5% and 17%. Weisberg (1995) studied the evolution of the rate of return to education in Israel using data covering the period 1974-1983 and noted that it had an increasing trend over time. It also showed that the rate is higher for higher education graduates. Another study (Trostel, Walker and Woolley, 2002) presented estimates of the rate of return to education for 28 countries between 1980 and 2000 using different data sources, obtaining values between 3% and 17%. A conclusion that comes from these studies is that the rate of return to education for most of the developed countries has lower values than for developing countries. While this rate ranges from 5% to 10% for most of the developed countries, it has greater values (10% - 17%) for the developing countries.

The rest of the paper is organized as follows. In the next section we present some methodological problems regarding the estimation of Mincer equation, in section 3 the estimates for Romania, in section 4 a discussion and section 5 concludes our paper.

2. Methodological issues regarding Mincer equation

In this section we discuss the main difficulties when estimating Mincer equation with empirical data:

a. Non probabilistic samples. When the estimation is performed using a non probabilistic sample the estimators are usually biased.

b. Omission of some variables. If some variables are omitted from the equation, the results will be biased when these variables are correlated with the dependent variable and other independent variables.

c. The functional form of the equation. Equation (1) has a log-linear form and experimental studies performed so far show that it is the best fit for experimental data, but cases have also been reported where the log-log function was better (Thurow, 1969).

d. Unobserved heterogeneity. In the case of multivariate regression, it is often the case when important variables are omitted because there are no data for such variables. For example, one of the important variables in determining a person's income is his/her innate ability. In this case, the rate of return to education will be overestimated. A solution to this problem is the use of instrumental variables and the two-stage least squares method (2SLS).

e. Endogeneity of the schooling variable. The issue of endogeneity occurs when certain determinants of the response variable are also correlated with the exogenous variables and they are not directly observable. As a rule, a person's education can be influenced by a number of factors such as the level of education of his/her family, living conditions, etc. It is obvious that different people can not be identical regarding some unobservable variables. In such situations where a variable influences both the income and education, the estimation of Mincer equation through OLS method results in biased estimates (Card, 2001). This bias can be eliminated using instrumental variables and 2SLS estimation method. Below are some instrumental variables found in the literature.

- Variables related to the family background (Trostel et al., 2002; Zhang, 2011; Liu et al., 2000);

- Proximity of educational institutions (Card, 1993; Warunsiri, 2010; Flabbi, 1999);

- Other instrumental variables: the minimum legal age when leaving the school is allowed (Harmon and Walker, 1995), the reforms in the educational system (Brunello and Miniaci, 1999; Ismail, 2007).

Although there have been many proposals for instrumental variables in the studies so far, finding suitable instrumental variables is still an area of research. Instrumental variables that are even very poorly correlated with the endogenous variable lead to biased results even for very large samples (Bound, 1995).

3. Estimation of the Mincer equation for Romania

We used the 2011 Population and Housing Census data and personal gross income tax records for 2013 to estimate Mincer equation for Romania. To our knowledge this is the first study at this level of detail in Romania and one of the fewest studies for Romania.

Ion (2013), using the data from the 2009 Household Budget Survey, estimated the impact of education on income and concluded that the rate of return to education is 11.29% which is comparable to that obtained by Mincer (1974) 10.7% and according to (Psacharopoulos and Patrinos, 2004) is higher than the value for several developed countries, which means that in Romania the labor market rewards education more than other countries.

The author used a representative sample at national level, and estimated a regression equation for income based on a series of explanatory variables by OLS. The following explanatory variables were used: the number of years of education, the labor market experience, gender, nationality, civil status, the sector where the person works (public or private), the field of activity, development region, area of residence (urban / rural), squared number of years of experience.

A second study on the Mincer equation for Romania is Pauna (2009) who estimated the equation for 1995 and 2000 using OLS and showed that the rate of return to education had a negative sign that contradicts Mincer's theory. This coefficient calculated separately for men and women has positive values (5.9%, respectively 7.18% in 1995 and 8.3% respectively 9.75% in 2000) with an increasing trend, which means that in Romania the labor market has increased the reward for education from 1995 to 2000.

The third study (Varly et al., 2014) used data available from the SILC and Household Budgets surveys from 2012 to estimate the Mincer equation. The results showed that the rate of return to education is 7.9% when using the SILC data, and 8.6% for the HB survey. Varly (2014) also estimated the equation by the level of education (primary, secondary, bachelor or doctorate) and obtained a wage premium of approximatively 51% for bachelor and 42% for doctoral graduates.

Our analysis is based on data from the 2011 Population and Housing Census. Unlike other studies using only a sample, we used an exhaustive dataset covering the entire population of Romania.

Income, education and labor market experience are the fundamental variables of the Mincer model. For education we used the number of schooling years computed from the census data using the conventions presented in Tables 1 and 2. For incomes, we used the information from the tax records (2013) containing the gross annual incomes.

TAB. 1: Number of years of education for higher education graduates

Level of Education	Number of years of education
Bachelor	16
Masters	18
Doctoral ecutation	21

TAB. 2: Number of years of education for secondary and primary education levels

Level of Education	Number of years of education
Secondary education (high school)	12
Postsecondary education and foremen schools	15
Vocational education	10
Gymnasium education	8
Primary education	4

It should be noted that the number of years of education used here may differ from their real value especially in higher education because there are persons who have repeated years of study or who have completed their studies faster. Also, different areas of study require different number of years. Labor market experience is an essential variable in the Mincerian model, but it is not included in the data collected at the Census. Many empirical studies use age as a proxy for experience (Sanroman, 2006; Hyder, 2007), but this can lead to biased estimates especially for young people. We used the potential labor market experience calculated according to the following formula:

$$EXP = AGE - EDU - 6 \quad (2)$$

In addition to these fundamental variables of the Mincer model, we also used the following control variables:

GENDER: 1 for men, 0 for women;

MARRIED: 1 if the person is married, 0 otherwise;

WTIME: time worked - the number of hours worked per week multiplied by the number of weeks the person earned money in the year under consideration;

BIG_TOWN: 1 if the person lives in a city with more than 150,000 inhabitants, 0 otherwise;

URBAN: 1 if the person resides in the urban area, 0 otherwise.

To characterize the rate of return to higher education, which is one of the main purposes of this paper, we used the following dummy variables:

HAS_HS: 1 if the person has high school education, 0 otherwise;

HAS_HE: 1 if the person has a bachelor degree, 0 otherwise;

HAS_MA: 1 if the person has a masters degree, 0 otherwise;

HAS_DR: 1 if the person has a doctorate, 0 otherwise;

HE_TECH: 1 if the person has technical higher education, 0 otherwise;

HE_UNIV: 1 if the person has science higher education, 0 otherwise;

HE_EC: 1 if the person has economics higher education, 0 otherwise;

HE_LAW: 1 if the person has law higher education, 0 otherwise;

HE_MED: 1 if the person has medical higher education, 0 otherwise;

HE_ART: 1 if the person has higher education in the arts, 0 otherwise;

We included all persons aged between 15 and 64, employed on the labor market who earned an income in the reference year. We started by estimating the following equation:

$$\text{LOG_V}_i = b_0 + b_1\text{EDU}_i + b_2\text{EXP}_i + b_3\text{EXP}_i^2 + b_4\text{GENDER}_i + b_5\text{MARRIED}_i + b_6\text{WTIME}_i + b_7\text{BIG_TOWN}_i + \varepsilon_i \quad (3)$$

The results are presented in table 3.

TAB. 3: The results of estimating the Mincer equation by OLS method

Variable	Coefficient
Education	0.1228
Experience on labor market	0.0197
Squared number of years of experience on labor market	-0.0002
Gender	0.0912
Marital status	0.0100
Number of weekly hours worked	0.0010
Living in a big city	0.1487

* R2=0.42, adj R2=0.42, coefficients are significant at 0.0001

The rate of return to education is 12.28%, i.e. an additional year of education brings an increase in the logarithm of income by 12.28%. Compared with previous results obtained in the case of Romania, there is a substantial increase. One year of additional experience adds 1.9% to the logarithm of the income. The coefficient of EXP2 is negative which is in line with Mincer's theory.

The coefficient of the GENDER variable shows that men earn 9.1% more than women and living in a city with more than 150,000 inhabitants leads to a logarithm of the income with 14.8% greater than the rest of the employees. Married people earn 1% more while the WTIME variable shows that one extra hour of work per year leads to a 0.1% increase of the logarithm of income.

The value $R^2 = 0.42$ is comparable to that obtained by Mincer in his initial study (Mincer, 1974) and higher than those obtained by Ion (2013) or Pauna (2009).

The bias of estimators due to the endogenousness of the education may result either from the unobservable variation of employee' ability or from unobserved heterogeneity. For example, there may be people who continue their education after completing the formal education period, thus gaining superior abilities. The estimator of the rate of return to education becomes biased, the labor productivity being different in this case due to the skills acquired outside the formal education period. To address this issue we used instrumental variables and estimation using the 2SLS method.

We used the environment in which the person resides as an instrument (the URBAN variable). Estimating the coefficients of the Mincer equation by 2SLS method consists in the following steps:

1. The coefficients of the equation with education as an endogenous variable are estimated with OLS:

$$EDU_i = c_0 + c_1 EXP_i + c_2 EXP_i^2 + c_3 GENDER_i + c_4 MARRIED_i + c_5 WTIME_i + c_6 BIG_TOWN_i + c_7 URBAN_i + \varepsilon_i \quad (4)$$

2. The coefficients of the initial Mincer equation in which the variable EDU_i is replaced by the fitted values given by the equation (4) \widehat{EDU}_i are estimated:

$$LOG_V_i = b_0 + b_1 \widehat{EDU}_i + b_2 EXP_i + b_3 EXP_i^2 + b_4 GENDER_i + b_5 MARRIED_i + b_6 WTIME_i + b_7 BIG_TOWN_i + \varepsilon_i \quad (5)$$

The results are presented in table 4.

TAB. 4: The results of estimating the Mincer equation using 2SLS method

Variable	Coefficient
Education	0.1610
Experience on labor market	0.0258
Squared number of years of experience on labor market	-0.0002
Gender	0.0912
Marital status	-0.0128
Number of weekly hours worked	0.0010
Living in a big city	0.1014

* $R^2=0.42$, adj $R^2=0.42$, coefficients are significant at 0.0001

These results confirm that the rate of return to education is underestimated by the OLS method compared to 2SLS: an extra year of education leads to a 16.1% increase in the logarithm of income, and an additional year of experience adds 2.5%, higher than the OLS estimate. The coefficient of the

GENDER variable shows that men earn 11.7% more than women. Gender differences are also present in studies for other countries (Fiaschi and Gabbriellini, 2013).

Living in a city with more than 150,000 inhabitants leads to a logarithm of income 10.1% greater than the rest of the employees. Married people earn 1.2% less, while the WTIME variable shows that one extra hour of work per year leads to a 0.1% increase in the logarithm of income.

Testing that the EDU variable is indeed endogenous was achieved using the Hausman test.

TAB. 5: The Hausman test for detecting endogeneity of the EDU variable using the URBAN variable as an instrument

Efficient under H0	Consistent under H1	Hausman statistics	p-value
OLS	2SLS	2580.88	0.0000

The very low p-value suggests that the null hypothesis that there are no significant differences between OLS and 2SLS estimates is rejected. This means that EDU variable is not exogenous, leading us to conclusion that 2SLS method for estimating the coefficients of the Mincer equation is more robust compared to the OLS.

A problem that often occurs when using instrumental variables is the use of weak instruments, i.e. variables that are poorly correlated with the endogenous variable, which will ultimately lead to biased estimators in the same direction as those obtained by OLS (Bound et al., 1995). Staiger and Stock (1997) set out an empirical rule to test whether an instrument is weak or not: a partial F-test in the first stage of the 2SLS method calculated by excluding the instrument less than 10 indicates a weak instrument. We applied this test and obtained a value much greater than 10 indicating that the instrument we used is strongly correlated with the education variable.

We will relax the hypothesis that the rate of return to education is constant and allow this rate to vary according to the educational level by replacing the schooling variable with the dummy variables HAS_PROF, HAS_HS, HAS_POST, HAS_HE, HAS_MA, HAS_DR. The use of dummy variables to highlight the level of education is in line with modern human capital theories that states that a person's income does not depend so much on how many years he/she spent in school, but on the earned diploma. This hypothesis is based on the observation that in the presence of heterogeneity, what matters is the type of graduating institution and not the number of years of study. We will estimate the following model:

$$\text{LOG_V}_i = b_0 + b_1\text{HAS_PROF}_i + b_2\text{HAS_HS}_i + b_3\text{HAS_POST}_i + b_4\text{HAS_HE}_i + b_5\text{HAS_MA}_i + b_6\text{HAS_DR}_i + b_7\text{EXP}_i + b_8\text{EXP}_i^2 + b_9\text{GENDER}_i + b_{10}\text{MARRIED}_i + b_{11}\text{WTIME}_i + b_{12}\text{BIG_TOWN}_i + \varepsilon_i \quad (6)$$

TAB. 6: The results of estimating Mincer equation using different levels of education

Variable	Coefficient
HAS_PROF	0.129

HAS_HS	0.274
HAS_POST	0.598
HAS_HE	0.944
HAS_MA	1.167
HAS_DR	0.977
EXP	0.023
EXP2	-0.00029
MARRIED	0.012
GENDER	0.099
BIG_TOWN	0.144

* R2=0.43, adj R2=0.43, coefficients are significant at 0.0001

This result indicates that the labor market in Romania rewards higher education: higher education employees earn much higher incomes than the rest of the employees. Similar results are obtained by Fiaschi and Gabbrilellini (2013) for Italy or Humphreys (2013) for Cambodia in 2012.

If we convert these coefficients of the dummy variables into a relative effect on income, following the methodology described in (Kifle, 2007) and (Halvorsen and Palmquist, 1980), we obtain the results presented in table 7.

TAB. 7: Relative effect of education level on income (reference level - gymnasium studies)

Level of education	The relative effect of the level of education on income
Vocational education	13.7%
High school	31.6%
Post-secondary education	81.9%
Bachelor degree	157.2%
Masters degree	221.5%
Ph.D. degree	165.5%

The graduates of vocational education have a gain of 13.7% compared to those with gymnasium, the high school graduates 31.3%, the post-secondary education 81.9%, the undergraduate higher education 157.2% , masters higher education graduates have a gain of 221.5% and those who have

doctorates earn 165.5% more. These results show that the rate of return to education is not constant across all levels of education as in Mincer's initial model, but it varies according to the educational level, the highest value being met for higher education. The graduates of a doctoral program register a slight decrease compared with bachelor and masters graduates explained probably by the fact that most people with a Ph.D. degree work either in the educational or research system where the incomes are low. These results are in line with other recent studies (Belzil, 2006), (Varly et al., 2014), (Psacharopoulos, 2004).

Transforming these rates into annualized rates is straightforward (Kifle, 2007) and the annualized rates of return to education are presented in table 8.

TAB. 8: Annualized rate of return on education by educational level

Level of education	Annualized rate of return to education
Vocational education	1.37%
High school	2.36%
Post-secondary education	5.42%
Bachelor degree	9.83%
Masters degree	12.30%
Doctoral degree	7.88%
High school vs vocational education	7,8%
Post-secondary education vs high school	16.9%
Bachelor degree vs post-secondary education	41.4%
Masters degree vs bachelor degree	12.5%
Doctoral degree vs masters degree	-5.8%

One can notice that the annualized rate of return to education increases with the increase of the educational level, the highest value being recorded for graduates of higher education compared to those with post-secondary education, 41.4%. The increase of the rate of return to higher education can be noticed as well as for the masters degree compared to the bachelor, but this is only 12.5%. The doctorate degree does not bring anything in addition to the masters, on the contrary the annualized rate is negative - 5.8%.

We will refine the study on the influence of graduating a form of higher education on income by further detailing the field of higher education: technical, science, economics, law, medicine and arts. We estimated the equation:

$$\text{LOG_V}_i = b_0 + b_1\text{HE_TECH}_i + b_2\text{HE_UNIV}_i + b_3\text{HE_EC}_i + b_4\text{HE_LAW}_i + b_5\text{HE_MED}_i + b_6\text{HE_ART}_i + b_7\text{EXP}_i + b_8\text{EXP}_i^2 + b_9\text{GENDER}_i + b_{10}\text{MARRIED}_i + b_{11}\text{WTIME}_i + b_{12}\text{BIG_TOWN}_i + \varepsilon_i \quad (7)$$

by OLS and the results are presented in table 9. The field that brings the greatest benefit on the labor market is medicine. Graduates of technical and economics education follow, and then graduates of law studies. For economics education the results are somewhat normal given the evolution of the higher education and labor market in Romania after 1990 (Andrei et al. 2010a; Andrei et al. , 2010b; Dragoesuc, 2015), but for the technical education, the results may be surprising given the deindustrialisation of Romania after 1990. It is possible that the explanation comes from the fact that the income in IT and telecommunications where large numbers of graduates of technical education work are very high.

TAB. 9: Estimation of Mincer equation by the field of higher education using OLS

Variable	Coefficient
HE_TECH	0.778
HE_UNIV	0.719
HE_EC	0.776
HE_LAW	0.725
HE_MED	0.853
HE_ART	0.601
EXP	0.023
EXP2	-0.0003
GENDER	0.079
MARRIED	0.026
WTIME	0.001
BIG_TOWN	0.164

The least "profitable" fields of higher education are science and arts. This is normal, since the graduates from science faculties have as their main employer the educational and research system characterized by low incomes and the graduates from arts also have low incomes.

The coefficients of the dummy variables are converted to annual rates and presented in Table 10. We considered two variants to calculate these rates: the same duration of studies in all fields and different study duration.

In the first variant, the highest rate is recorded for medicine graduates (33.67%) followed by the technical and economics (about 29%), then the science education with 26.33% and finally the arts. If consider that the time required to graduate in different fields of higher education differs, the rate of return to education is highest in economics followed by technical education. Medical studies have a lower rate of return, explained by the fact that these studies last for 6 years.

TAB. 10: Annualized rate of return on higher education by the field of study

Field of study	Annualized rate of return to education	Annualized rate of return to education
	(the same duration of studies)	(different duration of studies)
Technical	29.48%	29.48%
Economics	29.34%	39.12%
Medicine	33.67%	22.45%
Law	26.65%	26.65%
Science	26.33%	26.33%
Arts	20.59%	20.59%

4. Conclusion

In this paper we studied the influence of education on the income in Romania using the well-known Mincer equation. While this subject attracted many studies at international level, in Romania there are only few papers, our study being the single one that used an exhaustive database for the whole population of the country. We showed that the rate of return to education has increased over the time compared with some previous studies. We also showed that using OLS the estimates are downward biased: while the rate is 12.28% computed by OLS, it is 16.1% when we used an instrument and 2SLS. A special attention was paid to the higher education showing the it brings greater benefits on the labor market compared with other educational levels. We analyzed separately the bachelor, masters and doctorate degrees and showed that while bachelor and masters bring an increase to the log of income, the doctorate degree has a lower rate of return than the master degree. Analyzing the influence of the field of higher education, we showed that the areas that has the highest rate of return are medicine, economics and law.

Literature:

Andrei, T., Teodorescu, D., Oancea, B., Iacob, A. (2010a). Evolution of higher education in Romania during the transition period. *Procedia - Social and Behavioral Sciences*, 9, p. 963-967.

Andrei, T., Teodorescu, D., Oancea, B. (2010b). Characteristics of higher education in Romania during transition. *Procedia - Social and Behavioral Sciences*, 2(2), p. 3417-3421.

Belzil, C. (2006). *Testing the Specification of the Mincer Wage Equation*, Working Paper 06-08, CATE UMR 5824 du CNRS, Ecully. Retrieved June 3, 2016, from <http://hal.archives-ouvertes.fr/docs/00/14/25/42/PDF/0608.pdf>.

Bound, J., Jaeger, D. A., Baker, R. M. (1995). Problems with Instrumental Variables Estimation when the Correlation Between the Instruments and the Endogeneous Explanatory Variable is Weak. *Journal of the American Statistical Association*, 90(430), p. 443-450.

Brunello, G., Miniaci, R. (1999). The economic returns to schooling for Italian men. An evaluation based on instrumental variables, *Labour Economics*, 6(4), p. 509-519.

Card, D. (1993). *Using Geographic Variation in College Proximity to Estimate the Return to Schooling*. National Bureau of Economic Research (NBER). Working Paper No. 4833.

Card, D. (2001). Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems. *Econometrica*, 69 (5), p. 1127-1160.

Dragoescu, R. M., (2015)., *Quantitative analysis of the evolution and trends of the higher education in Romania*. Ph.D. Thesis (in Romanian), The Bucharest University of Economic Studies.

Fiaschi, D., Gabbriellini, C. (2013). *Wage Functions and Rates of Return to Education in Italy*. Presented at the Fifth meeting of the Society for the Study of Economic Inequality, Bari. Retrieved on February 2, 2015, from http://www.ecineq.org/ecineq_bari13/FILESxBari13/CR2/p253.pdf.

Flabbi, L. (1999). *Returns to Schooling in Italy: OLS, IV and Gender Differences*. Bocconi University, Econometrics and applied Economics Series. Working Paper No. 1.

Halvorsen, R., Palmquist, R. (1980). The interpretation of dummy variables in semilogarithmic equations, *The American Economic Review*, 70(3), p. 474-475.

Harmon, C., Walker, I. (1995). Estimates of the Return to Schooling for the United Kingdom, *The American Economic Review*, 85(5), p. 1278-1286.

Hyder, A. (2007). *Wage Differentials, Rate of Return to Education, and Occupational Wage Share in the Labour Market of Pakistan*. Pakistan Institute of Development Economics (PIDE) Working Paper No. 2007:17.

Humphreys, J. (2013). *An alternative to the Mincer model of education*, In: 42nd Australian Conference of Economists, Murdoch University Western Australia.

Ion, I., (2003). Education In Romania - How Much Is It Worth?. *Romanian Journal of Economic Forecasting*, 1, p. 149-163.

Ismail, R. (2007). *The Impact of Schooling Reform on Returns to Education in Malaysia*. Munich Personal RePEc Archive (MPRA). University Library of Munich. Paper No. 15021.

Kifle, T. (2007). The Private Rate of Return to Schooling: Evidence from Eritrea. *Essays in Education*, 21, p. 77-99.

- Liu, J.-T., Hammitt, J. K., Lin, C. J. (2000). Family background and returns to schooling in Taiwan. *Economics of Education Review*, 19(1), p. 113-125.
- Mincer, J. (1958). Investment In Human Capital and the Personal Income Distribution. *Journal of Political Economy*, 66, p. 281-302.
- Mincer, J. (1974). *Schooling, Experience, and Earnings*. Columbia University Press for the National Bureau of Economic Research, New York.
- Mincer, J. (1978). Family Migration Decisions. *Journal of Political Economy*, 8(5), p. 749-773.
- Păuna, C., (2009). *Wage discrimination in Romania - Evolution and explanations* (in romanian). Working Papers of Macroeconomic Modelling Seminar, 19, 081902. Retrieved on April, 4, 2015, from http://www.ipe.ro/RePEc/WorkingPapers/cs19_2.pdf.
- Psacharopoulos, G., Patrinos, H. A. (2004). Returns to Investment in Education: A Further Update. *Education Economics*, 12(2), p. 111-134.
- Sanroman, G. (2006). *Returns to schooling in Uruguay*. Economics Department. Social Sciences Faculty, University of the Republic, Montevideo, Uruguay. Working Paper No. 14/06.
- Staiger, D., Stock, J. H. (1997). Instrumental Variables Regression with Weak Instruments, *Econometrica*, 65, p. 557-586.
- Varly, P., Iosifescu, C. S., Fartuşnic, C., Andrei, T., Herţeliu, C. (2014). *Cost of non-investment in education in Romania*. UNICEF, Bucharest.
- Thurow, L. (1969). *Poverty And Discrimination*. Washington, Brookings Institution.
- Trostel P., Walker, I., Woolley, P. (2002). Estimates of the Economic Return to Schooling for 28 Countries. *Labour Economics*, 9(1), p. 1-16.
- Zhang, X. (2011). The Rate of Returns to Schooling: A case study of Urban China. *International Journal of Humanities and Social Science*, 1(18), p. 173-180.
- Warunsir, S., Mcnown, R. (2010). The Returns to Education in Thailand: A Pseudo-Panel Approach. *World Development*, 38(11), p. 1616-1625.
- Weisberg, J. (1995). Returns to Education in Israel: 1974 and 1983. *Economics of Education Review*, 14(2), p. 145-154.

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SUSTAINABLE CONSUMPTION AND PRODUCTION IN EU COUNTRIES

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Abstract: *Sustainable development is centring connections set by the needs of society, environment and economy. At the present level of civilization growth, sustainable development means meeting the needs of the present generation so that future generations will not have less chance of satisfying them. Applicable solutions, however, must be economically acceptable. It is of utmost importance to examine how the Sustainable Development Strategy is used for Sustainable Production and Consumption on which affects all inhabitants of the European Union and its decisions. Sustainability requirements must take into account the needs generated by economic growth without separating them from the level of environmental degradation. In terms of sustainable production and consumption, we must consider resource use and waste, consumption and production patterns. The paper presents research on sustainable production and consumption in EU countries, pointing to significant differences in consumer and producer decisions.*

Keywords: *Sustainable development, consumption, production, strategy, European Union.*

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Grant affiliation:

1. Sustainable development

The concept of sustainable development is relatively new, although their premise goes back to the previous centuries. The most commonly cited definition comes from the World Commission on Environment and Development report of 1987 and is worded as follows: "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCDE., 1987).

Sustainable development takes place when it is based on stable and sustained economic growth in environmentally friendly sectors and when it helps to reduce unemployment by utilizing existing social resources on the labor market (Wysokińska & Witkowska, 2016).

2. European Union and Sustainable Development

In the European Union, the idea of sustainable development is very important. Over the years, a series of documents and strategies have been developed to implement and sustain the idea of sustainable development in European conditions.

In 2010, the European Commission adopted a paper: A strategy for smart, sustainable and inclusive growth in Europe 2020. Three key tasks have been identified in this document to enable the European Union to achieve economic growth sustainably. They are:

- “– Smart growth: developing an economy based on knowledge and innovation.
 - Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
 - Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.”
- (Europe 2020., 2010).

Due to the time of the document creation - year 2010, it was put in a large emphasis on the exit of the crisis and preventing social exclusion. Due to the large number of definitions of sustainability, and the integration of many issues, there have often been critical comments on insufficient emphasis on issues such as fair remuneration and environmental concerns (Kot & Brzezinski, 2015).

In global terms sustainable development is difficult to implement (Lis, Bajdor, Ptak, & Budzik-Nowodzińska, 2016). This is due, among other things, to the unification of many different and often contradictory aspects: environmental, social and economic (Pabian & Pabian, 2014). Generally, general sustainability targets include:

- satisfying the basic needs of each person,
- recognizing the constraints facing the economy by the natural environment,
- ensuring justice within and between generations (Mierzejewska, 2010).

Depending on the level of development of a given society or a particular region, these ideas can be implemented in different ways and to varying degrees (Chalastra, Siemionek, Kotapski, & Siemionek-Ruskań, 2016). Implementing the idea of sustainable development is not always possible to implement in a short time and sometimes this process is spread over many years.

3. Study on selected indicators of sustainable consumption and production

According to EUROSTAT publication on Europe 202 Strategy – 2017 edition (EUROSTAT, 2017), one of the sustainable development goals is to ensure sustainable consumption and production patterns.

In the Eurostat database is given a number of sustainable development indicators. As of this writing, in most cases data was available until 2015. Accordingly, the authors decided to analyze the 2015 data as the latest available and most comparable.

Among the indicators of Sustainable development, is the sub-category sustainable consumption and production. It is subdivided into subcategories, often containing whole series of data. The authors

decided to analyze the data related to production patterns (tab. 1) and consumption patterns (tab. 2).

Tab. 1 lists production-related indicators, specifically the number of Eco-Management and Audit Scheme (EMAS) registered organizations and registered sites. To better illustrate the scale, tab. 1 contains data on Gross Domestic Product (GDP) as a benchmark to the size and wealth of the countries being compared.

TAB. 1: Gross Domestic Product (GDP) and organizations and sites with Eco-Management and Audit Scheme (EMAS) registration in 2015 in chosen European countries

	GPD at market prices [million units of national currency]	EMAS registered organisations	EMAS registered sites
EU (28 countries)	14 720 020,2	3921	8890
Belgium	410 247,0	72	629
Bulgaria	45 286,5	2	3
Czech Republic	168 473,3	24	50
Denmark	271 786,1	46	256
Germany	3 032 820,0	1200	1991
Estonia	20 251,7	7	49
Ireland	262 037,4	3	3
Greece	175 697,4	41	1292
Spain	1 075 639,0	943	1083
France	2 194 243,0	35	39
Croatia	44 068,0	0	0
Italy	1 645 439,4	1015	1772
Cyprus	17 637,2	22	22
Latvia	24 368,3	0	0
Lithuania	37 330,5	6	19
Luxembourg	52 339,7	2	6
Hungary	109 674,2	20	21
Malta	9 272,9	1	1

Netherlands	683 457,0	3	3
Austria	339 896,0	284	1091
Poland	430 037,8	48	122
Portugal	179 504,3	58	117
Romania	159 963,7	7	13
Slovenia	38 570,0	10	16
Slovakia	78 685,6	3	3
Finland	209 581,0	4	23
Sweden	447 009,5	18	18
United Kingdom	2 580 064,5	47	248
Norway	348 332,1	7	7

Source: own study based on data from EUROSTAT

EMAS (the Eco-Management and Audit Scheme) is a system that allows the implementation of environmental policy limiting the company's impact on the environment (Wójcik, 2015).

Among the identified direct and indirect environmental aspects, organizations are obliged to identify the most important aspects and significant aspects (Nycz-Wróbel, 2015). However, the implementation of EMAS is costly, not all businesses are able to afford. It is therefore necessary to support the implementation of the EMAS system.

From the data in tab. 1, can be seen that most registered organizations with EMAS are in Germany and Italy. The most registered sites are in Germany, Italy, Greece, Austria and Spain. All these countries are characterized by high GDP levels. It should be noted that among the analyzed countries France and United Kingdom, have high GDP and very few EMAS registered organizations and sites.

Tab. 2 contains data related to consumption patterns. The authors decided to analyze the consumption of energy in total, by industry, by transport and by residential (Grabara, Bajdor, & Mihaescu, 2015). Electricity consumption by households and motorization rate was also examined (Kot & Ślusarczyk, 2012).

TAB. 2: Final energy consumption by sector, electricity consumption by households and motorization rate in 2015 in chosen European countries

	Final Energy Consumption [1000 tonnes of oil	Final Energy Consumption – Industry	Final Energy Consumption – Transport	Residential [1000 tonnes of oil	Electricity consumption by households	Motorization rate [cars per 1000
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	equivalent]	[1000 tonnes of oil equivalent]	[1000 tonnes of oil equivalent]	equivalent]	[1000 tonnes of oil equivalent]	inhabitants]
EU (28 countries)	1083957	274737,3	358628,8	275155,2	68392,6	-
Belgium	35779,6	11890,8	10444,1	8135,7	1619,5	497
Bulgaria	9507,6	2713,3	3402,2	2195,1	915,2	-
Czech Republic	24187,1	7473,5	6488,9	6692,9	1236,6	485
Denmark	13945,5	2110,1	4949,3	4254,3	875,1	-
Germany	212123,6	60951,1	63168,2	53171	11066,2	548
Estonia	2765,1	524,1	784,5	858,2	148,6	514
Ireland	11214,3	2413,6	4623,6	2711,7	677,6	436
Greece	16501,8	3128	6577,1	4400,5	1508	474
Spain	80461,2	18914,8	33594,7	14876,1	6023,7	481
France	144123	28638,6	50077,4	37663,9	13107,6	484
Croatia	6587	1089,5	2107,2	2418,1	533,3	358
Italy	116444,1	26023	39540,7	32494,5	5691,1	-
Cyprus	1659,5	201,1	867,4	317,1	130,3	575
Latvia	3787,5	787,8	1146,8	1105,6	151,2	345
Lithuania	4868,8	982,8	1831,8	1364,6	228,7	431
Luxembourg	3988,2	650,8	2419,5	494,6	77,4	661
Hungary	17308,6	4235,7	4353,9	5956,4	932	325
Malta	572,3	45,8	311,4	78,2	56,4	634
Netherlands	48504,7	14265,7	14272,9	9557,2	1950,3	-
Austria	27370,1	9117,4	9000,3	5978,1	1459,5	546
Poland	62250,8	15046,9	17241,4	18842,7	2431,6	546
Portugal	16037,5	4450,5	6612,6	2538,6	1029,6	:

Romania	21892,5	6471,8	5577	7375,2	1040	261
Slovenia	4688,9	1227,1	1798,6	1110,9	275,6	523
Slovakia	10077,1	4426,6	2212,2	1987,9	432,9	375
Finland	24181,1	10698,1	4791,1	4898,4	1798,5	590
Sweden	31758,8	11527,9	8667,7	7197,2	3696,2	474
United Kingdom	131370,2	24730,8	51766,3	36480,7	9299,8	463
Iceland	3057,9	1461,4	521	392,4	70,9	-
Norway	18712,5	5909,4	5469,4	3880,6	3206,2	501

Source: own study based on data from EUROSTAT.

The highest final energy consumption is in Germany, France, United Kingdom, Italy and Spain. The same 5 countries are characterized by the highest final energy consumption in industry and in transport. Germany, France, United Kingdom, Italy and Poland are among the most consumed in residential energy. Most use of electricity consumption by households is in France, Germany, United Kingdom, Spain and Italy. The highest motorization rate is in Luxembourg, Malta, Finland, Cyprus, Germany, and the same number in Poland and Austria.

4. Summary

The tasks of implementing sustainable development in production and consumption are the tasks that are being put forward today above high-developed countries. Europe should lead the way here, and especially the countries of the European Union. Creation of system mechanisms to support sustainable production and consumption, gives Europe the opportunity to build a sustainable and competitive economy (Nowak & Ulfik, 2014). The race for new processes and environmentally friendly technologies gives the opportunity to exploit the competitive edge of the European market. It is also important to build consumer awareness in the European market on sustainable use of natural resources. Such actions will help to prevent environmental degradation, reduce emissions and preserve biodiversity. Such actions will lead to an improvement in the social and economic cohesion of the EU countries.

Literature:

Chalastra, M., Siemionek, A., Kotapski, R., & Siemionek-Ruskań, M. (2016). *Sustainable process of financial controlling implementation*. In P. Slavíčková (Ed.), *Knowledge for Market Use 2016: Our Interconnected and Divided World* (pp. 156–161). Olomouc.

Europe 2020: A strategy for smart, sustainable and inclusive growth, Communication from the Commission (COM(2010) 2020 final), Brussels, 3. 3. 2010 (2010).

EUROSTAT. (2017). *Smarter, greener, more inclusive ? Indicators to support the Europe 2020 strategy — 2017 edition* (Publicatio). Luxembourg.

Grabara, J., Bajdor, P. & Mihaescu, L. (2015). *Steps of sustainable development implementation into enterprise activities*. *Management of Sustainable Development*, 7(1), p. 45–49.

Kot, S. & Brzezinski, S. (2015). *Market Orientation Factors in Sustainable Development and Corporate Social Responsibility*. *Asian Journal of Applied Sciences*, 8(2), p. 101–112.

Kot, S. & Ślusarczyk, B. (2012). *Sustainable Development Analysis in Transport Process*. *Studia Ekonomiczne Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego W Katowicach*, (121), p. 141–146.

Lis, T., Bajdor, P., Ptak, A. & Budzik-Nowodzińska, I. (2016). *Information Management in the Company's Information Space*. In *The Asian Conference on Sustainability, Energy & the Environment 2016*, Kobe, Japan (pp. 351–364). Nagoya: The International Academic Forum (IAFOR).

Mierzejewska, L. (2010). *Rozwój zrównoważony miasta: zagadnienia poznawcze i praktyczne*. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza.

Nowak, S. & Ulfik, A. (2014). An evaluation of regional development in the context of economic and environmental benefits. *Polish Journal of Management Studies*, 10(1), p. 74–83.

Nycz-Wróbel, J. (2015). *Zarządzanie działalnością środowiskową przez organizacje zarejestrowane w systemie EMAS*. *Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu*, 377, p. 73–81.

Pabian, A. & Pabian, B. (2014). *Sustainable management of an enterprise - functional approach*. *Polish Journal of Management Studies*, 10(1), p. 98–107.

World Commission on Environment and Development (WCDE). (1987). *Our Common Future*, Oxford, Oxford University Press, United Nations Commission 300 (1987).

Wójcik, G. P. (2015). *Rola systemu ekozarządzania i audytu (EMAS) w działalności organizacji*. *Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu*, 377, p. 103–115.

Wysokińska, Z. & Witkowska, J. (2016). *Zrównoważony rozwój. Wybrane aspekty makro- i mikroekonomiczne*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.

For more see: <http://ec.europa.eu/eurostat/data/database>.

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THE EXPANDED ASSET PURCHASE PROGRAMMS - APPLICATION OF VARIOUS THEORIES

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Abstract: *In order to eliminate unfavourable economic phenomenon's (negative inflation, low interest rate, and low economic growth) The European central bank decided to implement the expanded asset purchase programs (EAPP) called Quantitative easing. In the second half of January 2015 it was declared that ECB will buy euro area government bonds, agency bonds and bonds of the European institutions in the secondary market. Quantitative easing was launched in early March 2015 and should continue at least until December 2017. The purchase takes place via the asset purchase program(APP) of the private sector, which aims to change the momentary tendency in inflation contribute to price stability, loosen financial conditions for firms and households, thereby stimulate growth economies. Quantitative easing involves buying asset-backed securities, asset purchase program of the private sector and the third stage of the covered bond purchase program. The aim of the paper is to verify the validity of the concept "The quantitative theory of money" on data of Euro area. The Regression analysis confirmed quite a strong relationship between the monetary aggregates M2 and nominal GDP. The nominal and real interest rates in the short or long term are almost in the same level – resulting in preference to hold cash and it make create liquidity trap in the Euro area.*

Keywords: *Quantitative easing, quantitative theory of money, Fisher effect, monetary policy.*

JEL classification: E24, E52, E58

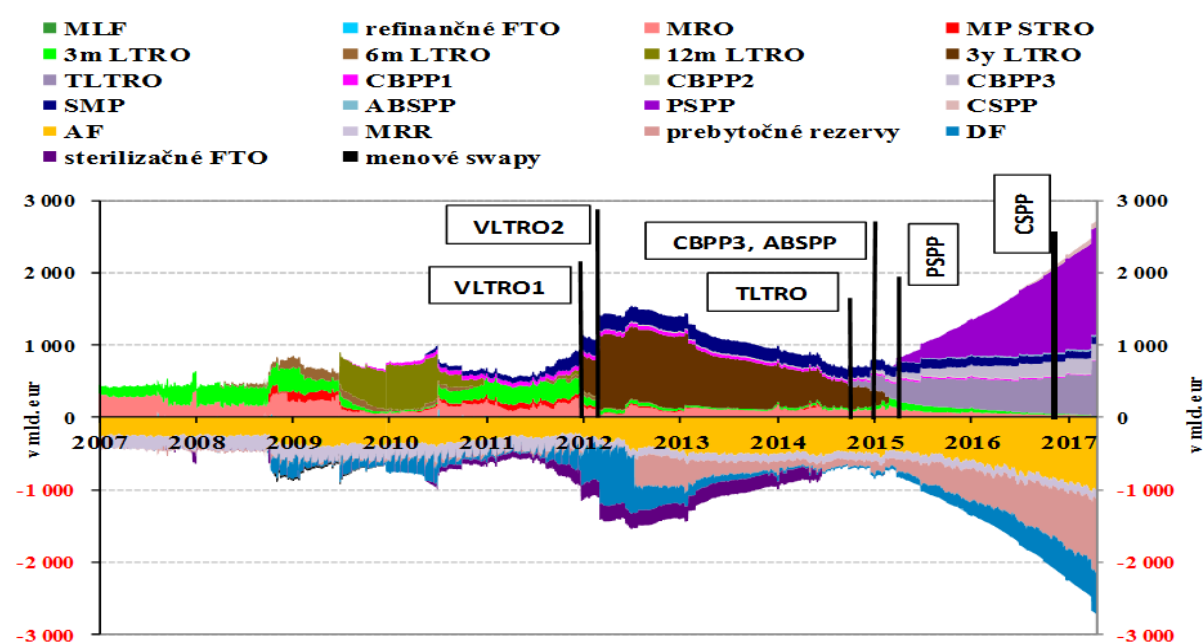
Grant affiliation: *This article was supported by the Grant Agency VEGA, under project no. 1/0975/15 „Macroeconomic and microeconomic consequences of inflation and deflation“ Special thanks to my diploma student Patrick Kristóf, that under my leadership has developed and successfully defended his thesis: Macroeconomics and cosequences influences of inflation and deflation.*

1. Introduction

Central banks govern the price of money by official bank rate. By the help of these determinate costs from mortgage for businessman and households as well as return of saved money. When it comes to higher rate of interest the loans for economical subjects are more expensive, so it eliminates the amount of investment in economics and economic growth. As far as the rates of interest are low,

they range is near zero, you cannot reduce them below zero. The economic regulation by central bank loses its effectiveness. In this situation the possible solution would be politics of quantitative easing, which tries even more to lower the rate of interest, by creating new electronic money, that are applied to economy. This kind of money boost credit account of central bank. The money is used for all different types of activities from buying government bonds to small company bonds. The goal is to stimulate commercial banks, providing more loans, business subjects' investment. Business and household promptitude for buying should be now determined by increasing on prices as expected in future. Indeed, this kind of monetary policy brings some risks. One of the most significant risks is the rise of inflation in the future, depreciation of currency and decrease of trust in economics, which would be contra productive for its growth. These are the most important arguments why central banks cannot apply politics of quantitative easing without suitable impulse. [1]; [8]

FIG. 1: Most important monetary policy instruments in recent years



Source: ECB, NBS

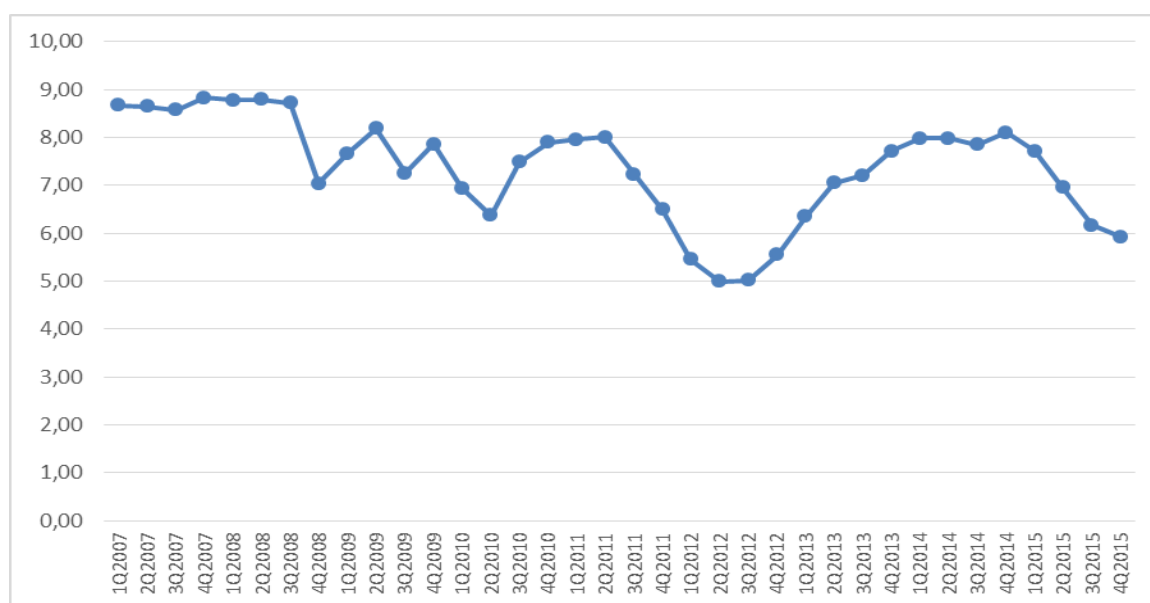
2. QE and "The quantitative theory of money"

Our aim is to verify the theoretical postulates of the quantity theory of money, in practice, at the data for the Euro area. Prerequisites for analysis are constituted on fundamentals of theoretical concepts of monetarism and its equation of exchange by which we determine based on calculations made two fundamental macroeconomic aspects affecting price levels and gross domestic product. Through analysis of the money supply and its subsequent differentiation we did specify on partial components of the monetary aggregate M2 and called the monetary base M0. The aim was to achieve a transformational relationship between the size and quantity of the monetary base (money supply), which we refer to as a money multiplier. Money multiplier is a relevant indicator of central bank measures seeking to regulate the supply of money in circulation because it determines the scope of the increase in the money supply, which is determined by the increase in the monetary

base. [5] The central bank oversees monetary base or a solicitation provisions, but on the central banks create the money supply. In simple terms, the money multiplier, which determines the quantum of money, can be made as an additional unit of currency entering the system of commercial banks. It is this fact and the size of the multiplier is one of the most relevant of issues of bank liquidity and the granting of additional loans by commercial banks. Its size should be in reality always greater than 1, but also notes that the larger its value, so the less liquid and banks are bankable.

By implementing Quantitative easing, the rate of money supply did not increase almost at all. When comparison data acquired in 2015 and 2014 quarters say that the year 2015 brought a lower amount in each quarter, with the value registered so far the last 0,263 units in the last quarter, 2015. Interestingly a similar downward trend in the first quarter of each year and all observed subsequent three quarters of the annual increase in velocity. The knowledge we associate with the culmination of the festive circulation as determined by expanding the number of consumer purchases in the last quarter mentioned years, and hence an increase in velocity. Trends are continuing downward velocity of circulation of money in the economy indicates a cooling slightly, the euro zone economy, so I dare to say that so far implemented quantitative easing does not significantly alter the trend euro area economy. [3]; [4]

FIG. 2: Data series of the value for money multiplier in the EA 2007-2015



Source: Federal Reserve Bank of St. Luis and European central bank

3. Data and methods

Through regression analysis we examine and verify statistical dependence between the monetary aggregates M2 and nominal gross domestic product of the Euro area. Monetary aggregate M2 we choose from among the aggregates as a representative component and the other abstracts due to similar results calculated for other units. In the calculations we used the dependent variable independent variable M2 and nominal GDP and also from our basic equation, which can be written:

$$GDP_t = \alpha + \beta \times M2_t$$

Final equation:

$$GDP_t = -0,0243512 + 2,1348940 \times M2_t$$

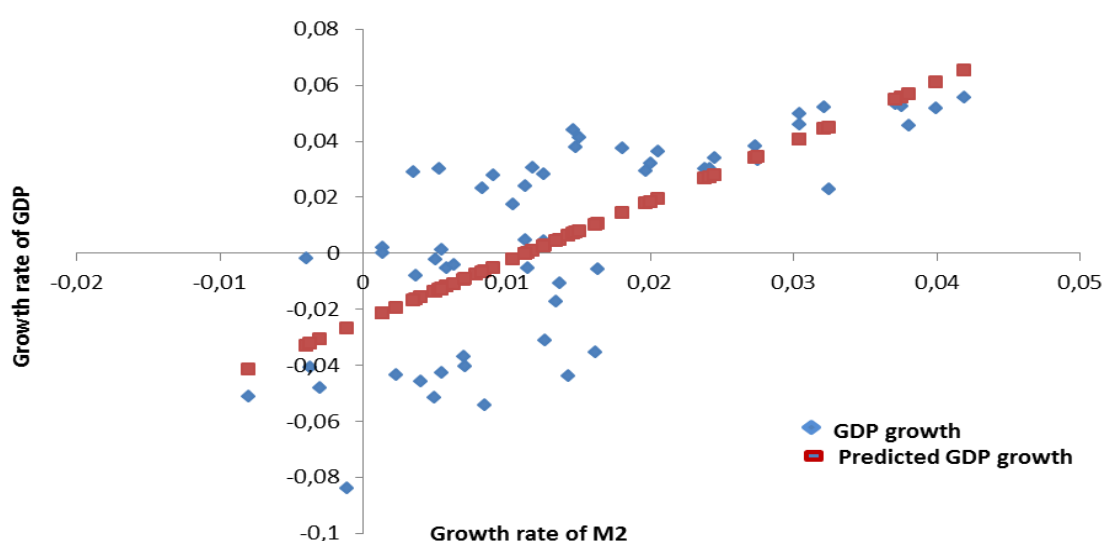
TAB. 1: Results of regression analysis, monetary aggregate M2 and nominal GDP 2001-2015 in the EA (in %, quarterly)

Variable results	Coefficient	Standard deviation	t-value	p-value
Constant	-0,0243513	0,00507	-4,8041	<0,0001
M2 growth	2,13489	0,27339	7,8089	<0,0001

Source: Federal reserve bank of St. Luis and European central bank

It can be argued that if the growth in monetary aggregate M2 zero and the nominal GDP growth became negative -0.0243512%, which we refer to as negligible. The increase in growth of the monetary aggregate M2 by 1%, will affect the nominal GDP growth of 2.1348940%, which evokes quite a significant increase. Through regression analysis, we have reached a dependency relationship between nominal GDP growth and the growth of the monetary aggregate M2, thus we can conclude that manifests monetary policy. This relationship is not sufficiently explaining monetary rule of monetarists, which states that GDP growth should be accompanied by pressurization suffices identical amount of money in the economy. Due to insufficient explanations monetary rule may be that the regression line explains the variability of monetary aggregate M2 to about 52% and the remaining part is unexplained. In this section we include the amount of endogenous variables and factors, various random factors or influences, from which we have in our calculation abstracted.

FIG. 3: Regression analysis of monetary aggregate M2 and nominal GDP 2001-2015 in the EA (in %, quarterly)



Source: Eurostat and Federal reserve bank of St. Luis.

Equation and its linearity is illustrated in the Figure 3. The direct relationship evokes positive correlation, where the nominal GDP growth has a positive monetary aggregate tend to rise in the next period. Density correlation coefficients oscillating around the trend line confirms rather

significant dependence of above mentioned variables. Statistical significance dependence between variables is highly significant because the value of acquired roughly 0.72 from the interval (-1.1), where 1 indicates the strongest possible addiction. P-values acquired in the regression analysis is confirmed by the fact that location constant is statistically significant because its value is less than 0.05. The results of Durbin-Watson factor on approximate the level of 2.187 shows us that residues do not exhibit autocorrelation of the first order. In conclusion we can say that the constructed model is correct, because we have it verified the F-test, which is lower than our chosen significance level of 0.05.

TAB. 2: ADF test for stationarity of time series of nominal GDP and monetary aggregate M2

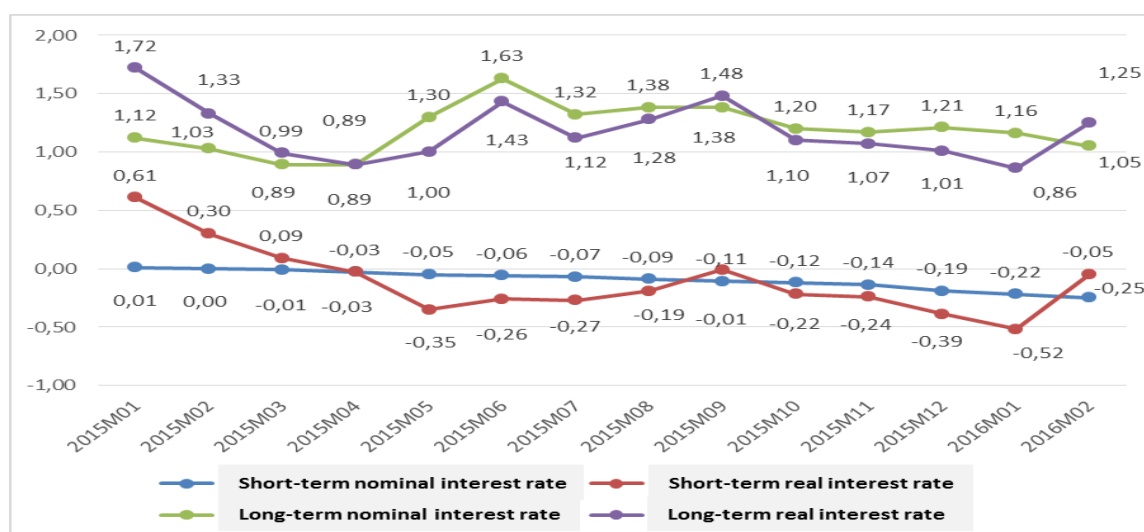
Time series		GDP	M2	GDP growth	M2 growth
Critical values	1% level	-3,679322	-3,661661	-3,679322	-3,661661
	5% level	-2,967767	-2,960411	-2,967767	-2,960411
	10% level	-2,622989	-2,619160	-2,622989	-2,619160
ADF test		1,155339	0,440244	-4,143710	-3,334080

Source: Eurostat and Federal reserve bank of St. Luis

Due to the use of a suitable form of data series has been verified stationarity of time series of data. To test the stationarity we used the ADF test (Augmented Dickey-Fuller test), which aims to test the unit root. Based on the test set out in Table 2 it shows the time series of nominal GDP and M2 monetary aggregate is not stationary. Conversely, nominal GDP growth and the growth of the monetary aggregate M2 are stationary time series, therefore, by reason of that was useful in our analysis using data on nominal GDP growth and the growth of the monetary aggregate M2.

Other part of the paper obtained theoretical postulate of Irving Fisher, who claims that the nominal interest rate is modified in parallel with the inflation development. We start with the simplified assumption that the nominal interest rate is equal to the real interest rate plus inflation level in the period, respectively, the real interest rate equals the nominal interest rate less the inflationary level in the period. It is important to mention, if long-term and short-term real interest rate shall positive and the inflation rate level is lower than the long-term and short-term nominal interest rate.

FIG. 4: Data series of short and long term real and nominal interest rates 2015-2016 (in %, monthly)



Source: Eurostat

In case of a short-term and long-term real interest rate, the rate of inflation levels grew faster than the long-term and short-term nominal interest rate, and it would discourage people from remunerating their money because inflation would further degrade their value. This is happening in the current situation when in some months, the real interest rate is above par, whether in the short or long term, which is why the Eurozone is in a liquidity trap, so people prefer holding money in cash before their interest rate. [6]; [8]

4. Conclusion

The relevance of applying the quantitative easing by the European Central Bank is also currently the most recent and the most buzzed about economic issues in influential circles, but also among the not so well-founded, respectively the general public. Quantitative easing from the first quarter of 2015 enhances economic growth and the development trend should grow in the next period. Therefore, we can conclude that show the positive effects of quantitative easing on the growth of gross domestic product. We expect that the positive trend will increase in the coming period. We would argue that the level of the interest rate, the marginal lending facility and deposit operations also tend to fall in the near future. Development of money multiplier indicates decreasing levels, indicating a lack of creation of new money in the economy, which is caused by reluctance of commercial banks to provide additional loan amount, so the European Central Bank decided to implement quantitative easing, which increases the monetary base, which helps to better multiplication of money. At the same time it reduces the interest rates mentioned lows that started the banking sector to expand credit facilities to clients. Velocity of money is quite low, with continuous annual drop. Just reducing the number of transactions in the economy has a significant impact on the rate of decline. So far, we not are seeing the effectiveness of quantitative easing, because the more striking that determined the velocity of money in circulation must be implemented in a longer period of time than ever before. The analysis confirmed the regression line quite a strong relationship between the monetary aggregates M2 and nominal GDP, growth in nominal GDP growth prognosis monetary aggregate M2.

In examining the Fisher equation, we found that the nominal and real interest rates are moving at a similar level, in some cases, a short-term or long-term real interest rate is higher than the level of short-term or long-term nominal rate. Consequently, preference is holding money in cash, which makes the creation of a liquidity trap in the Euro area.

Literature:

Clayes, G., Leandro, A., Mandra, A. (2015). *European central bank quantitative easing: the detailed manual*. [online] retrieved 2015 from <http://bruegel.org/wp-content/uploads/imported/publications/pc_2015_02_110315.pdf>.

Čársky, R. (2014). *Kríza zvýšila dopyt bánk po rezervách - peňažný multiplikátor klesol*. [online] retrieved 2014 from <http://www.nbs.sk/_img/Documents/_PUBLIK_NBS_FSR/Biatec/Rok2014/03-2014/04_biatec14-3_carsky.pdf>.

ECB, Europa. *Statistical Data Warehouse- HICP, oil price, monthly M3*. [online] retrieved from <<http://sdw.ecb.europa.eu/>>.

Eurostat Database - GDP and Main components. [online] retrieved from <<http://ec.europa.eu/eurostat/data/database>>.

NBS. *Makroekonomická databáza - HDP, HICP, jadrová inflácia, peňažné agregáty, hlavná úroková miera*. [online] retrieved from <<http://www.nbs.sk/sk/menova-politika/makroekonomicka>>.

Titze, M. (2014). *Netradičná menová politika - v kontexte súvahy centrálnej banky*. (pp. 363-378). *Economicke rozhľady: vedecký časopis Ekonomickej univerzity v Bratislave*. ISSN 0323-262X, 2014, roč. 43, č. 03.

Tóth, R. (2010). *Veľa krikú pre nič: kvantitatívne uvoľňovanie peňazí po americky*. Investor: financie f& investície & poradenstvo. ISSN 1335-8235, 2010, roč. 11, č. 12, pp. 22.

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COST ACCOUNTING IN A MANUFACTURING COMPANY

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Abstract: *Knowledge of the cost of a business activity is key to a successful and profitable business management. Companies have several options for cost accounting. Their decision to choose the right cost accounting system is primarily influenced by the type of business activity, the size and details of the information that the manager requires. The basis for guaranteeing reliable and detailed information on the costs incurred is a well-developed account plan with a right counterpart account system. In addition, companies should be obliged to introduce ancillary accounts for logistics costs that are high in a company. The purpose of this article is to present a cost accounting system in a manufacturing company.*

Keywords: *Cost accounting, manufacturing company, logistics costs.*

JEL classification: *M41*

Grant affiliation:

1. Introduction

Cost management is one of the most important areas of managing a company. It is important for entrepreneurs to have costs grow slower than incomes. On the contrary, we need to have a close look at places in which the costs are incurred. To be able to manage them efficiently we need to possess a detailed information concerning the type of incurred costs and the place of their origin. For that purpose the right cost recording system needs to be selected, which will enable and ease making decisions. The choice of the right cost recording model depends on the size of the company as well as the type of conducted activity. A different system is recommended for trade, service and manufacture entities. Appropriately selected cost recording system makes their control easier, which has a positive influence on the level of incurred costs and the financial results of the company.

2. Cost accounting systems

Costs of economic activity cover the costs incurred for manufacturing and selling goods. Providing services, purchasing and selling materials, goods and managing an economic entity. They can be grouped in two different categories [Nowak 2005]:

- by cost type (accounts of the group number 4),
- according to the type of activity (accounts of the group number 5).

These are simplified cost recording systems. The way offering the greatest amount of information is the third method defined as full cost recording with the accounts of team 4 and 5 taken together.

Therefore, economic entities can conduct cost recording using one of the three solutions:

- a. Cost recording only by type, on the account of the group number 4;

The by type system covers shut-down costs, that is, the ones which cannot be divided into more elementary components. It can be used by all companies due to the fact that in each entity we can distinguish the same types of costs, regardless of the conducted activity. The accounts of the group number 4, that is, prime costs include:

- amortisation,
- the use of materials and energy,
- third-party services,
- taxes and fees,
- remunerations,
- insurances and other benefits,
- other costs by type constitute other costs which cannot be classified into the groups -described above.

We need to remember that costs by type include current period costs as well as the ones concerning future reporting periods. In the profit and loss account prepared in the consolidated profit and loss account, adjustments of costs concerning future periods are made by changing the level of products.

- b. Cost recording only according to types of activities, on the accounts of the group number 5;

The multiple-step format divides costs according to the place of their origin. The following accounts are included into this group of costs:

- the costs of basic activity,
- departmental costs,
- sales costs,

- auxiliary activity costs cover cells selected within a unit, which provide services for the needs of cells of the company,
- management costs cover administrative-economic costs.

In the multiple-step variant of the profit and loss account the problem of matching costs does not occur. The construction of costs in the multiple-step variant allows to charge only the part of costs, which concerns products, goods and materials sold only in a given reporting period into costs of a given period.

c. Cost recording by type and according to the types of activity together;

This is a full cost recording. Entities conducting costs booking in this way receive full information concerning costs. They have information about the type of incurred costs as well as places/departments in which they are incurred.

3. Costs of logistics

Costs of logistics affect the level of profitability of economic entities. They constitute a special category of costs, which seems to be not fully “developed” by accounting [Nakonieczny 2015]. It results first of all from the lack of a straightforward definition and systematics of logistics costs in the source literature. In spite of numerous attempts being made in this respect, for example by J. Twaróg [2003], the area of logistics costs still remains one of the more difficult aspects as far as the use of accounting tools is concerned [Ficoń 2001].

Logistics costs can be defined as the use of labour, means and objects of work expressed in amount of money, as well as financial expenditures and other negative consequences of exceptional occurrences, which result from the flow of tangible goods in the company and between companies, it also concerns stock maintenance [Skowronek, Sarjusz-Wolski 2003].

There are many criteria of dividing logistics costs. Based on the analyses of source literature, the costs can be most generally divided into the following areas [Wasiak, Jacyna-Golda 2016]:

- costs of managing flows,
- storage costs,
- costs of external transport,
- costs of placing orders,
- costs of preparing products for transportation and sale,
- production costs,
- insurance costs and losses connected with maintaining stocks,
- costs of financial flows,

- costs of lost benefits.

The system of dividing logistics costs accepted by an entity should serve practical purposes, first of all [Szymańska 2014]:

- getting to know the level and structure of Logistics costs,
- evaluation of the rationality of the development of logistics costs,
- planning and budgeting logistics costs.

Logistics costs can be found in all stages of the functioning of a company. Including these costs into the recording system may contribute to the optimisation of costs in each sphere of the activity of an economic entity. Economic practice shows, however, that in spite of the fact that the logistics costs are significant for the activity of a company, they are very often not separated and recorded in the company chart of accounts.

In order to receive information on the incurred logistics costs, it is enough to create appropriate analytical accounts, which is presented in Table 1.

TAB. 1: Typical accounts plan of group no. 4 including logistics costs

Synthetic accounts	Analytical and logistics accounts
Depreciation	Means of transport depreciation Other assets depreciation connected with logistics
Material and energy consumption	Logistics materials consumption Fuel consumption
External services	Transport Loading and unloading
Salaries	Salaries for drivers Salaries for other Logistics employees
Social insurance and other benefits	Social insurance and other benefits for drivers, e.g. 1. Social Insurance fees, 2. trainings and spendings on healthcare, 3. expenditure for Health and Safety.
Fees and taxes	Means of transport taxes Property tax concerning logistics

	Environmental protection fees
Other prime costs	Insurance Business trips of Logistics employees

Source: Zimon, G. (2016). Accounting tools vs. logistics costs control in a trading company. LogForum 12 (2), 155-164, DOI: 10.17270/J.LOG.2016.2.5

The use of detailed accounts presented above will facilitate the process of logistics cost control and will allow for the distribution of logistics costs among the various groups and determining of the structure and trends [Zimon G., Zimon D., 2016].

4. Cost recording in a manufacturing company

Effective management of an economic entity requires information on various economic processes and the property-financial situation, thus the fact of knowing the amount of costs grouped according to criteria adjusted to the character of a particular company is of vital importance.

The company undergoing a research is a Polish production company situated in the Podkarpacie voivodeship. It deals with the realisation of steel constructions at industrial facilities.

The analysed company fulfils the criterion allowing to classify it into the small entities category. In spite of the possibility of applying numerous simplifications, set forth in the Law on Accounting of 23 July 2005 (Journal of Laws from 2015 item 1333), the company applies general accounting rules in its activity, adopted for entities other than banks, social insurance companies and reinsurance companies.

In compliance with the Accounting Policy, all costs are recorded in the company in an extended variant, that is, on the accounts of the groups 4 and 5. This recording variant provides the management with broad cost information necessary during the management process. The entity applies a consolidated profit and loss account.

A detailed analysis of manufacturing costs is conducted with a division into types of production, whereas within particular types of production it is divided into manufacturing orders. Further on, accounting costs are booked taking into account type costs. Below, the cost recording has been presented for a selected production order (TAB. 2).

The last element in the accounting structure constitutes the so-called dictionary of places, which purpose is to make the entries in the accounting books more detailed. The dictionary includes, among others, costs of: amortisation, fuel, electrical energy, real estate tax, warranty, insurances, banking services, IT services, employees trainings, advertising, as well as production costs. A significant emphasis has been put on a detailed recording of remuneration costs (TAB. 3).

TAB. 2: Cost recording of making a steel construction

Account	Account name
501	Basic production costs
501-1	Production of finished products
501-1-3	Steel construction
501-1-3-411	Material consumption
501-1-3-411-1901	Production costs
501-1-3-426	Transportation services
501-1-3-426-1901	Production costs
501-1-3-429	Other services
501-1-3-429-1901	Production costs
501-1-3-431	Remunerations
501-1-3-431-1612	Employment contracts for manual workers
501-1-3-431-1602	Remuneration for the period of being unfit to work
501-1-3-445	Social insurance
501-1-3-445-1612	Employment contracts for manual workers
501-1-3-521	Departmental costs
501-1-3-521-1	Reclassification of costs

Source: own work

TAB. 3: The dictionary of places concerning remunerations

No. in the dictionary of places	Account name
1601	Employment contracts
1602	Remuneration for the period of being unfit to work
1603	Mandate contracts
1604	Contracts for a specific work

1611	Employment contracts for workers of primary production – office workers
1612	Employment contracts for manual workers
1621	Employment contracts for office workers – specialist works
1622	Employment contracts for manual workers – specialist works
1631	Employment contracts for office workers – installation works
1632	Employment contracts for manual workers – installation works

Source: own work

The remunerations of the management board of the company constitute an element of general costs, salaries of other office workers comprise departmental costs, whereas remunerations of manual workers are booked directly into the costs of particular orders.

The allocation of direct costs to the production orders does not cause difficulties. It is made on the basis of source documentations appropriately decreed. In the case of departmental costs, the division key (the cost medium) is used in the form of direct labour together with surcharges, incurred during particular production orders. An indirect allocation of costs to particular production orders occurs according to the formula:

- Indirect costs for orders = indirect costs in total x % direct labour

Solutions adopted in the sample company do not meet requirements as far as information concerning logistics costs is concerned. Taking into account the fact, that logistics costs constitute a significant share in the structure of the costs of economic entities, the lack of detailed records of these costs in accounting books is surprising. Basically, the only information concerning the amount of logistics costs are the costs of external transport.

Importantly, the company does not have its own transport equipment of big dimensions. Each offer, which purpose is a delivery and possibly uploading or unloading, is provided in the detailed analysis. According to the Company's President of the Board, maintaining own transportation means is uneconomical, taking into account relatively low external transportation costs per year. The table below presents the share of external transportation costs in the costs of the company in total (TAB. 4).

TAB. 4: The share of external transportation costs in the costs in total

Month	% share
January 2017	0,2
February 2017	0,4

Source: own work

5. Conclusion

In the institution which has been discussed, applying an extended cost recording system with analytical accounts gives great possibilities as far as conducting a cost analysis is concerned. Additionally, the company uses a dictionary of places, which main task is to make the entries more detailed. The dictionary covers, among others, costs of: amortisation, fuel, electrical energy, real estate tax, warranty, insurances, banking services, IT services, employees trainings, advertising, as well as production costs. This information allows to conduct a very detailed cost analysis. The only negligence can be observed in the area of logistics costs, which according to recent researches, have a significant influence on the company's profitability. In the entity which was studied, they constitute a very low level, therefore the management team decided to include them in the position: external transportation. Summing up, the solutions used in the analysed entity in the area of cost recording give a full picture of places and types of incurred costs. Such a cost recording makes it easier for the management team to control them, which has a positive influence on the financial results of the company.

Literature:

- Ficoń, K. (2001). *Procesy logistyczne w przedsiębiorstwie*. Impuls Plus Consulting, Gdynia.
- Nakonieczny, J. (2015). *Zastosowanie rachunku kosztów w logistyce*. [w:] D. Zimon (red.), *Logistyka stosowana*. CeDeWu, Warszawa.
- Nowak, E. (2005). *Analiza sprawozdań finansowych*. PWE, Warszawa.
- Skowronek, Cz., Sarjusz-Wolski, Z. (2003). *Logistyka w przedsiębiorstwie*. PWE.
- Szymańska, E. J. (2014). *Rachunek kosztów logistyki w zarządzaniu przedsiębiorstwem*. Wydawnictwo SGGW, s. 12.
- Twaróg, J. (2003). *Koszty logistyki przedsiębiorstwa*. ILiM, Poznań.
- Wasiak, M., Jacyna-Golda I. (2016). *Transport drogowy w łańcuchach dostaw*. Wyznaczanie kosztów. PWN.
- Zimon G., (2016). *Accounting tools vs. logistics costs control in a trading company*. LogForum 12 (2), 155-164.
- Zimon G., Zimon D., (2016). *Influence of logistics on profitability of commercial companies*. In Carpathian Logistics Congress (CLC) Location: Jeseník, CZECH REPUBLIC Date: NOV 04-06, 2015, CLC 2015: CARPATHIAN LOGISTICS CONGRESS - CONFERENCE PROCEEDINGS (pp. 565-570), Published: 2016.

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EVALUATION AND IMPACT OF FACTORS ON CREATION OF BUSINESS STRATEGY IN STARTUPS. SURVEY RESULTS

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Abstract: Nowadays, the word startup comes to the forefront. This modern phenomenon is influenced by a business environment that is constantly changing and evolving. Startups are like many businesses subject to changes caused by turbulence that affect their business success. In the present circumstances, it is associated many times with building and maintaining the competitive advantages that become the core of the business strategy. When examining the formation of strategy in startups, we ascribe importance to the factors influencing the achievement of the predetermined goals.

The aim of the paper is to evaluate and identify factors from the external and internal business environment, which are impacting the creation of strategy in startups.

The right choice of business strategy leads startup to search and create new competitive advantages.

Keywords: Startup, business strategy, competitive advantages.

JEL classification: L21, M11, M13

Grant affiliation: The article is the result of research project VEGA 1/0019/15 Business models and business strategies of start-ups.

1. Introduction

We are witnessing the trend when startups can reach a record high speed to enter the elite and build a strong competitive advantage. Their main benefit is adaptability, especially in periods of dynamic shocks (i.e. breakthrough innovation, technological advances in the industry). In these situations small companies can strike, thanks to their rapid and simple adaptation to changes, in contrast to large corporations.

2. Startup from the perspective of global and Slovak officials

Startups are usually small clusters, initially funded and managed by a bunch of founders or a motivated individual. They offer a product that isn't currently available and hasn't yet been offered.

A temporary organization, a cluster used to find a repeatable and scalable business model, are startup features. (Bryan, 2015)

In the narrower sense, the perception of the startup concept is "a technology-oriented, innovative company with global potential and a high degree of scalability. The company remains a startup until it doesn't find a scalable, repeatable model anymore of how to make money." (Štefunko, 2014)

"A startup is also a project that grows with minimal resources and its founders are motivated directly through the share of the project's profit." Many approaches to startup definitions are too bony today. (Maxian, 2014)

Definitions aren't unified and integrated. Each offers a foundation that is "a building stone" or "a cell" for startup.

2.1. Application of business strategies in the modern phenomenon - in startup

From the above mentioned results that if startups wish to have business success, they need to dispose a good business model and a suitably chosen business strategy.

Strategy is key for any business that wants to maintain its market position as well as competitive advantage. A competitive advantage is at the heart of the business strategy.

Most startups are based on innovative technology-based business models, although it doesn't always have to be a technological startup. Any innovative business strategy needs to be adapted to the innovative business model: free strategy, joining model strategy and judo strategy.

We can explain the free business strategy on the example of information technology. It was IT that brought a new kind of strategy, the Freemium model. This is a new form of competition where a competitor offers a product to the consumer for free. (Bryce, Dyer, Hatch, 2011)

The joining model business strategy is a strategy that has been created for companies doing business on Internet. The company obtains information, which are sorted and then sold to its clients. Clients process the bought information and add unique value to them. (Werbach, 2000)

The judo business strategy is applied on Internet. Its essence is to find a parallel between the style of fighting on Internet and in judo. Speed, flexibility and leverage are three of its basic elements. The main goal is to avoid fight, i.e. by using its own flexibility or retreat from the direct attack of a stronger competitor. It isn't recommended for a company to compete in a competition unless it's stronger than an opponent. (Yoffie - Cusumano, 1999)

A good startup business strategy is the lean startup concept. Its essence is to minimize the loss of resources associated with product development and market entry. (Ries, 2011)

3. Objective and methods of research

The aim of this paper is to explore the competitive advantage that forms the core of a business strategy in startups and to find out how a strategy helps startups to exist, survive, or be successful in a dynamic and complex environment.

Selected strategic aspects were researched on a sample of 72 Slovak startups in 2016. The questionnaire was filled out by the respondent during a personal and multiple visit, during a controlled interview with the entrepreneur. A typical startup entrepreneur was between 26 and 30 years old, had a master degree and a 5-year experience. A typical startup in our sample considered its idea as world-class original, earned its first revenues and used start-up capital.

The data of the questionnaire survey was subsequently processed and evaluated in Excel using mathematical methods.

4. Research results and discussion

The startup business strategy was evaluated through a scale of 1 through 5, where number 1 was the minimum and 5 the maximum value. Also evaluated were its originality, excellence, diversity, demandingness and innovation compared with competitors or normal business practice.

When evaluating goals, visions, and missions in researched startups, which are a measure for business performance and startup success through originality, ambition, size, and difficulty, the results of the survey show that the strategic attributes reached an average value of 3.90 (almost European level). A scale of 1 to 5 was used where 1 represented the level of local to regional, 2 national level, 3 Central European level, 4 European level and 5 global level.

Performing external and internal analysis at every startup is a basic prerequisite for building a successful business strategy.

During their existence, the explored startups passed through several developmental phases from development through growth and maturation, through maturity to their decline or extinction. Sometimes there have been cases when a startup has prematurely disappeared, and thus hasn't reached the next stages of the life cycle.

Based on the results of the survey, we can say that our startups reached an average value of 2.4, which means that they were in the growth phase and were approaching maturing by the half way. We evaluate this fact positively. The evaluation scale of the individual phases was scaled as follows: foundation of a startup had a value of 1, growth 2, maturing phase 3, maturity 4, and decay/extinction 5.

The dynamics and complexity of the business environment has been studied from low to very high. The average value ranged at 3.30, indicating that the startups were affected by higher dynamics and complexity from the external business environment.

Predictability of the future development of the surveyed sample for the 3 to 5 year period was evaluated from very high (1), high (2), higher (3), moderate (4) to low (5). The average value for the

surveyed sample reached 2.80, indicating that the predictability of future development was almost on the higher level.

In examining competitive conditions in the industry through the intensity of competition, we have concluded that about 90% of Slovak startups are convinced that they don't have competition in their business. In the current period, this intensity of competition is growing. The results showed that the average startup achieved the same value as the predictability of future development (2.80), which means that the intensity of competition is rather higher. Some startups have reached a much higher value, which suggests that the competition between companies is incredibly tough.

The action radius, which measured the business space through individual levels from local to regional (1), national (2), Central European (3), European (4) and global (5) reached an average value of 3.14. The position in the external environment identified through the business space was in-between Central European and European top companies.

Market analysis was investigated through market segmentation. Based on the survey we find that the startups only chose those market segments that were in line with their hitherto used strategy. The average value of 2.60 shows that the startups have drawn attention to several segments and their position was average. The average value of 3.10 is proof of this.

We also point to their strengths and weaknesses when analyzing the internal environment of startups. The value of 3.90 reflected the level of quality, value added, or utility of the product and reached a level almost European, which we evaluate positively. The price of the products offered was 2.70, which was close to the almost higher price on the scale. Startups did not sell their products at very low or very high prices. Costs on the product were average, the value of which was 3.20. The services, accompanied, supplemented or which replaced the basic products and were another source of difference, reached in the surveyed sample of startups the average value of 3.20. They were at the Central European level. Key technology in which the measure of originality and innovation has been evaluated has averaged 3.70, which is closer to the European level than to the top Central European companies.

When examining the competitive advantage that was comparable to competitors at the relevant level, it averaged 3.80, which is a closer to top European companies.

Startups must continue to expect that the business environment to which they will be exposed will continue to be difficult, evolve and change. They must constantly predict and prepare for all possible circumstances that are directly affected by the external environment of the business environment.

5. Conclusion

Current complex and dynamic business environment places a leading role to innovation and the modern business phenomenon - startup.

A great idea or a good idea still developing at many levels is just the beginning of their business. The developmental tendencies of the startup from the moment of flashing a great or a good idea to a moment when it becomes a full-fledged business are a unique process.

Every startup should set up a business strategy or business model at the beginning of its business activity.

If startups achieve new competitive advantages, they will be able to maintain, the prospect of their growing profitability is also in the future.

Literature:

Bryce, D. J. & Dyer, H. J. & Hatch, N. W. (2011). *Competing Against Free*. Harvard Business Review. 2011, June, p. 104-111. Retrieved February 3, 2017, from <https://hbr.org/2011/06/competing-against-free>.

Bryan, G.H. (2015). *What is the proper definition of a startup?* Quora. Retrieved November 13, 2016, from <https://www.quora.com/What-is-the-proper-definition-of-a-startup>.

Fontinelle, A. (2015). *What exactly is a startup*. Retrieved November 13, 2016, from <http://www.investopedia.com/ask/answers/12/what-is-a-startup.asp>.

Maxián, M. In Klempová, M. (2014). *Startup: univerzálna definícia neexistuje*. Bratislava: Stratégie. (pp. 54-55). Retrieved November 28, 2016, from https://sweb.mtf.stuba.sk/monitoring/clanky/1396338466_strat%C3%A9gie.pdf.

Ries, E. (2011). *The lean startup: how today's entrepreneurs use continuous innovation to create radically successful businesses*. New York: Random House.

Štefunko, I. In Klempová, M. (2014). *Startup: univerzálna definícia neexistuje*. Bratislava: Stratégie. (pp. 54-55). Retrieved November 28, 2016 from https://sweb.mtf.stuba.sk/monitoring/clanky/1396338466_strat%C3%A9gie.pdf.

Werbach K. (2000). Syndication: The Emerging Model for Business in the Internet Era. *Harvard Business Review* Harvard business review, 78(3), 84-93.

Yoffie, D. B. – Cusumano, M. A. (1999). Judo Strategy: The Competitive Dynamics of Internet Time. *Harvard business review*, 77(1), 70-81.

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HISTORICAL DEVELOPMENT OF CONNECTIVITY BETWEEN INDUSTRY 4.0 AND INBOUND LOGISTIC

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Abstract: *The main aim of the article is to explain the link between Industry 4.0 and Inbound logistics from the historical point of view. The world in which we find ourselves and the virtual world around us is becoming more intertwined and grows at high speed to create Internet of Things (IoT). Basically, the Internet of Things stimulated factories to create the right environment for a new industrial revolution, which is marked by term Industry 4.0. Industry 4.0 through digitalization technologies creates space for further significant shifts in the context of efficiency and production possibilities processes within the logistics and other areas as part of the transformation cycle. Industry 4.0 in inbound logistics is based on data and their attributes like the rate of collection, processing and distribution. Within this trend, we must pay attention to methods of work with acquired customer data, which have tremendous value not only for the companies. Inbound logistics is faced with others major challenges. Especially in the near future it is expected change of management principles and production flow, which will be linked to inbound logistics.*

Keywords: *Development, Industry 4.0, Inbound logistics.*

JEL classification: *L89, O18*

Grant affiliation: *The article is prepared as one of the outcomes of a research project VEGA no. 1/0305/15 "Impact of environmental tools on the growth of competitiveness and sustainability of businesses" conducted by Department of Production Management and Logistics of University of Economics in Bratislava, Slovak Republic.*

1. Introduction

The main goal of this article is to describe the link between Industry 4.0 and Inbound Logistics. The term Industry 4.0 was first introduced in Hanover in 2011. However, the linking of certain Industry 4.0 elements and Inbound Logistics can be tracked in the past when Industry 4.0 was not fully defined. We realize that on the basis of the basic pillars that we perceive from our past the occurrence and impact of incoming logistics.

The initial link between Industry 4.0 and Inbound logistics has been utilized in push and pull delivery processes, which is proof of the “Just In Time” and “Just in Sequence” methods that have been managed remotely in factories.

The following introduction of new trends in automation, robotization and digitization resulted in the creation of Big Data. They are already being used in a certain amount, but we can for sure predict their big role in the future and there will be no difference with Inbound Logistics.

One of the main characteristics of Inbound logistics and Industry 4.0 is the impact of the technologies which enable customized solutions, flexibility and cost savings in industrial processes. Nowadays, digitalization can reveal bottlenecks or problematic processes of companies before they emerge. Industry 4.0 creates an enormous amount of data. Their acquisition, collection, storage, saving, transfer, selection, analysis, processing and following application force the companies to create specialized workplaces and processes. For this reason, we consider the linking of these two areas as one of the main reasons for the future, because companies which neglect the introduction of new trends connected with Industry 4.0 to their processes might lose their position on the market.

2. Industry 4.0

In January 2011, INDUSTRIE 4.0 was initiated as a “Future Project” of the German Federal Government by the Communication Promoters Group of the Industry-Science Research Alliance. The Industry-Science Research Alliance, in partnership with acatech – National Academy of Science and Engineering, established the INDUSTRIE 4.0 working group co-chaired by Dr. Siegfried Dais (Robert Bosch GmbH) and Professor Henning Kagermann (acatech president and spokesperson of the Promoters Group) (MacDougall, 2014). Term Industry 4.0 was first time used in 2011 at the Hanover Fair by Siegfried Dais and Henning Kagermann. (Wang, 2016)

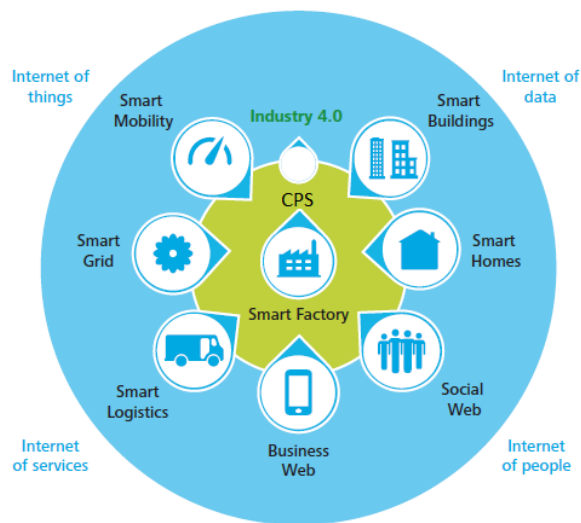
The Industry 4.0 concept is now used around the world. The main propagator of the concept is Germany, where it is mainly used in industry. For some authors, we also encounter the concepts of "Internet of Things", "Internet of Services" or "Internet of Data," which we consider to be the basic pillars of Industry 4.0 as its inherent part. Industry 4.0 is the fourth industrial revolution applying the principles of cyber-physical systems (CPS), internet and future-oriented technologies and smart systems with enhanced human-machine interaction paradigms (Sanders, et. Al, 2016). That will collectively have a disruptive impact on every aspect of manufacturing companies (Almada-Lobo, 2015).

Intelligent machines within manufacturing companies are constantly sharing large amounts of data and information about the current situation. They communicate, for example, about the current state of inventory, the various issues and failures that occurred at the moment or the level of demand. All processes are automatically optimized and coordinated based on the situations that occur. The goal of optimization and coordination is to increase the efficiency, quality, utilization of the capacity of the production facility, service processes and other services that affect it.

CPS is not only network machines with each other, they also create a smart network of machines, properties, ICT systems, smart products and individuals across the entire value chain and the full product life cycle. Sensors and control elements enable machines to be linked to plants, fleets,

networks and human beings. Smart networks of this kind are the bedrock of smart factories, which themselves underpin industry 4.0. (Deloitte, 2015)

FIG. 1: The Industry 4.0 environment



Source: Deloitte, 2015

3. Logistics

Logistics as we know it ensures a smooth flow in the areas of transportation, inventory, storage, information management, packaging and securitization, for the smooth running of the production cycle. An equally important part is inbound logistics, which ensures the entrance flow of products, materials and information to transformation process. However, logistics needs a certain revolution to continue to bring competitive advantages on the appropriate level in the future and create enough of customer value.

FIG. 2: What is Logistics?



Source: Own elaboration

Stripped to its basics, inbound logistics is like home logistics about capturing competitive advantage and creating customer value, not just optimizing costs. This fundamental value proposition cuts across micro and macro units of analysis ranging from effectively monitoring and responding to changing behaviour of individual consumers, to improving supply chain management (SCM) processes of firms, to efficiently connecting enterprises across the global economy. (Kasarda, 2016)

With the ongoing trend of mass-customization and an increasing product variety, just-in-time part logistics more and more becomes one of the greatest challenges in today's automobile production. Thousands of parts and suppliers, a multitude of different equipments, and hundreds of logistics workers need to be coordinated, so that the final assembly lines never run out of parts. (Boysen et al, 2014) For this reason, we should focus more on introducing news into logistics and supply chain management within factories. Introducing process innovations can result in a reduced cost reduction for the company and the improvement of processes within the transformation process.

4. Integration of Industry 4.0 and Inbound Logistics

Disruptive innovations are currently changing the landscape of many industries and their business models. Because of increasingly digitalized processes and an exponential growth of sensible data, logistics is also impacted by the fourth industrial revolution. (Pfohl, Yahsi, Kurnaz, 2015)

The integration of two major parts of Industry 4.0 and Inbound Logistics represents significant progress in research, which is only at the beginning of its potential. With the introduction of

computerized manufacturing, speculation arises in a scientific community that manufacturing factories and transportation enterprises will operate independently and fully automatically without the need for human intervention in their business, which is the main goal of Industry 4.0. Opinions also arise from past foresight results over a long period of time as foresight provides a large number of methods and techniques that companies can use to create integration between Industry 4.0 and Logistics. (Sacio - Szymańska et al., 2016).

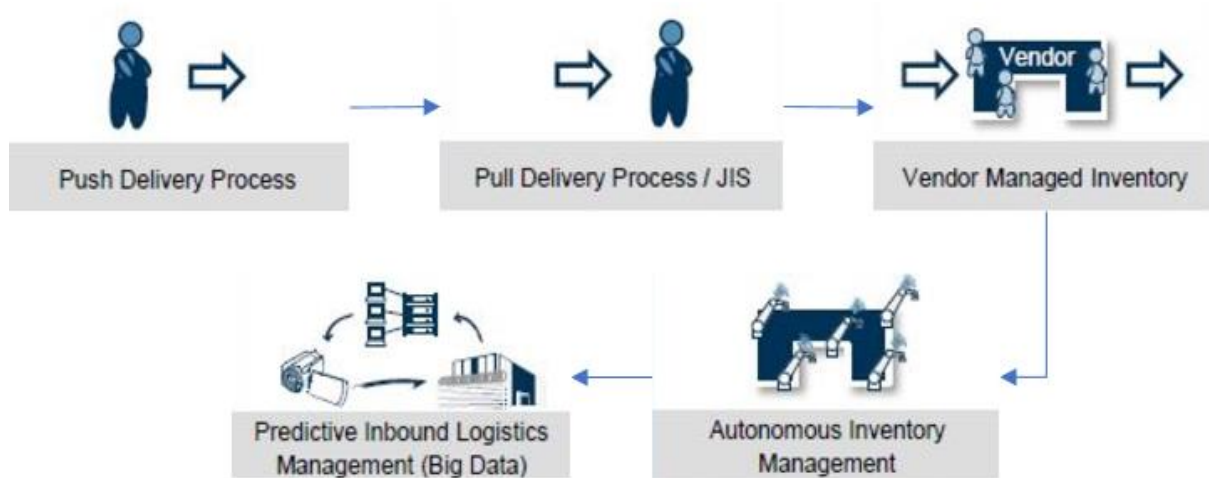
The integration of CPS and IoT into logistics promises to enable a real-time tracking of material flows, improved transport handling as well as an accurate risk management, to mention but a few prospects. In fact, one could argue that Industry 4.0 in its pure vision can only become reality if logistics is capable of providing production systems with the needed input factors at the right time, in the right quality and in the right place. (Hofman, Rüsch, 2017)

The sequential steps for integrating Industry 4.0 and inbound logistics are seen in Figure 3: Steps of Integration of Industry 4.0 and Inbound Logistics:

- Pull Delivery Process/Just in Sequens
- Push Delivery Process
- Vendor Managed Inventory
- Autonomous Inventory Management
- Predictive Inbound Logistics Management (Big Data)

The deepening of Industry 4.0 integration and Inbound Logistics will gradually increase their interconnection and consequently improve processes in supply cycle. Based on the Industry 4.0 industry's main goal in all areas where we apply, we are seeing a gradual transition from the most basic processes to a fully automated process without the need for human intervention. The basis for the complete integration of Industry 4.0 and logistics is Big Data and advanced analytics that provide the necessary information within the information flow of the components of the manufacturing plant.

FIG. 3: Steps of integration of Industry 4.0 and Logistics



Source: Own elaboration

4.1. Push Delivery Process

Push Delivery Process represents the most basic form of enterprise inbound logistics that is governed by simple rules within the supply and demand chain under predefined rules.

In the Push Delivery Process, companies choose to let newly distributed parts be delivered to them according to a pre-determined frequency set by content suppliers. (Guo, Marston, Chen, 2014)

The predicted demand determines the main inputs to the process. Under the pressure system, companies anticipate material flow within their supply chain management because they can predict what's coming sooner. On the basis of this information, they are able to prepare themselves for the upcoming situation before they actually happen. It allows them to plan the production process in a factory, according to their needs. At the same time it gives them enough space to plan the storage and other service processes associated with the production process. The Push Delivery Process is not being used in a large number of Industry 4.0 platforms and is therefore considered to be the first step in the integration of Industry 4.0 and Logistics.

4.2. Pull Delivery Process

Pull process is based on the effective customer's needs, consequently we can get overproduction and/or stock storage in the case of the push system, however this cannot occur in the case of the pull system. (Tamás, 2016)

E. g. if we use the refueling process, we need to determine a certain refill rate despite the different consumption we use, but if we focus on the traction process, we will add fuel only based on the actual consumption we reached on the basis of our current consumption. Based on this theory, we can claim that the mining process provides us with a higher level of securitization.

The Pull delivery process is related to the "Just In Time" methodology used in manufactories that minimizes inventory in or near the production line, but focuses on deliveries at the last minute. The industry based on the pull delivery process within logistics awaits the actual order of the customer to

create the product. The pull delivery process avoids costs for the company, such as the transport of materials that do not actually need to be consumed in the company's transformation process. In spite of the benefits, there are also risks of stock shortages for the transformation process if there is a situation of excessive orders.

The push delivery process and the pull delivery process are complemented in practice. The push delivery process company stops each time in retail when it has to wait for the pull process from the customer who consumes the goods from the shelves.

The pull delivery process can be considered as a higher degree of integration of Industry 4.0 and inbound logistics as the amount of material needed in the production process is automatically supplemented by suppliers and not set according to certain frequencies and plans for the quantity produced.

4.3. Vendor Managed Inventory

Vendor managed inventory (VMI) is another co-ordinating tool that pays great attention to companies. (Govindan, 2013) It originated with the realisation that vendors could efficiently control the flow of goods from raw materials to the final consumer, and the buyers could enjoy reduced stock levels and increased service levels. It came to prominence after the VMI partnership between Wal-Mart and Proctor & Gamble became successful in 1985. (Tyan and Wee 2003)

In VMI systems, the supplier is responsible not only for delivering the products and routing its vehicles to serve its customers (often retailers), but also for determining when and how much to deliver to them. (Coelho, Laporte, 2014)

In traditional serial inventory management systems, the buyer places the order with the vendor, who in turn fulfils the order. This is often not in the best interests of the vendor. In VMI, it is the vendor who manages the inventory and takes all the replenishment decisions, i.e. how much and how often to replenish on the behalf of the buyer and is responsible for the management of stock at his location. (Chakraborty, Chatterjee, Mateen, 2015)

The VMI's main benefits include the fact that the vendor has access to real-time inventory level information, reducing costs for suppliers as well as customers, simplifying the decision-making process, removing one interconnection between the supply and the customer can better focus on changes in market needs, no regard for the status of components in the warehouse.

A higher degree of IoT and CPS is needed to implement VMI in a company, since many processes have to become automated. Faster communication and removal of interfaces will ensure a smoother flow of material and eliminate the surplus human factor involved in the supplier-consumer relationship.

4.4. Autonomous Inventory Management

Autonomous inventory management (AIM) is a higher degree of integration of Industry 4.0 and Inbound Logistics, which we can see on its core operating principles. Under the system, we manage two kinds of flow, namely flow of goods and flow of information, both of which have their important place. Goods from the supplier are constantly observed remotely through trench systems. All the information obtained is sent to Data Warehouses, where they are constantly evaluated and adjusted

based on the current situation. Based on the analysis results in Data Warehouse, the transport process of the goods is controlled and modified.

The goal of AIM is to satisfy the needs of suppliers and customers in the greatest possible quantity through new technologies and automatization of the communication channel. To achieve the goal, the system must be flexible, complex and dynamic. Within logistics, companies use a centralized management system that is consistent with each logistics unit. Implementing AIM transfers responsibility to individual logistics units, creating the following benefits (Shuldt, 2011):

- Local response of logistics units to problems - in the event of unexpected circumstances, it is not necessary to reorganize the entire supply chain management system, but only a part of it,
- Reducing the amount of information - regional information unnecessary for the main control unit remains at the regional level and is not exhausted.

4.5. Predictive Inbound Logistics Management (Big Data)

We consider Predictive Inbound Logistics Management (PILM) for the highest degree of Industry 4.0 and Inbound logistics up to now, which introduction into companies is becoming more and more desirable in the global world. Digital transformation into the Industry 4.0 model can provide relevant data for PILM in any form and at any time from anywhere. The captured digitization data will not only provide information and reports but also the results that can be achieved.

Predictive inbound logistics does not only help in planning routes to factories and warehouses, but makes them more flexible, saves time and cost, increases inbound logistics reliability, or analyzes large data, but can also help find a new design and design solution, or enhance collaboration between people and machines until to the place of services.

Many sensors and devices are used to gather large data, collecting the necessary information from processes or customers.

Customerization also includes in predictive inbound logistics a significant competitive advantage. The customerization of processes is a global trend and is rapidly developing in every aspect of logistics. Customers want to keep an eye on their products at a given moment and want to be informed about the possible changes that can occur to make them better prepared. That's why we know in inbound logistics management's predictive that it gives us opportunities for the company to be more extensive, more efficient, smarter, and more flexible. However, care must be taken to link and correctly implement the company's internal data and data obtained from customers.

5. Conclusion

The development of Inbound Logistics has shifted for notable level in recent years as well as other subsystems of supply chain management. This significant progress also contributed its connection with Industry 4.0. Linking these two areas doesn't belong among exceptional phenomena, but introduction of Industry 4.0 also into other areas nowadays is necessary for the proper development of companies.

After overcoming the major economic crisis, the effects of which are already slowing down, the companies are increasing their productivity. Many of the manufacturing companies are getting closer to the boundaries of its productive possibilities, and because of this reason they are looking for every opportunity for increase in effectiveness. Optimization of some elements is helping them and for this reason the trend of introducing Industry 4.0 to Inbound logistics is growing.

The companies have multiple possibilities, for example gradual application of levels, or direct introduction of a higher level of Industry 4.0 and direct introduction of PILM into their processes. The main cause, which discourages the companies from application are investments into elements of IoT, IoS, IoP and IoD, but the benefits from rising and uprating production of the companies are highly outclassing them.

Literature:

Almada-Lobo, F. (2015). The Industry 4.0 revolution and the future of Manufacturing Execution Systems (MES). M. Torkkeli (ed.), *Journal of Innovation Management* (p. 16). Porto: FEUP.

Boysen, N, Emde, S, Hoeck, M, Kauderer, M. (2015). Part logistics in the automotive industry: Decision problems, literature review and research agenda. J. R. Figueira (ed.) *European Journal of Operational Research* (p. 107-120). Amsterdam: Elsevier B.V.

Coelho, C. L, Laporte, G. (2014). An optimised target-level inventory replenishment policy for vendor-managed inventory systems. A. Dolgui (ed.) *International Journal of Production Research* (p. 3651). Amsterdam: Elsevier B.V.

Deloitte. (2015). *Industry 4.0: Challenges and solutions for the digital transformation and use of exponential technologies*. Retrieved March 25, 2017, from <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf>.

Govindan, K. (2013). Vendor-managed Inventory: A Review Based on Dimensions. A. Dolgui (ed.) *International Journal of Production Research* (p. 3808-3835). Amsterdam: Elsevier B.V.

Guo, H, Marston, S, Chen, Y, (2014). *Push or Pull? Design of Content Delivery Systems*. (Research report No. 14) Kingston: University of Rhode Island.

Hofmann, E, Rüsçh, M. (2017). *Industry 4.0 and the current status as well as future prospects on logistics*. W. Kersten (ed.) *Computers in Industry* (p.24). Amsterdam: Elsevier B.V.

Chakraborty, A, Chatterjee, A. K, Mateen, A. (2015). A vendor-managed inventory scheme as a supply chain coordination mechanism. A. Dolgui (ed.) *International Journal of Production Research* (p. 13). Amsterdam: Elsevier B.V.

Kasarda, J.D. (2017). *Logistics Is about Competitiveness and More*. J.D. Kasarda (ed.) *Logistics* (p.1). Basel: MDPI AG.

MacDougall, W. (2014). *Industrie 4.0: Smart Manufacturing for the Future*. Berlin: Germany Trade and Invest. Retrieved May 25, 2017, from https://www.gtai.de/GTAI/Content/EN/Invest/_SharedDocs/Downloads/GTAI/Brochures/Industries/industrie4.0-smart-manufacturing-for-the-future-en.pdf?v=8.

Pfohl, H. Ch, Yahsi, B, Kurnaz, T. (2015). *The Impact of Industry 4.0 on the Supply Chain*. W. Kersten (ed.) *Innovations and Strategies for Logistics and Supply Chains* (p. 32-58). Hamburg: Epubli GmbH.

Sacio-Szymańska, A. et al. (2016). *Corporate foresight potential in visegrad (V4) countries*.

Sanders, A, Elangeswara1n, Ch, Wulfsberg, J. (2016). Industry 4.0 Implies Lean Manufacturing: Research Activities in Industry 4.0 Function as Enablers for Lean Manufacturing. *Journal of Industrial Engineering and Management* (p. 816). Barcelona: Universitat Politècnica de Catalunya.

Schuldt, A. (2011). *Autonomous Control in Logistics*. Berlin: Springer-Verlag. Retrieved May 15, 2017, from https://link.springer.com/chapter/10.1007%2F978-3-642-20092-2_3.

Tamás, P. (2016). Application of simulation modeling for formation of pull-principled production control system. P. Kovač (ed.) *Journal of Production Engineering* (p. 99). Novi Sad: FTN.

Tyan, J, Wee, H. (2003). Vendor Managed Inventory: A Survey of the Taiwanese Grocery Industry. L. Knight (ed.) *Journal of Purchasing & Supply Management* (p. 13). Amsterdam: Elsevier B.V.

Wang, K, Wang, Y, Strandhagen J,O, Yu, T. (2016). *Advanced Manufacturing and Automation (V)*. Southampton: WIT Press. Retrieved April 14, 2017, from https://books.google.sk/books?id=D1v_CwAAQBAJ&pg=PP13&lpg=PP13&dq=Wang,+K,+Wang,+Y,+Strandhagen+J,O,#v=onepage&q&f=false.

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STATISTICAL DATA FINDING OF MIGRATION TO WORK ABROAD IN THE CONDITIONS OF THE SLOVAK LABOUR MARKET

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Abstract: *In The main objective of the presented paper is to identify the main sources which evaluate the data on migration of labour force to foreign countries in the conditions of the Slovak labour market. The following tasks were defined to achieve the goal: to define key terms (providing of employment for a charge, agency for temporary employment, agency for supported employment, European services of employment, selective research of labour force) and to research the condition of Slovak labour force abroad from individual statistical sources. We have used different research methods in the paper: theoretical general methods of scientific knowledge – analysis of available bibliographic references, synthesis at formulation of researched conclusion. This study is significant for the field of social policy – labour market policy and migration policy.*

Keywords: *Migration. Labour Force. Social policy. Statistical data finding. Labour Market.*

JEL classification: F22, J61

Grant affiliation: VEGA 1/0679/17 „Bilancia ekonomických strát a prínosov z migrácie pracovnej sily“.

1. Introduction

Migration requires systemic approach and qualified management. Slovak Republic must be ready and willing to participate in the harmonization of migration policies of individual states within the European Union. Well-thought-out, institutionalized and state-coordinated process is a prerequisite for successful handling of migration-related problems. As migration from the Slovak Republic has mainly temporary and circular character, it is crucial to implement the labour market policies, especially the creation of conditions for reintegration of returnees into the social security systems, health insurance systems and to the labour market. Foreign migration exists mainly because the labour market of Slovak Republic has the problem of creating job positions for the domestic population, which is forced to leave to work abroad. Labour migration at the global level, when the most capable people migrate to get the highest earnings, contributes to deepening of regional bipolarity of the world and emphasises the differences in wealth. With the volume of foreign

migration, the nature of migration processes is changing significantly, new approaches, policies and migration management are being formulated, legal norms are being redefined and the number of institutions dealing with the foreign migration is growing. Foreign migration is becoming a society agenda and a challenge of the 21st century.

2. Main part

Data about migration for work and about permanent emigration abroad is underestimated. Experts on foreign migration have to work with low-quality information; data on foreign migration is always an estimation. Partial data on migration for work abroad can be obtained from various intermediary agencies. These are, for example, non-state employment service providers – agencies providing employment for a charge (which provided the highest number of employments), temporary employment agencies and supported employment agencies. Activities of mentioned agencies are in accordance with Act No. 5/2004 Coll. on employment services, as amended.

Providing of employment for a charge can be performed either by legal entity or physical entity. Intermediary can perform providing of employment for a charge only if he has completed at least the first degree of university education. Intermediary, who provides employment for a charge, signs a written agreement with the citizen. This agreement includes name, address, identification number and type of the economic activity of the employer, length of employment, type of work, salary, other work conditions, method and conditions of health insurance and social insurance, extent of responsibility of the intermediary for non-compliance with terms of agreement.

Intermediary is obliged to keep records of citizens who have been provided with the employment for a charge. Intermediary is obliged to provide the headquarters with data about the scale and structure of provided employments for a charge. Intermediary is obliged to provide the report on activities of the past calendar year by March 31st of the following calendar year. Intermediary is obliged to ensure the protection of personal data according to the specific regulation. Intermediary is also obliged to create conditions for checking the compliance with law legislation in the field of employment services (ÚPSVR, 2016). Their duty is to keep records of provided employments. Agencies providing employment for a charge mediated most job positions into countries of European Union and European Economic Area. This was mostly to United Kingdom, followed by Czech Republic and Cyprus. These were mainly job positions for more than a half a year.

Temporary employment agency is a legal entity or physical entity which employs the citizen in the employment relationship for the purpose of his temporary assignment to a user employer in the Slovak Republic for the performance of work under his supervision and guidance or for the purpose of his dispatch. Temporary employment agency is not allowed to charge the temporary agency employee with the fee for the assignment to the user employer or for the establishing of the employment relation with the user employer after the termination of this assignment. For the assignment of temporary agency employee, temporary employment agency is allowed to charge the user employer with the fee at the agreed amount. Legal entity or physical entity can carry out the activity of temporary employment agency in case the entity is irreproachable, has completed the second degree education and is authorized to do so. Irreproachability is proved by the printout from the criminal record not older than three months. The condition for issuing of the license to a legal

person to carry out the activity of a temporary employment agency is also the ownership of equity in the amount of at least 30 000 (ÚPSVR, 2016).

Supported employment agency is a legal or physical entity which provides services to citizens with disabilities, to long-term unemployed citizens and to employers. They focused on making it easier to get a job, to keep a job, to making it easier to recruit a disabled person or a long-term unemployed citizen. Via supported employment agencies, Slovaks were employed mainly in Czech Republic (ÚPSVR, 2016).

More comprehensive data on labour migration can be obtained from the network of European Employment Services – EURES in the Slovak Republic. EURES is a network of cooperating entities which aim to make the free movement of labour easier within the European Economic Area and Switzerland. EURES network also connects regional and national institutions which are dealing with the issues of employment. Advisers are the driving force of the EURES network. They are experts on the labour market and on the law of the European Economic Area. EURES advisers provide three main services: offering of information, work counselling and help with the placement on the labour market. In addition to the job vacancy database, EURES advisers have information on living and working conditions in countries of European Union / European Economic Area, information on the situation on the individual labour markets, on registration procedures, on taxes, on social and health security, they know how to advise on creating CVs. In EURES statistics, we can only find people who were looking for the job via EURES, the statistics does not include estimates of illegally employed immigrants. EURES data on the number of people working abroad are relatively reliable and the mentioned source is considered to be more reliable than the Selective labour force survey.

The other source of information about citizens working abroad is the Selective labour force survey, which is carried out quarterly by the Statistical Office of the Slovak Republic. Migration abroad, which is regularly reported by the Statistical Office of the Slovak Republic, captures the movement of Slovak nationals and foreigners who have applied for the permanent residence, respectively they have signed off – it is a dynamic value (the flow of people). The difference between the number of immigrants and emigrants is a migration balance, net migration. Within the European Union, this survey is conducted in a uniform methodology and therefore, results are comparable on the international level. Selective labour force survey has one main weakness: Many experts (Hajnovičová, 2003; Košta 2006; Divinský, 2007) agree that the absolute values reported in this survey should be increased by at least 25-30%. This proportion is apparently not captured in the Selective labour force survey (these are mostly emigrants who work abroad illegally or receive benefits in the Slovak Republic that they are not entitled to, for example unemployment benefit (ŠÚ SR, 2016).

The group of migrants working abroad is dominated by the young people under the age of 34 who have completed their training for the occupation and are in the age range when career, professional skills, starting a family and reproduction should be developed. The lack of opportunities for young people on the domestic labour market pushes them into the decision to look for the work abroad. The educational ratio of migrants working abroad has been shifting in recent years – apprentice schools and high schools are dominating while the share of people with university education drops (Kešelová, 2007). This means that the crisis on the labour markets of European Union and changes on the domestic labour market have brought changes in the profile of work migrants from the Slovak Republic. According to Kahanec (2016), the director of research at the Central European Labour

Studies Institute, departure of migrants contributed significantly to the decrease of unemployment in Slovakia. Unemployed people migrated for work more often than employed people and the departure of labour force was more significant from the economically weaker regions of Slovakia. The further structuring of subchapters is indicated below.

3. Conclusion

Citizens of the Slovak Republic are mainly employed in the countries of the European Union. The amount of Slovak citizens working outside of the European Union is lower. Obtaining the reliable data on migration for work abroad is complicated. Many citizens of the Slovak Republic find the work abroad individually and they are not registered in the Slovak Republic. Slovak citizens usually do not fulfil the duty of reporting the departure to foreign country without changing their permanent residence. Actually, many people leave to live abroad without cancelling their permanent residence. Only a minimum number of people moving from the Slovak Republic sign off from their permanent residence, even though it is required by the law. This obligation is stated in the Act No. 253/1998 Coll. on reporting of the residence of Slovak Republic citizens and the registry of the Slovak Republic residents, as amended. Paragraph 6, section 1, 2, 3 states: "Citizen, who prepares to departure to foreign country with the purpose of permanent living abroad, is obligated to report the termination of permanent residence at the registration bureau which keeps the data about the permanent residence; citizen has to specify the state and the place where he intends to stay, start date of the residency in the foreign country, which is also the termination date of the permanent residence. Termination of the permanent residence can be also reported via representative office of the Slovak Republic or via authorized representative in the Slovak Republic. Ministry specifies the template of the report card of the permanent residence."

Literature:

Act No. 253/1998 Coll. on reporting of the residence of Slovak Republic citizens and the registry of the Slovak Republic residents, as amended.

Act No. 5/2004 Coll. on employment services, as amended.

Divinský, B. (2007). *Labour market – migration nexus in Slovakia: time to act in a comprehensive way*. Bratislava: IOM.

Hajnovičová, V. (2003). *Vývoj zamestnanosti v SR a odhad nedeklarovanej práce*. Bratislava: Prognostický ústav SAV.

Kahanec, M. (2016). *Keby migranti brali prácu a znižovali platy, tak v Amerike by mali záporné mzdy*. Retrieved from <http://www.celsi.sk/>.

Kešelová, D. (2007). *Migračný potenciál obyvateľstva SR: Sprístupnenie trhov práce vo vybraných krajinách EÚ a vývojové trendy na trhu práce v SR*. Bratislava: Inštitút pre výskum práce a rodiny.

Košta, J. (2006). *Medzinárodná migrácia v EÚ*. Bratislava: Ekonomický ústav SAV.

ŠÚ SR. (2016). *Štatistická správa o základných vývojových tendenciách v hospodárstve SR*. Retrieved February, 2016, from <http://www.statistics.sk/>.

ÚPSVR. (2016). *Sprostredkovanie zamestnania za úhradu*. Retrieved from: <http://www.upsvar.sk/>.

ÚPSVR. (2016). *Agentúry podporovaného zamestnávania*. Retrieved from: <http://www.upsvar.sk/>.

ÚPSVR. (2016). *Agentúry dočasného zamestnávania*. Retrieved from: <http://www.upsvar.sk/>.

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SELECTED CHANGES IN THE MEDICAL DEVICE MARKET UNDER THE INDUSTRY 4.0 CONCEPT

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Abstract: Many developed countries have been dealing with the current trend of Industry 4.0 for several years. The aim of Industry 4.0 is to provide a digital connection between all levels of production and added value creation, which means a radical change in both large and small companies. Innovation, flexibility and productivity should be redefined in the Industry 4.0 concept. Within this trend, the Health 4.0 concept of health care is also specified. This concept uses the interconnection of all components (sensors, biosensors, systems and cyber superstructures) and entities via the Internet. This digital connection allows for more efficient diagnosis, treatment and nursing processes. The aim of the paper is to analyse selected aspects of the medical device market in the context of Industry 4.0. Attention will be focused on current trends, innovations and changes in production within the industry and on the legislative framework. The related risks are also described.

Keywords: Medical device market, development, Industry 4.0, benefits, risks.

JEL classification: O10, O11, O14

Grant affiliation: This study was supported by the research project Investment Evaluation of Medical Device Development, reference no. 15330/16/AGR, subsidised by the Czech Science Foundation (GACR) in 2017 and conducted at the Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic.

1. Introduction

The Industry 4.0 concept was created on demand of the German government, which in 2006 launched the High Tech Strategy project. This project represents the first national concept and aims to connect key experts in order to facilitate the development of new excellent technologies. The ambitious project with a great potential was created by 21 influential research and development institutions, including also top companies, which closely collaborate on a vision of the future

direction of industry. Following an extensive research, the first draft was introduced in January 2011 under the name Industry 4.0. The draft was further refined and the final vision was described in the final report of the development team in April 2013 as a tool for ensuring the future of German industry (McDougall, 2014). The official public presentation of the Industry 4.0 concept took place at the Hannover Messe, a fair held in the same year. Industry 4.0 relies on basic points that not only characterise the vision but also differentiate it from current traditional production (Deloitte, 2014; Schmidt et al., 2016; Mcdougall, 2014):

- Interoperability – a vertical connection of the production system.
- The ability of horizontal integration using new generation global networks of the value chain.
- Flow production throughout the entire value chain.
- Speed boost using smart technology.
- Decentralised decision-making – the ability of cyber-physical systems to make simple decisions on their own and become as autonomous as possible.

As with any major shift, though, the adoption of the Industry 4.0 model presents some challenges (Oriwoh E., Conrad, 2015; Noor, 2015; Porter, 2014; Radziwon et al., 2015):

- Integrating new systems and enabling more subjects to access these systems brings about data security issues. Proprietary production knowledge may also be threatened by IT security issues.
- For a successful implementation of cyber-physical communication, all systems need to be highly reliable and stable. Achieving and maintaining reliability and stability may be problematic.
- Limiting the role of human monitoring in maintaining production integrity may present a new set of problems.
- Another concern is the reduction of the number of high-salaried jobs which will be rendered unnecessary due to new automation processes.
- A high degree of automation always brings about the risk of technical problems which may lead to expensive production outages (Marr, 2016).

The aim of this paper is to analyse the potential and the risks involved in the Industry 4.0 concept with respect to the medical device market. Attention will be devoted to the current situation on the medical device market and to economic benefits and risks of the Industry 4.0 trends. The medical device manufacturing industry is highly diversified and produces a wide range of products intended to be used for diagnosing and treating patients in health care systems all over the world.(WHO, 2016) For the purpose of this paper, the term medical device refers to any instrument, machine, software or any other tool or material designed for use in human health care.

2. Current Situation on the Medical Device Market

2.1. Medical Equipment and Supplies Manufacturing in the USA

At present, the largest producer as well as the largest consumer of medical devices are the United States, which comprise approximately 50% of the world market. (Maresova et al., 2015) Report XXX specifies the medical device market: "This industry comprises establishments primarily engaged in manufacturing medical equipment and supplies. Establishments primarily engaged in grinding eyeglasses and hard contact lenses to prescription, on a factory basis, are included." Currently, the overall situation in the United States is as follows.

The US medical equipment and supplies manufacturing industry counts among small industries with respect to size, ranking among the bottom 20% of manufacturing industries. In 2016, the industry generated a revenue of \$92.1 billion. The medical device industry revenues have been decreasing in the past three years by -1.1% annually. When compared to other manufacturing industries, the medical equipment and supplies manufacturing segment lags behind the average 0.9% growth rate, which means that the industry belongs among the bottom 40% of all manufacturing industries.

The average revenue of a company in the medical device segment was approximately \$9.2 million in 2016 and grew at a 0.2% annual rate. The price inflation in the industry was 1% in the period between 2015 and 2016. Over the past five years, the average annual inflation was 0.8%. The payroll for an employee in the industry was \$62,671 in 2016, which places the industry among the top 40% of all manufacturing industries. The annual growth rate of the payroll was 0.6% in the last three years.

A total of 70.2% of companies in the medical device industry are profitable. The average net income is 12.2% of revenues, which means that the industry counts among the top 20% of manufacturing industries. The operating expenses in the industry equalled to a percent of revenue in 2016. To break down the operating expenses, 33.6% is for employee expenses, 46% for cost of materials, 5.9% for building and 14.5% for other expenses. Total operating expenses in the industry grew at a -0.7% rate per year in the last three years (Maresova et al., 2015).

2.2. The Medical Device Market in Europe

The medical device segment is becoming increasingly important in the health care of EU citizens and qualifies as an influencer of expenditure. The industry is also a major employer in Europe, giving jobs to 575,000 people within the EU. Its total sales reach €100 billion. The segment comprised approximately 25,000 companies in 2015. Most of these companies are based in Germany, Great Britain, Italy, Switzerland, Spain and France. (EC, 2016)

A total of 95% of these companies were small and medium-sized enterprises (SMEs) employing less than 50 people. Small and micro-sized companies give jobs to approximately 575,000 people. Germany has the largest share of medical device industry employees in total employment. Switzerland and Ireland, on the other hand, record the highest number of employees in the industry per capita. The high number of employees evidences the significance of the medical device industry on the European market. The European pharmaceutical industry segment employs around 675,000 people, while the USA medical segment only employs about 520,000 people.

As to research and development, over 10,000 registered patent applications existed in this field in 2012. Each year, European research and development receives investments amounting to approximately €4 billion. The medical device industry belongs among the most innovative sectors: the average life cycle of a product is only 18 months before an innovated version of the product becomes available.

3. Economic Impacts on the Medical Device Market

Impacts on the medical device market are generally the same as the impacts on the entire production field. Many experts define both positive and negative economic impacts.

3.1. Economic Benefits

The new concept ensures higher competitiveness thanks to the maximum optimisation of processes in the whole chain (Schmueckle, 2014). Production flexibility enables to produce small batches of individualised products. Further possible benefits are included in table 1.

TAB. 1: Benefits of the Industry 4.0 Concept

Productivity	Flexibility	Competitiveness	Profitability
Solutions for error elimination and wasting	Individualised products	Low production costs	Optimised processes
		Implementation of innovative solutions	Low inventory levels
Production of a greater number of products	Efficient production		Economical production
	Great variability in production control	Flexible response to changing demands	
Decreased production time		Software to eliminate defects	
Renewable sources of energy			

3.2. Risks

The greatest disadvantages involve particularly security, changes in the required qualification of employees, necessity for legislative changes and new cost segment. A study conducted by the Boston Consulting group suggests that higher automation should lead to a higher level of employment. Germany expects a 6% rise in employment within ten years (Holanová, 2015b). The concept has already been fully implemented by Siemens in its Amberk plant (Holanová, 2015a). Following a

complete production automation, the plant retained the same number of employees, adjusting the job positions only. To make an implementation of this concept possible, changes are necessary in technical fields and some other fields as well (Nováková, 2015).

The issue concerning legislative changes is however a major obstacle, considering the large number of laws and regulations pertaining to this field that already exist. Current laws and regulations imposed on the industry in the Czech Republic and EU are specified in table 2. When increasing production automation, using new trends such as Internet of Things (IoT) and adjusting, for example, also fields of education, it is obvious that a long-term process of change is to be expected.

TAB. 2: Legislation Pertaining to the Medical Device Industry in the Czech Republic and EU

Czech Republic	European Union
Act no. 268/2014 of Collection of Laws, on medical devices and amending of Act no. 634/2004 of Collection of Laws, on administrative fees, as amended – effective from 1 April 2015	Directive 98/79/EC of the European Parliament and of the Council of 27 October 1998 on in vitro diagnostic medical devices
Directive no. 62/2015 of Collection of Laws, on implementing provisions of Act on medical devices	Directive 2000/70/EC of the European Parliament and of the Council of 16 November 2000 amending Council Directive 93/42/EEC as regards medical devices incorporating stable derivatives of human blood or human plasma
Directive no. 61/2015 of Collection of Laws, on determining the reimbursement for specialised tasks conducted by the State Institute for Drug Control according to Act on medical devices	Directive 2007/47/EC of the European Parliament and of the Council of 5 September 2007 amending Council Directive 90/385/EEC on the approximation of the laws of the Member States relating to active implantable medical devices, Council Directive 93/42/EEC concerning medical devices and Directive 98/8/EC concerning the placing of biocidal products on the market (Text with EEA relevance)
Government regulation no. 56/2015 of Collection of Laws, on technical requirements for in vitro diagnostic medical devices	Council Directive 93/42/EEC of 14 June 1993 concerning medical devices
Government regulation no. 55/2015 of Collection of Laws, on technical requirements for active implantable medical devices	Commission Directive 2011/100/EU of 20 December 2011 amending Directive 98/79/EC of the European Parliament and of the Council on in-vitro diagnostic medical devices
Government regulation no. 54/2015 of Collection of Laws, on technical requirements for medical devices	Commission Directive 2003/12/EC of 3 February 2003 on the reclassification of breast implants in the framework of Directive 93/42/EEC concerning medical devices
<i>Act no. 22/1997 of Collection of Laws, on technical requirements for products, amending and supplementing certain</i>	Commission Directive 2005/50/EC of 11 August

acts, as amended

2005 on the reclassification of hip, knee and shoulder joint replacements in the framework of Council Directive 93/42/EEC concerning medical devices

Commission Regulation (EU) No 207/2012 of 9 March 2012 on electronic instructions for use of medical devices Text with EEA relevance

Commission Regulation (EU) No 722/2012 of 8 August 2012 concerning particular requirements as regards the requirements laid down in Council Directives 90/385/EEC and 93/42/EEC with respect to active implantable medical devices and medical devices manufactured utilising tissues of animal origin

Commission Implementing Regulation (EU) No 920/2013 of 24 September 2013 on the designation and the supervision of notified bodies under Council Directive 90/385/EEC on active implantable medical devices and Council Directive 93/42/EEC on medical devices

Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC

Regulation (EU) 2017/746 of the European Parliament and of the Council of 5 April 2017 on in vitro diagnostic medical devices and repealing Directive 98/79/EC and Commission Decision 2010/227/EU

4. Discussion and Conclusion

The medical devices industry has to tackle a number of challenges at national and international levels. The approach which the industry takes to these challenges will influence its innovation capacity and overall competitiveness. A shift towards implementing the Industry 4.0 concepts is essential not only for maintaining the competitiveness and growth of the companies in the industry. An efficient production model with lower costs is also significant for other social issues related to demographic changes in developed countries:

- Increasing life span thanks to high-quality health care and subsequently a growing number of patients.
- An increasing demand for medical devices catering for patients with chronic diseases.
- A growing need for devices enabling senior patients to remain self-sufficient, owing to the limited possibilities of informal health care providers recruited from among family members whose own workload does not allow them to stay at home.
- Research and development challenges pertaining to emerging technologies and the green economy trend, as well as issues concerning EU's global trade and regulatory cooperation. SMEs in particular face a number of challenges in this respect.

Considering the limited government budgets, any potential cost-saving measures in the field of health care are of utmost importance.

Literature:

Deloitte. Industry 4.0. *Challenges and solutions for the digital transformation and use of exponential technologies*. 2014. Retrieved July 3, 2017 from <http://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf>.

European Commission (EC). *Medical devices*. 2016. Retrieved July 3, 2017 from https://ec.europa.eu/growth/sectors/medical-devices_en.

Holanová, A. *New Industrial Revolution*. Do not get started Work 4.0. AKTUALNE.cz. 2015. Retrieved July 3, 2017, from <http://zpravy.aktualne.cz/ekonomika/nova-prumyslova-revoluce-nezaspete-nastup-prace-40/r~97fa2490353311e593f4002590604f2e/>.

Majstorovic, V. a kol.(2015). *Cyber physical manufacturing systems – manufacturing metrology aspects*. Proceedings in Manufacturing Systems, 10 (1): p. 9-14.

Maresova P., Penhaker M, Selamat A, Kuca K. (2015) *The potential of medical device industry in technological and economical context*. Therapeutics and Clinical Risk Management. 2015(11): p-1505–1514.

Marr, B. (2016). What Everyone Must Know About Industry 4.0. *Forbes*, retrieved July 3, 2017, from <https://www.forbes.com/sites/bernardmarr/2016/06/20/what-everyone-must-know-about-industry-4-0/#2ceaffe7795f>.

Mcdougall, W. (2014) *Industrie 4.0 – smart manufacturing for the future*. Berlín: Germany trade and Invest, retrieved from: http://www.gtai.de/GTAI/Content/EN/Invest/_SharedDocs/Downloads/GTAI/Brochures/Industries/industrie4.0-smart-manufacturing-for-the-future-en.pdf.

Noor, A. (2015). *The connected life: The internet of everything coming to building near you*. Mechanical engineering, 137 (9): p. 36-41.

Nováková, D.(2015). *Industry 4.0: Smart Factory? Government can not sleep*. EUROAKTIV.cz: Portál o dění v EU. 2015. Retrieved July 3, 2017, from <http://www.euractiv.cz/obchod-a-export0/clanek/prumysl-40-nova-era-prumyslove-vyroby-012762>.

Oriwoh E., Conrad, M. (2015). 'Things' in the Internet of Things: Towards a definition. *International journal Internet of Things*, 4 (1): 1-5. DOI: 10.5923/j.ijit.20150401.01.

Porter, M. E. A Heppelmann, J. E. (2014). *How Smart, Connected products Are Transforming Competition*. Harvard Business Review, 11: p. 66-67.

Radziwon A Kol. (2014). *The Smart Factory: Exploring Adaptive and Flexible Manufacturing Solutions*. Procedia Engineering, 69: p. 1184-1190. DOI: 10.1016/j.proeng.2014.03.108.

Schmidt, R. a kol. (2015). *Industry 4.0 – Potentials for creating Smart Products: Empirical research Results*. Business Information Systems: Lecture Notes in the business Information processing, 208: p. 16-27. DOI: 10.1007/978-3-39-19027-3_2.

WHO. (2016). *Medical device definition*. Retrieved July 3, 2017, from http://www.who.int/medical_devices/full_definition/en/.

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SOME THEORETICAL CONCEPTS OF UNEMPLOYMENT VERSUS EMPIRICAL EXPERIENCE

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Abstract: *In response to the global economic crisis after 2008, there have been numerous discussions about its causes and consequences. The economic theory did not foresee the threat of a crisis and the solutions offered to mitigate its consequences were not effective as well. It was most evident in solving the unemployment issues. The subject of criticism has become the neoclassical concept of A. C. Pigou, which admits only voluntary unemployment. In the 1930s, Keynes rejected the claims of neoclassical economics and viewed unemployment as a result of a deficiency of aggregate demand. M. Friedman considered unemployment as the result of state interventions and social security system. The empirical analyzes show that unemployment varies with the real GDP changes during the economic cycle, as it was explained by A. Okun. Slovakia's experience in the years 2014-2016 shows that the employment growth can be achieved even with such economic growth as it has not been possible in the past.*

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1. Introduction

The controversial opinions and discussions on the issues of employment and the causes of unemployment are based on different and often contradictory economic theories. According to A. C. Pigou, the neo-classical economics admits only the possibility of voluntary unemployment and excludes involuntary unemployment. In the period of the Great Depression in the 1930s, there was a rapid growth in unemployment which in any case was not voluntary. In 1932, the unemployment rate in the United States reached more than 20 % and in the UK and Germany more than 15 %. The automatic functioning of the market and the market mechanism evidently failed. J. M. Keynes rejected the claims of classical and neo-classical economics. According to Keynes, the starting point is the existence of involuntary unemployment. Keynes rejected Say's law of the market which predicts

the automatic adjustment of the economic system to supply and this adjustment process ensures the state of full employment in the economy. According to Keynes, the job offer (workers) has no significant impact on the level of employment. Based on this, Keynes argues that the volume and the rate of employment is not decided by the workers (their job offer), but the total volume of employment is decided by the entrepreneurs and their demand for work (Keynes, 1963).

2. Alternative Approaches to Unemployment

According to Keynes, the total employment depends on total effective demand, especially the demand for consumer goods and demand for investment. In the economy, a situation may arise where the expected investments are not equal to the savings in terms of full employment. If the expected investment is less than the household savings, total sales for the entire production will be less than the revenue that would ensure full employment. In this situation, entrepreneurs' demand for labour (and hence employment) will be less than the demand to ensure full employment. Full employment can be ensured only if the demand for investment, which is equivalent to full employment, is as large as a portion of GDP that was not spent but has been saved and emerges in the form of investment. As demand for investment often fluctuates, the effective demand is insufficient and therefore it can be corrected by the state. This means that not only the market (business entities and their demand for labour) is responsible for total employment, but the overall employment must also be influenced by the state's regulation of the total effective demand.

Keynes' theory of employment is based on the theory of effective demand from which it follows that the level of employment corresponding to the equilibrium state is a function of the total supply of labour, marginal propensity to consume and the amount of investment. When the propensity to consume and the amount of investment generate additional effective demand, the actual amount of employment will be lower than the potential labour supply. This suggests that insufficient effective demand can cause the emergence and growth of unemployment.

For the given production resources, technology and production costs, the national income is a function of employment. This means that consumption is also a function of employment, simply because the propensity to consume depends on the size of the income. At the same time, the amount of employment depends on consumption and investment which means that employment is a function of consumption and investment. And since employment is a function of consumption and investment, and feedback on it has only consumption, Keynes assumes that employment is ultimately a function of investment. It is logical that if employment increases, the consumption and consumer spending is increasing, but more slowly than the overall effective demand (Lisý et al., 2003). Based on these conclusions, Keynes justifies the need for the state intervention in the economy in order to regulate the amount of employment and unemployment.

The followers of J. M. Keynes admit that his preconditions for a functioning economy are converging with the neoclassical principles. This is known as the neo-classical synthesis that admits price and wage rigidity in the short term and partly recognizes the validity of Keynesian employment theory. In the long run, all prices and wages are flexible and the presumptions of the neoclassical economics are in force. And this is the subject of discussions on the issue (Mankiw, 1999; Sojka, 2010).

In contrast to Keynes, Milton Friedman, the most prominent representative of monetarism, criticizes and rejects the state interventions in the economy and considers the general social security system to be a fraud to people who work and pay taxes. The monetarists associate the problem of unemployment and the sharpening of social problems with the market distortions, which is the result of state interventions (Friedman, 1993). They criticize, for example, the enactment of the minimum wage which they consider to be a very negative state intervention in the economy with the opposite effect of what is expected. Monetarists argue that the enactment of the minimum wage and its steady growth causes the growth of unemployment. Therefore, it is necessary to remove distortions in the labour market by abolishing the minimum wage and also remove the monopoly of trade unions in the labour market.

An important part of the monetarist economic-political strategy is the reform of the tax system and social policy, which should be ensured by applying the ethical principles of distribution and redistribution. Monetarists reject progressive taxation of income, because it is contrary to individual freedom. For example, Friedman proposes the introduction of negative income tax, which would replace all existing social programs. The negative income tax is based on the fact that a person whose annual income does not reach a certain amount should receive a contribution from the state authority.

According to Friedman's concept of negative income tax, every individual, regardless of age and property and income ratios, should be provided with a sum of money that would ensure a standard of living on the border of socially accepted minimum subsistence level. This amount of money represents the contribution of the state to the income tax. Individuals who have no income because they are unemployed would receive this amount of money from the state in cash. Similarly, individuals whose income is below the amount determined by the state would receive cash benefits from the state till the required height. On the contrary, individuals whose income is higher than the socially acceptable living minimum would pay the income tax.

According to M. Friedman, the negative income tax would require the same administrative costs as the current income tax system. The introduction of negative income tax would simultaneously eliminate the costs associated with the provision of unemployment benefits and the functioning of the existing system of social assistance. The critics, however, point out that this system will weaken the incentive of people to work. Indeed, if the social contribution was so high to make it possible for people to live from it, many people would have stopped working.

In the economic literature, we can find multiple views on the problems of unemployment, the opportunities for tackling them, the reasons of failure to solve them, as well as the positive or negative effects on the functioning of the socio-economic system. These views are based, to varying degrees, on the knowledge of economic theory. Walter Eucken was one of the experts who were aware of the importance of deep knowledge of the economic theory to carry out the effective socio-economic policy. He also pointed to the views of those economists who ignored the knowledge of the economic theory. He used his rich theoretical knowledge as well as practical experience to write the „The Principles of Economic Policy (Eucken, 2004)“, which was one of the inspiring sources to create a functioning economy. This model was realized after the World War II in western Germany and some Scandinavian countries. Eucken's concept of economic order is based on the spiritual values that are based on the principle of individual freedom, solidarity and subsidiarity and are the

prerequisite for the economic activity and the social security for people. In the above-mentioned work to solve the social issues, he states: „In the current economy, based on a division of labour, consisting of millions of households and businesses whose plans and procedures are interconnected, the everyday distribution process becomes a complicated process, which is very difficult to influence by economic policy. The point is to split the results of the production to the millions of individuals who operate in very different places of extensively connected production process. The distribution of the social product is a part of the whole economic process and management. The distribution policy is most important part of the economic policy.....“ This knowledge is the first step to solving the social issue (Eucken, 2004, p. 56-57).

In this context, it is noteworthy that contrary to some economists (e.g. Keynes) he also criticized, on the basis of many experiences, the full employment policy which is understood as the objective of the economic policy of the state. On this question he states: „One possible example is ... Germany in 1946. Even though all people were employed from morning till evening, they were not able to provide them with enough money due to poor organization of work or poorly developed division of labour. As households and business leaders fought for their existence, they had to act in such a way that their actions did not fit into the overall process. Someone worked in the garden instead of in a factory to get food instead of a little money. Other exchanged the allocated fuel for food instead of having worked in the factory. Some have gone on a long journey in order to bring several kilograms of potatoes. All of them were employed. They all acted properly from an individual point of view. But their productive performance was very small due to insufficient management of the overall process. Exactly the same was true for businesses that were not interconnected by either prices or central offices. This example shows that full employment may be related to economic shortfalls and that full employment may in no case be itself the aim of economic policy. The politicians of full employment do not think systemically. They unilaterally highlight a partial problem. The economic policy takes them away from the essentially necessary goal, i.e. a sufficient supply of consumer goods. Such a concept of economic policy is even more dangerous than at it appears at a first glance“. (Eucken, 2004, p. 206-207). From Eucken's arguments it follows that full employment is not achieved as an economic policy objective, but that full employment can be achieved as a product of the efficient functioning of the market.

3. Real GDP Growth and Unemployment

The problem of unemployment is a major challenge currently facing most European Union countries, as well as the global world economy. It is a serious economic and social problem, but it also represents a significant social and political problem. Unemployment is the result of the cyclical development of the capitalist economy and often takes uncontrollable dimensions. A healthy development of the economy should ensure an acceptable rate of unemployment at the optimal and sustainable rate of economic growth (Košta, 2011).

Theoretical knowledge as well as the results of empirical analyzes confirm that unemployment is changing concurrently with the changes in real GDP during the economic cycle. The simplified view also indicates that there is a relationship of interdependence between the amount of work (unemployment) and the size of the gross domestic product. It can be assumed that if GDP increases,

production and employment are rising and cyclical unemployment is falling. This means that changes in unemployment (growth or decline) can be at least projected on the basis of the GDP growth rate.

In other words, a high rate of GDP growth is accompanied by a drop in unemployment. This interdependence between the changes in GDP and changes in unemployment was observed by an American economist Arthur Okun. By analyzing statistical data, he found that there is a quantitative relationship of interdependence between development of GDP and development of unemployment. He pointed out that the unemployment rate is a decreasing function of the GDP growth rate. This relationship is known as the Okun's law. According to this law, if the real GDP growth rate is one percentage point above the potential product level in the course of one year, the unemployment rate will fall by half a percentage point. This means that if real GDP falls below potential output, for example by 2 %, unemployment will increase by 1 %, i. e. about half the rate of decline in real GDP.

Okun's law expresses the quantitative changes in GDP and unemployment at increasing the pace of economic growth as well as the decline in GDP growth rates. Okun studied a deviation of the actual product from potential output in the USA with a deviation of the actual rate of unemployment from the natural rate of unemployment. On the basis of empirical analyzes, he found that this relationship was significant and regular, but at the same time he stated that these deviations were not quantitatively the same. Specifically, a decline in the unemployment rate by 1 percentage point occurs when the growth of real GDP above potential output is more than 1 percentage point. This means that, according to Okun's law, the deviations of the actual product from the potential product (the output gap) are not the same as changes in the unemployment rate.

According to Okun, these data were valid for the USA at the time he formulated this law. For other countries and other periods there may be other relationships between unemployment and the real GDP growth. Despite these differences, however, experience shows that there is a strong correlation between GDP changes and changes in unemployment. This relationship is known as Okun's law in the economic theory, but he did not claim to be the basic truth and the basis of the economic theory. Better and more precise term than the law it is formulation that it is a statistical regularity and dependence, which was based on empirical analyzes by A. Okun.

Okun's law has a theoretical cognitive and practical significance, so it can serve as a practical guide to influencing the development of unemployment by regulating the rate of economic growth. This law can be an important source of inspiration for a design of specific economic measures. At the same time it should be noted that Okun's law is a model structure which does not reflect many real processes occurring in the economy.

There are other options for expressing the relation of these two macroeconomic variables. According to M. Martincová (2002, p. 80), „an alternative less well-known expression of the relationship between unemployment and GDP growth is the employment growth thresholdwhich can be characterized as such GDP growth rate, after which total employment starts to increase with the further growth of GDP. It can be calculated as the difference between the rate of GDP growth and the employment growth”.

According to some economists, in order to achieve full employment, it is assumed the growth in aggregate demand. From this point of view, the economic growth should be a means to achieve and maintain full employment. It is also important to monitor the relationship between the development

of labour productivity and the development of wages. The basic prerequisite for stable development of the economy is that wages should grow at a pace that corresponds to the labour productivity growth. If labour productivity grows, then we need less labour to produce the same amount of goods. If wages grow at the same pace as labour productivity increases, it means that the labour costs of producing goods are constant. It follows that if wages and other earnings do not grow faster than the labour productivity, neither prices will rise, nor the rate of inflation.

TAB. 1: Real GDP growth and the unemployment rate in the Slovak Republic (%)

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Real GDP growth rate	5,6	-5,4	5,0	2,8	1,7	1,5	2,6	3,8	3,3
Unemployment rate	9,6	12,1	14,5	13,7	14,0	14,2	13,2	11,5	9,7

Source: Eurostat, 2017

TAB. 2: Real GDP growth and the unemployment rate in the Czech Republic (%)

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Real GDP growth rate	2,7	-4,8	2,3	2,0	-0,8	-0,5	2,7	4,5	2,4
Unemployment rate	4,4	6,7	7,3	6,7	7,0	7,0	6,1	5,1	4,0

Source: Eurostat, 2017

It turned out that during the recession (in the year 2009), unemployment did not rise proportionally with the fall in the product and vice versa, in the expansion period (in the years 2010 and 2011) unemployment did not decrease despite GDP growth. This may be a consequence of the time shift, but also the fact that, for example, during the recession when companies reduce production, there is no proportional lay-off, but companies reduce the number of less skilled workers. The company is trying to keep people with higher qualifications because their searching and retraining requires higher costs. Frequent fluctuation also has a negative impact on the labour productivity. More significant employment growth and thus a decline in the unemployment rates depend largely on the overall economic performance and the growth of orders from EU countries, particularly from Germany, on which Slovakia is economically most dependent. Accelerating economic growth in Slovakia after 2014 had a very positive impact on employment and fall in unemployment (Novák, 2011; Morvay, 2016).

4. Conclusion

The empirical results show that cyclical development is a permanent part of the functioning of the market economy. A satisfactory answer to solve the consequences of cyclical development is not provided by either a single economist or any direction of economic science. Everyone agrees that

there is a relationship between the performance of the economy and the socio-economic consequences of unemployment as it tries to illustrate A. Okun. Okun's law is an important link between changes in the labour market and real GDP growth. It explains the relation between the short-term movements in real GDP and changes in the unemployment rate. However, these changes are not quantitatively the same at different times and different countries. These theoretical and practical problems will also be the subject of controversial discussions in the future between the economists of various schools of economic thought. Slovakia's experience in the years 2014-2016 shows that the decline in unemployment also occurs in conditions of relatively moderate real GDP growth.

Literature:

Eucken, W. (2004). *Zásady hospodářského řádu*. Praha: Liberální Institut.

Eurostat (2017). Statistics data retrieved from: <http://ec.europa.eu/eurostat>.

Friedman, M. (1993). *Kapitalismus a svoboda*. Praha: Liberální institut.

Keynes, J. M. (1963). *Obecná teorie zaměstnanosti, úroku a peněz*. Praha: Nakladatelství NČSAV.

Košta, J. a kol. (2011). *Aktuálne problémy trhu práce v Slovenskej republike po vstupe do Európskej menovej únie*. Bratislava: Ekonomický ústav SAV.

Lisý, J. a kol. (2003). *Dejiny ekonomických teórií*. Bratislava: Iura Edition.

Mankiw, N.G. (1999). *Zásady ekonomie*. Praha: Grada Publishing.

Martincová, M. (2002). *Nezamestnanosť ako makroekonomický problém*. Bratislava: Iura Edition.

Morvay, K. a kol. (2016). *Hospodársky vývoj Slovenska v roku 2015 a výhľad do roku 2017*. Bratislava: Ekonomický ústav SAV.

Novák, M. (2011): *Analýza trhu práce a nezamestnanosť vo vybraných samosprávnych krajoch SR*. In Ekonomická teória a ekonomická realita (ETER 2011): zborník príspevkov z medzinárodnej vedeckej konferencie. Bratislava: EKONÓM, p. 355-367.

Sojka, M. (2010). *Dejiny ekonomických teórií*. Praha: Havlíček Brain Team.

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KNOWLEDGE MANAGEMENT IN THE INFORMATION SPACE AND COMPETITIVE ADVANTAGE OF THE ENTERPRISE

TOMASZ LIS, ALEKSANDRA PTAK, AGNIESZKA NOGA

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Abstract: *Knowledge and ability to use it, is a key factor of the effectiveness of actions taken. Everything a man does, and the structure he co-creates, meaning the enterprise, is based on knowledge. Everything that is done, is the result of knowledge, and at the same time is the source of new knowledge. Knowledge is undoubtedly one of the key factors affecting the ability of the competitive battle. This is especially evident in times when the market is characterized by dynamics, variability and uncertainty. The aim of this article is to analyze the use of knowledge in management of the enterprise in the information space.*

Keywords: *Information, knowledge, information space, competitive advantage.*

JEL classification: M10,M150

Grant affiliation:

1. Introduction

The contemporary reality of running the business and generally functioning of man is closely related to terms, such as: time, speed, dynamics, volatility, information, knowledge and information technologies. Indication of these terms is closely related to the technological development. The natural purpose of man functioning was ever since expanding areas of functioning. At the same time human functioning can be considered on two levels. The first one is the physical plane, the second is the information plane. With regards to the first one, man appears and acts real. All that he does is visible to him, it is taken and carried out in a manner that is aware of the course and effects of actions. With respect to the second plane, man appears and acts in the form of information, which is the result of its functioning in the real world. This information is identified by its recipients as the specific source action. This information spreads in the information space causing specific reactions of their receivers (Lis, Bajdor & Ptak, 2016).

The technological development has made it possible to improve human functioning, including the area of increasing its impact. In this respect, particular achievements were noted in terms of functioning at the information level. As the result of technological development, especially

information and communication technology (Internet plays a very important role in this respect), time and space limitations cease to be valid. In such reality, the effectiveness of the functioning of man and of all the structures he creates is primarily related to the information and knowledge, which the information brings, and to knowledge on how the information is used to achieve intended goals (Mishchuk, Bilan & Pavlushenko, 2016).

Taking into account the dynamics of changes taking place nowadays, the easiness of access to information and the fact of functioning in the information space (playing a key role in relation to the effectiveness of human functioning in everyday life), it is important to note, that the key success factor is the effectiveness of knowledge management in this space. Management in the information space is nothing more than running business in the place in which sources of any man activity (information) operate. The goal is maximal rapprochement of the enterprises with all potential partners and customers.

The aim of this article is to present opportunities, benefits and conditions of knowledge management in the information space in the context of creating or maintaining competitive advantage and knowledge-based management, to shape, identify, acquire, spread, and transfer knowledge.

2. Knowledge and competitive advantage in the dynamic reality

Among many definitions of knowledge one can cite the one, according to which it is "whole of reliable information about reality, along with the ability to use it" (Piotrkowski, 2012). This definition draws attention to two important issues. The first one refers to the collection of information about the reality, the second refers to the ability to use. Knowledge is nothing more than understanding what the upcoming information is about, information is therefore the basis of knowledge, its construction. Knowledge can be understood as (Piotrkowski, 2012): the relationship of information and its understanding, the effect of thought processing of information, experience and learning, all the possessed messages, the reflection of reality, the confirmation of beliefs. Knowledge is shaped by all the information that reaches man. Its source are actions, but also the behavior of the individuals with whom the man is in contact, in the course of the daily life. This information is consciously and unconsciously generated by the source and collected by the recipient. The factor, that brings information to one another and directly induces the process of knowledge creation, is described reality. Identity of the reality causes systematization of information.

By analyzing reasons for increasing the importance of knowledge in the contemporary reality, K. Piotrowski draws attention to (Piotrkowski, 2012):

- Globalization,
- High competition, which requires speed and flexibility in operations,
- Temporary competition - limited life cycle of products, including significant reduction of time from the idea to introducing to the market,
- Growing importance of customers - the need to strengthen relationships and build loyalty,

- Growing importance of cooperation with market participants with the appropriate and desired knowledge and skills,
- Development of information and communication technology, and above all the Internet.

By analyzing above factors, one can be tempted to rank them by time of occurrence. And so, the factor that, in the opinion of the authors, was the source, is the development of information and communication technology, and above all the Internet. As a result of information rapprochement in the world's economy, the phenomenon of globalization has emerged. Information rapprochement has also caused an unprecedented increase of competition. This group includes all the other factors that are related to the customer and the competition. The information rapprochement caused a rapid increase in the speed of functioning of today's man. The result is dynamics and volatility, so widely considered in the literature (Matejun & Nowicki, 2013) on management.

Knowledge management "integrates processes in areas of creativity, innovation, customer relations, application of best practices, learning and skills development" (Kłak, 2010). Knowledge management therefore requires constant observation, learning and development, in order to optimize activities related to creativity, innovation and customer contacts. The basis for this kind of management is therefore continuous identification of the sources of useful information, their acquisition, processing and practical use. At the same time, the source may be all potential keepers of useful information for the enterprise - from the external and the internal environment. Contemporary companies aspiring to be leaders must be as flexible as possible, even embedded in the market (participants in the information space). Only in this way they can acquire and use information and knowledge from others. This is consistent with the approach under which knowledge management is associated with any knowledge essential for achieving objectives of the company, regardless of where it occurs (internal and external environment) (Wrycza, 2010).

3. Knowledge management in the information space

Rapprochement and penetration of individuals' individual information spaces (people and structures co-created by them) has increased the amount of information that we face on a daily basis. As the research shows, compared to the early 1980s, the amount of information absorbed by the modern man has increased by 350% (Forbes Polska, 2017). Most of the information that we generate every day consciously and unconsciously reaches a growing audience (this is the result of the rapprochement of units in the information space). Thus man's actions affect the actions of an increasing number of other individuals.

The meaning of communication, that is, forwarding information in the life of modern man, especially in the context of entrepreneurial activity, is well illustrated by the words "Communication can no longer be understood as sending a message that goes from the sender to the receiver. It must be understood, that the circulation of messages on the media which determines their content is subject to continuous (re) interpretations by users and active recipients - readers. Stereotypes that assume purely telegraphic communication, derived from old works on the transmission of information, do not correspond to the current state of science" (Wendland, 2012).

The ability to survive and develop is closely related to actions of the enterprise, which efficiency can be considered in the context of opinions expressed by its customers. Research results in this regard should be considered in the context of customer knowledge about enterprises.

As the research results show (Raport Polskiej Rady Biznesu, 2016):

- more than 75% of respondents believe that entrepreneurs in Poland are prosperous,
- about 75% believe that the entrepreneur does not pay employees enough money because he wants to earn more,
- about 70% believe that entrepreneurs are useful to society,
- about 60% believe that entrepreneurs care about the environment in which they operate,
- about 55% believe that entrepreneurs are honest with their business partners,
- about 45% believe that entrepreneurs care about their employees and are likeable.

People aged up to 30 years are mostly of the opinion that entrepreneurs, and thus the companies they run, are competitive to a very limited extent. Taking into account that these are generally opinions about enterprises, it should be stated, that this is the area where there are large opportunities for competitive fight (Ulfik, Herbuś & Potrzebowska, 2015).

Positive customer knowledge built on the direct experience but also on the information from the information space is one of the most important factors in shaping the client-enterprise relation. Satisfied client, having positive knowledge of the supplier, begins to influence other participants of the space, encouraging them to cooperate. Among the factors that have the biggest impact on the tendency to recommend and building loyalty, should be mentioned (Customer Experience Excellence Centre, 2017):

- Reliability,
- Troubleshooting,
- Expectations,
- Time and effort,
- Personalization,
- Empathy.

Mainly employees are the source of information in building knowledge of the enterprise. Their competence, attitude, commitment determine relationships with customers and other participants of the information space. The most important reasons why employees share their knowledge, are: deriving pleasure from helping others 65.1% and goodwill 53.5% (Brzeziński & Mietlicka, 2004). The presented results were related to knowledge sharing by the enterprise's employees, however, this does not change the fact, that the pleasure of helping and the goodwill are the basis for the efficiency of work at the contact of the enterprise-external environment.

4. Conclusion

Knowledge management is inextricably linked with the information. Information is the source of knowledge. This is based on the assumption that every action of man is the source of information and the effect of information gained and obtained. Knowledge management is: learning, developing, observing, realized to optimize operations and to better match the requirements of customers and partners. Since knowledge and information are intangible resources, therefore, knowledge management is primarily in the intangible domain. It is the information space of the man's life.

Literature:

Attention Cash. (2017). Retrieved June 05, 2017, from <http://www.forbes.pl/artykuly/sekcje/Oko-na-swiat/attention-crash,25605,1>.

Brzeziński, M., Mietlicka, D. (2017). *Badanie i ocena procesu dzielenia się wiedzą jako determinanty zmian w MŚP Polski Wschodniej – studium przypadku*. Retrieved June 12, 2017, from <http://www.wydawnictwo.wsei.eu/index.php/znec/article/viewFile/117/131>.

Goliński, M., Włodarczak, Z., Miądowicz, M. (2016). IT Solutions Supporting the Management of Information of Employees' Competencies. *Polish Journal of Management Studies*, 13 (2)

Wrycza S. (2010). *Informatyka ekonomiczna, podręcznik akademicki*. PWE, Warszawa.

Jak budować pozytywne doświadczenia klientów, Analiza wiodących praktyk zarządzania doświadczeniami klientów na rynku polskim. (2017). Customer Experience Excellence Centre

Kłak, M. (2010). *Zarządzanie wiedzą we współczesnym przedsiębiorstwie*. Wydawnictwo Wyższej Szkoły Ekonomii i Prawa w Kielcach, Kielce.

Lis, T., Bajdor, P., Ptak, A., Budzik-Nowodzińska, I. (2016). Information Management in the Company's Information Space. *The Asian Conference on Sustainability, Energy & the Environment 2016*, Kobe, Japan, The International Academic Forum (IAFOR), Nagoya, pp. 351-361.

Matejun, M., Nowicki, M. (2013). *Organizacje w otoczeniu – od analizy otoczenia do dynamicznej lokalizacji*. Nauka o organizacji, ujęcie dynamiczne, pod red. Adamik A., Oficyna a Wolters Kluwer business, Warszawa.

Mishchuk, H., Bilan, Y., Pavlushenko, L. (2016). Knowledge Management Systems: Issues in Enterprise Human Capital Management Implementation in Transition Economy. *Polish Journal of Management Studies*, 14 (1).

Piotrkowski, K. (2012). *Zarządzanie wiedzą w polskich przedsiębiorstwach*. Nowoczesne Systemy Zarządzania, tom VII.

Rafało, M. (2013). *Zarządzanie dynamiczne –podejście wielowymiarowe*. Economics and Management nr 1.

Ulfik, A., Herbuś, A., Potrzebowska, A. (2015). *Wpływ zarządzania wiedzą na konkurencyjność, Koncepcje zarządzania zadaniami własnymi realizowanymi przez samorząd terytorialny*. Wydawnictwo AWF, Katowice, pp. 147-169

Wendland, M. (2012). *Działanie komunikacyjne a przekazywanie informacji*. Komunikologia – teoria i praktyka komunikacji, Biblioteka Komunikacji Społecznej Tom III, Wydawnictwo Naukowe IF UAM, Poznań.

Wizerunek przedsiębiorcy. (2016). Raport Polskiej Rady Biznesu.

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MENU AND WINE LIST CONTRIBUTION TO THE PROFITABILITY OF A GASTRONOMY BUSINESS

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Abstract: *Each entrepreneur strives to ensure the prosperity of the business. Entrepreneurs follow their costs, they do their utmost to gain a favourable segment on the market and stack up against the competition. They can reach a successful result in their business management under the condition of sufficiently high sales that cover not only all inputs but that, at the same time, generate a profit for further enlargement of their activities. To meet such a primary target entrepreneurs utilize various strategies - from monitoring economy of their business up to exploitation of different marketing activities. One of the significant tools that helps entrepreneurs to influence prosperity of their gastronomy business is a convenient offer of dishes and beverages that can be implemented through the menu and wine list.*

Keywords: Menu, wine list, price level, sale, income.

JEL classification: M2, M3, M4

Grant affiliation:

1. Introduction

The menu and wine list are not important only for the decision concerning the choice of a dish or beverage we want to eat and drink. They are also an important tool for sustaining the company stability. They influence consumers' demands, they can become a key factor for the company's development of its position on the market. These factors can guide the security of prosperity of a particular gastronomic company. The menu and wine list represent the entrance to the enterprise. The offer implemented through the menu and the wine list has its impact on the clients because the set of dishes can either attract or discourage them. The menu and the wine list can be either attractive or completely discouraging. The following article focuses on the mutual relation between the offer and its price and on the issue if customers grasp the price as a principal matter for their selection of a particular dish or beverage, or the price is not the most decisive criterion and there appear other important factors influencing the customers' decision.

2. Materials and Methods

The menu and the wine list have gone through their historical development. Wayside inns that used to be the first accommodation and catering establishments in the Middle Ages were utilized for relax and swapping of horses during long journeys. Innkeepers presented their current offer to travellers. Naturally the set of dishes and beverages reflected traditions of those times. The verbal form of an offer has not disappeared, even though it is not used massively, it depends primarily on the type of an enterprise. It can be used as a supplement of an offer in luxury restaurants in a form of the chef's speciality or as the special offer of the day. It is necessary to respect the guests' wishes and not to force them to choose a dish at any cost, even though it might be interesting for the restaurant from the point of prices as well as sales. The first signal of the menu and wine list existence had been recorded in connection with the wedding ceremony of a daughter of a rich man from France - Baulde Cuvillon. He wanted to present his richness and inform the guests what dishes are to be served. In the period of the French Revolution the menu used to be a common tool of offers in then taverns and inns. The first menu and the wine list occurred for the first time in our country in 1840 and namely on the occasion of the first public Czech ball in the Old Town of Prague. The demand to get the menu was extremely intensive and at the end the wait-staff sold it as a souvenir. Matyáš Přibík's restaurant in Jindřišská Street in Prague began presenting its permanent menu in 1857. It was written in German and the offer was outstanding - 28 cooked and 14 roasted dishes, game and fish was on the menu as well. It is possible to see this menu in the Capital City Museum. The menu and wine list are not presented to guests only according to their choice and preferences. The menu and the wine list have also become a marketing tool that through the offer of dishes and beverages, supplemented by additional information about the price, determines incomes of an enterprise, thus reflecting the level of the restaurant's prosperity. It is its plan of production that has to be flexibly tailored according to the demand. This article aims at the opening of the mutual relation between the offer and pricing strategy reflected on the menu and the wine list. It tries to solve the matter of how much clients can be influenced by the price level while making their decision. After presenting general issues, while studying the influence of a particular dish selection, the authors compare the results from the points of mathematical and statistical observations.

3. Results

The form of an offer can vary. The most frequent forms are written menus and wine lists printed on paper. The results of an analysis carried out in a form of an internal research at the Institute of Hospitality Management (IHM) approved the above mentioned form practised by 95% of gastronomic businesses (see more at Roupcová, E., 2017). Wide range of possibilities can be utilized. Various types of script sizes can be used. Colours are also important, the print does not have to be done on paper but also on a wooden piece and on other suitable materials. The menu and wine list reflect the atmosphere of a particular gastronomic facility. The guest should feel its pleasant shape, size and, of course, should find it easy to understand it. In order to succeed higher interest of clients entrepreneurs use different graphic arrangements, technologies, they finalize the form with pictures. Fortunately those times when menus and wine lists were just simply written (or printed) on a piece of paper, or when the dish was no more available and thus crossed out, are over. The menu

presentation in a form of displays is aimed at the client's higher interest. The visual offer can be used, for example, when presenting the offer of different types of fish. Guests themselves make a choice of fish that they want to be prepared. Guests can also welcome offers of wines in a form of refrigerating display cases that make customers feel more comfortable when deciding which type of wine might be the best choice. In practice we can come across various light boards, information desks, etc. that are placed in front of a gastronomic facility announcing the daily offer. The current trend of offers recorded in tablets helps create high flexibility in alternations of offers. These days it is quite common to look on-line at the menu and wine list of a particular gastronomic facility before visiting it. There is time a pleasure enough to decide if the menu composition and its price range is sufficiently convenient.

As many different gastronomic facilities there exist there also exist many convenient menus. Just to remind - there are restaurants, coffee and wine bars, etc. - their enumeration is endless. The arrangement of dishes on the menu has its own order that is based on the principle and logics of particular eating habits. It begins with starters to soups, main dishes structured according types of meat, further on there are meatless dishes and the menu culminates in the part of desserts. The system also applies for the wine list that begins with aperitifs, proceeds to different types of wines and sparkling wines, continues with liqueurs, distillates and the range ends with non-alcoholic drinks and beer selection. The very last segment of the wine list is presented by hot drinks - coffee, tea, etc. Those times when the lists contained offers of tens of dishes similarly prepared are fortunately over, too. That method has been overcome and the current trend is to decrease the number of offered dishes. This method ensures freshness of foodstuffs for preparation of dishes and the offer is understood as a particular competitive advantage. It is important to express a clear and brief name of a dish thus helping guests to be sure about their choice of a dish. We save time of serving staff who, in a contrary situation, have to explain what a particular dish is made of. Times of so called 'Headsman's lash' are over.

Besides the name of a particular dish or beverage, the menu and wine list have to contain information about the price. The price range has to harmonize with the concept of a particular gastronomic facility and its clientele. Guests expect certain prices. Different methods of price policy can be used. Generally, the price has to cover costs, variable and fixed, it has to help the facility generate certain profitability. The price is a quantity that can directly and proportionally influence the company's profitability. The price is the key criterion of managerial decision-making. Direct costs are primarily represented by prices of foodstuffs. Wages, as well as overhead costs needed for the company's operations, rent, administration expenses, depreciation, etc., must be reflected in the price as well. The process of price setting is known as calculation. The final price is settled by allocation of indirect costs and direct ones using the surcharge method or the method of cost allocation. The method of 'Integrated Menu Pricing System' that is based on cost calculation procedure, can be applied, too. This method enables a company to maximize its profitability. Donald Smith's method aims at the rearrangement of a menu in order to contain sellable dishes, thus influencing the company's profitability (see more at Hladíková, 2015). She comes out of the statistics of sales based on the menu list presented during last 30 days and subsequent evaluation of ascertained facts. The result is the finding of so called 'stars, dairy cows, wicked matters and a corpse' (Štětina, 2002, pp 111-113). The following table shows a possible procedure for price strategy solution.

TAB. 1: Profitability Share of Particular Dishes

A	B	C	D	E	F	G	H	I	J	K	L
Shrimps	210	7	120	74	46	25200	15540	9660	6,5	Workhorse	Cautious price increase
Chicken	420	14	75	33	42	31500	13860	17640	11,9	Workhorse	Maintain
Rib roast	90	3	67	30	37	6030	2700	3330	2,2	Dog	Remove
Beef flank I.	600	20	120	75	45	72000	45000	27000	18.2	Workhorse	Maintain
Beef flank II.	60	2	150	85	65	9000	5100	3900	2.6	Mystery	Price increase
Beef rump	360	12	130	67	63	46800	24120	22680	15.3	Star	Price increase
Beef steak	510	17	120	63	57	61200	32130	29070	19,6	Star	Price increase
Fresh fish	240	8	105	60	45	25200	14400	10800	7,3	Workhorse	Price increase
Lobster tails	150	5	145	74	71	21750	11100	10650	7,2	Mystery	Price decrease, serve as speciality
Fish fillet	360	12	98	60	38	35280	21600	13680	9.2	Workhorse	Gradual price increase
Total	360	12				333960	185550	13680	100		

Source: authors' own, IHM internal research, Roupcová E., 2017

Each dish has its own total sale indicator (B) that is expressed as a percentage share of total sales (C), total sales price (D) is divided into costs (E) and profitable sales margin (F). Columns (G), (H), (I) indicate revenues (B x D). Percentage profitable share is indicated in column (J). On the basis of the carried out analysis we can settle a new price of the dishes that we want to either support or, on the other hand, we obtain the list of those dishes that are not profitable at all. Moreover we have to be pre-supplied for their preparation and be aware of their burden on our cash flow. A typical example is the rib roast dish that represents 3% of sales, however its share in the profit is only 2.2%.

Contrarily as for the favourite dishes we can increase the prices slightly and hope that our guests may probably accept the change. The demand for such dishes is high and the price increase will not discourage them.

4. Discussion

If the menu and wine list offer is convenient enough it is possible to increase the demand for a particular dish served in a gastronomic facility without taking into consideration the price. The price is not the most important factor of the guest's choice. Current clients prefer foodstuffs quality that harmonizes with healthy diet, quality of preparation and servicing. This trend can be observed in the research findings that was carried out in a selected gastronomic facility. A new menu was worked out with the aim to strengthen the facility's profitability. Some prices were increased due to changes in the foodstuffs selection. Restaurant clients prefer such foodstuffs due to their approach to alimentation and they are also prepared to pay more for the offered quality. Table 2 shows average prices of selected dishes.

TAB. 2: Price Level Comparison of Current and Original Menu (given in Czech crowns)

	Original prices	New prices	Difference
Breakfast menu	150	208	+ 58
Egg dishes	148	127	- 21
Wholemeal sandwiches	197	244	+ 47
Salads	184	235	+ 51
Platters	0	249	+ 249
Filled croissants	77	117	+ 40
Fresh pasta	191	176	- 21
Salty pancakes	197	229	+ 32
Meat	265	244	- 21
Sweet pancakes	147	125	- 22

Source: authors' own, Roupcová, E. (2017)

It is obvious from the table that the breakfast menu prices increased by almost 25%. Salad prices went up too and platters were introduced as a new offer. Table three presents selected assortment dishes that are popular and reflected in high levels of sales despite their highest prices. The gastronomic facility influences its guests thanks to the convenient menu arrangement. However it

primarily monitors its economic results of operations. Despite the increase of input costs of foodstuffs the prices are convenient for profit generating. The demand for dishes ingredients increases popularity and thus higher sales. This fact reflects on the decrease of fixed costs share of a unit product. These costs have to be reimbursed due to further facility's operations.

TAB. 3: Price Comparisons and Dishes Sales

Dish name	Czech crowns	Bestseller	Most expensive
Breakfast menu			
- metabolic breakfast	259	X	
- French breakfast	290		X
Salads			
- with avocado	269	X	X
Fresh pasta			
- with chicken meat	259	X	X
Salty pancakes			
- 'Old Prague'	229	X	
- spinach with bacon	239	X	X

Source: authors' own, Roupcová, E. (2017)

From the quoted findings it is apparent that due to the suitable price strategy concerning the menu arrangement it is possible to influence profitability of a particular gastronomic facility. Even a high price will not discourage clients in case they meet their ideas about healthy alimentation.

5. Conclusion

As an example of the menu and wine list significance the following quotation can be used: 'The restaurant menu is not only a list of dishes that are, or can be, prepared. It represents the whole enterprise. That is why we have to pay increased attention to its arrangement. The menu should be well tailored not only for its visual design (nice script, graceful and clear arrangement) but also for its gastronomic value. The menu should be a good promise that the food will be well prepared. It should raise our taste for it.' (Břenek, 1937, p. 15). The research results testify that we should pay high attention to this tool. Each entrepreneur has this tool in their hands and can grasp it their own way.

There does not exist only one way how to attract clients with the help of the menu and wine list and at the same time how to be profitable.

Literature:

Břenek, J. (1937). *Příručka správného psaní jídelního lístku*. Praha, (pp. 15). Zemská jednota společenstev hostinských

Hladíková, B. (2015). *Využití menu engineeru v gastronomii*. Praha, VŠH, diplomová práce.

Roupcová, E. (2017). *Jídelní a nápojový lístek jako prostředek prosperity gastronomického zařízení*. Praha, VŠH, bakalářská práce.

Štětina, V. (2002). *Jídelní a nápojový lístek - nástroj řízení a věc prvořadého významu*. Praha, EDITEXPRESS, ISBN 80-238-8884-6.

Labajo, J. (2003). Body and voice: The construction of gender in flamenco. In T. Magrini (Ed.), *Music and gender: perspectives from the Mediterranean* (pp. 67-86). Chicago, IL: University of Chicago Press.

Van Vugt, M., Hogan, R., & Kaiser, R. B. (2008). Leadership, followership, and evolution: Some lessons from the past. *American Psychologist*, 63(3), p. 182-196.

Deming, D., & Dynarski, S. (2008). *The lengthening of childhood* (NBER Working Paper 14124). Cambridge, MA: National Bureau of Economic Research. Retrieved July 21, 2008, from <http://www.nber.org/papers/w14124> (11pt).

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PROMOTING CREATIVITY AND INNOVATIONS IN SMALL AND MEDIUM ENTERPRISES

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Abstract: *There are many driving forces that promote creativity and innovation in enterprises. In the last decade managers and theorists started to recognize, that one of the main driving forces behind creativity and innovation, is the organizational culture, especially the innovation-enhancing norms that promote creativity and innovation. It can be stated, that the components of organizational culture (shared value, beliefs and behavioural norms) are key in promoting the generation and implementation of new and useful ideas. Implementation of innovation—enhancing norms encourages everyone in enterprise to develop original and useful proposals and promotes innovative ways of solving problems and finding solutions. The aim of the article is to present the organizational culture, especially the innovation-enhancing norms as an important element, that promote creativity and innovation in small and medium enterprises. The stress is given to explain the contents and the role of key norms supporting creativity and innovations in small and medium enterprises.*

Keywords: *Small and medium enterprises, organizational culture, behavioural norms, creativity, innovation.*

JEL classification: O 31

Grant affiliation: VEGA 1/0494/15 „The research of factors influencing the successfulness of innovative small and medium enterprises in the Slovak Republic“.

1. Introduction

In the last decade managers and theorists started to recognize, that one of the main driving forces behind creativity and innovation, is the organizational culture, especially the innovation-enhancing norms that promote creativity and innovation (Andriopoulos & Dawson, 2010). It can be stated that the components of organizational culture (shared values, beliefs and behavioral norms) are key in promoting the generation and implementation of new and useful ideas.

The aim of the paper is to present the organizational culture, especially the innovation-enhancing norms, as important elements, that promote creativity and innovation in small and medium enterprises. The stress is given to explain the contents and the role of key norms supporting creativity and innovation in small and medium enterprises. The paper was elaborated as a part of VEGA project 1/0494/15 „The research of factors influencing the successfulness of innovative small and medium enterprises in the Slovak Republic“.

2. To the concept of organizational culture

Numerous definitions have been proposed for the concept of organizational culture. Some authors define organizational culture simply as the „rules of the game“ (van Maanen, 1977), while others propose more encompassing definitions. Kanter (2002) argues that „at the deeper and less visible level, culture refers to values that are shared by the people in a group and that tend to persist over time even when group membership changes“. Schein (1991) views culture as something an organization „is“ and defines culture as „the pattern of basic assumptions that a given group has invented, discovered or developed in learning to cope with its problems of external adaptation and internal integration“.

Reviewing the definitions of organizational culture three dominant characteristics can be assigned to the concept. First, culture is a shared phenomenon. Culture is viewed as a kind of social or normative binding that is shared by a given group and holds together potentially diverse members (Schein, 1991). In a corporate setting, the group may be the whole organization or one of a number of subgroups.

Second, culture exists at two levels, namely: the surface (visible) level and deeper (less visible) level. The surface level includes elements such as audible and visible patterns of behaviour (physical artefacts, such as buildings or décor). The deeper level of culture relates to the values that the group shares and the norms that establish the behaviour of the members of the group (Grieves, 2010). Once values have been established within the group, norms then allow members to understand the types of behaviour that is expected from them in different situations.

Third, culture is learned. Within a corporate setting, new members learn about the culture that prevails within their group through formal and informal, explicit and implicit cultural socialization processes (Schein, 1991).

Researches argue that culture lies at the heart of organizational creativity and innovation (Tusman & O'Reilly, 2002). The components of organizational culture (shared values, beliefs and behavioural norms) are key in promoting the generation and implementation of new and useful ideas. In accordance with shared norms, staff will make assumptions about and decide on whether creative and innovative behaviours are part of the way in which their organization operates.

3. Norms promoting creativity and innovation

Innovation usually involves risk taking, nonstandard solutions and unconventional teamwork practices (elements that are not easily managed by formal control systems) (Bessant & Tidd, 2009). The effective management of culture is critical in mobilizing organizational creativity and innovation. Crucial in these efforts is the establishment and continuous encouragement of behavioural norms that promote the generation and implementation of new solutions. These norms refer to the socially created expectations that guide the acceptance of attitudes and behaviour in the work setting (Andriopoulos & Dawson, 2010). Over the years, researchers have documented a variety of norms

that promote consistently creativity and innovation in organizational settings. Main of these norms are discusses in more detail below.

Promoting behaviour, which supports idea generating, is a key for mobilizing creativity in the work. Managers building the creative environment need to promote open communication and forum of intra- and extra-organizational debate. Sustaining such an information flow is crucial. Lack of information hinders creativity in organizational settings; building organizational culture needs to encourage open discussion, constructive conflict, fair evaluation of ideas and fast approvals (Kanter, 2002). All this of course, needs to happen in a positive cooperative atmosphere, because conflict across enterprise could bring the opposite results.

Creativity is promoted in such an environment, where continuous learning is a firm-wide expectation (Frappaolo, 2006). Employees should have a continuously curious attitude; this will allow them to discover and explore new ideas and potentially identify new and valuable solutions. Keeping staff's knowledge and skills up to date, is a key in this respect.

The creative process often involves a risk taking. The generation of ideas requires experimentation and, as such, taking risks is usually unavoidable (and often necessary). Encouraging risk taking behaviour needs therefore to be a part of the creative culture. To mobilize and encourage risk taking, managers need to avoid applying too many controls in the creative process, because it may to stop experimentation and to slow down creative flow. However, creative small and medium enterprises have to face a commercial reality, because excessive risk taking may lead to costly results on profit and loss account.

Experimentation and risk taking may lead to mistakes. Mistakes are therefore an everyday practice in creative environment. Supporting a culture that tolerates mistakes and handles them effectively, is important in encouraging staff to think and act creatively (Martins & Ternblanche, 2003). Creative enterprises try to develop new things, even if this leads to failure or disappointing results. Enterprises, that punish employee mistake, discourage creativity and inhibit innovation (Kanter, 2002).

Positive examples confirm that behaviour that is promoting change in the work setting may influence positively organizational creativity and innovation. To support creativity, the culture must tolerate uncertainty, promote and reward positive attitudes towards change and encourage employees to challenge constantly the status quo and explore new ways of finding creative solutions (Walmsley, 2009).

4. Norms promoting implementation of innovative ideas

Though creativity is important, commercial reality requires implementation; ideas need to be turned into innovations that will positively influence the corporate profit. In order to encourage action, several norms are important (Tushman & O'Reilly, 2002). The main norms are: an emphasis on teamwork and effective group functioning, a focus on speed and urgency, a need for flexibility and adaptability and a sence of autonomy.

The need for teamwork and effective group functioning is common in creative environment. Depending on the enterprise, teams may be fixed for each project, or staff may join different teams depending on the nature of the project. Staff may join different teams in order to promote a new perspective and encourage employees to utilize their work capabilities and interpersonal skills (Andriopoulos & Dawson, 2010). Employees need to be encouraged to work and communicate effectively. Implementation is successful when teams work harmoniously, communicate well and have common goals (Lesáková, 2009).

Promoting behaviours that support speed and urgency is important for quick translating ideas into innovations. After the initial experimentation stage, which is a key in generating creative outputs, decisions need to be made quickly. Norms like speed, a sense of urgency and commitment to achieving deadlines (even if teams need to work long hours to achieve their goals), are also important. It seems that creativeness and the wiliness to discover and to deliver something new and novel drive people to excel and redefines „acceptable“ working hours.

Promoting flexibility and adaptability in the workplace is a key factor in supporting implementation. The constructive confrontation in the creative process requires from staff to be open minded and flexible in their thinking. Changing the status quo and the way in which things can be done in a different way, is important for generating new solutions. Employees need to be perpetually challenged; this requires from employees strong characters that can constantly deal with change and cope with the inevitable conflict.

Sustaining a sense of autonomy in the workplace is also important in promoting implementation in the work setting (Tushman & O'Reilly, 2002). Individuals need to be autonomous and take actions without being asked to do so. This does not only promote the generation of new ideas, but also the quick implementation of valuable concepts.

5. Conclusion

The concept of organizational culture is one of the widely researched management topics. Culture plays an important role in supporting the creative process, because it can promote or hinder innovation-enhancing behavioural norms.

Innovation-enhancing behavioural norms refer to the socially created expectations that guide the acceptance of attitudes and behaviour in the work setting. There is a variety of norms that promote consistently creativity and innovation in organizational settings. Main of these norms were discussed in the article (promoting behaviour which supports idea generating, continuous learning, encouraging risk taking behaviour, supporting a culture that tolerates mistakes and handles them effectively, promoting change in the work setting, handling a conflict effectively).

Though creativity is important, commercial reality requires implementation; ideas need to be turned into innovations that will positively influence the corporate profit. In order to encourage action, several norms are important. The main norms are: an emphasis on teamwork and effective group functioning, a focus on speed and urgency, a need for flexibility and adaptability and a sense of autonomy.

Many examples confirm that the building of an innovative culture requires creating an environment of faith and trust, in which good ideas have a chance to become great products. Truly innovative companies maintain creativity and innovation as a key corporate priority. Rather than focusing on safe ready-made solutions, visionary managers see and continuously support the world of discovery.

Organizational culture, which helps to emphasize and reward values and norms that support the generation and implementation of new ideas, is considered central to development of creative and innovative work setting. Such a system encourages everyone in enterprise to develop original and useful proposals and promotes innovative ways of solving problems and finding solutions.

Literature:

Andriopoulos, C., & Dawson, P. (2010). *Managing Change and Innovation*. London: SAGE Publications Ltd.

Berchicci, L. (2009). *Innovating for Sustainability*. London: MPG Books Ltd.

Bessant, J., & Tidd, J. (2009). *Innovation and entrepreneurship*. Chichester: John Wiley and Sons, Ltd.

Frappaolo, C. (2006). *Knowledge Management*. Chichester: Capstone Publishing Ltd.

Kanter, R. M. (2002). *Creating the culture for innovation*. In Hesselbein, F., Goldsmith, M., Somerville I.: *Leading for Innovation and Organizing for Results*. San Francisco: Jossey-Bass.

Lesáková, Ľ. et al. (2009). *Innovative Management in the Knowledge-based Economy*. Banská Bystrica: Faculty of Economics, Matej Bel University.

Martins, E. C., & Terblanche, F. (2003). Building organizational culture that simulates creativity and innovation. In *European Journal of Innovation Management*, 6 (1), p. 64-74.

Schein, E. H. (1991). *Organizational Culture and Leadership*. 2nd Edition. San Francisco: Jossey-Bass.

Tushman, M. L., & O'Reilly, C. (2002). *Winning through Innovation: A Practical Guide to Leading Organizational Change and Renewal*. In Harvard Business School Press.

Van Maanen, J. (1977). *Organizational Careers: Some New Perspectives*. New York: John Wiley Ltd.

Walmsley, B. (2009). *Managing Change*. Skills for success. London: Hodder Education Hachette Livre Company.

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THE RELATIONSHIP BETWEEN CUSTOMER STRATEGY AND COMPANY PERFORMANCE

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Abstract: *The aim of the paper is to explore the relationship between different types of customer relationship management strategies and business performance. The three CRM categories investigated in our paper are ICT-focused customer relationship management strategy, interaction-focused customer relationship management strategy, and integration-focused customer relationship management strategy. The effect of the three explored customer management strategies is examined in relation to the business results. The sample for empirical research consisted of 165 companies. Combination of questionnaire and individual interviews was used to explore the customer strategy focus dimensions and their pros and contras in business results. To indicate the effect of customer relationship management strategy on business results, several hypotheses are tested. Each of the three examined strategies emphasize different component of CRM. As a result, these three different focus alternatives of customer management strategies can be considered as complementary.*

Keywords: *Customer relationship management strategy, ICT, interaction, integration.*

JEL classification: M30

Grant affiliation: *The paper was elaborated in the framework of Research project VEGA 1/0224/15 "Consumer behaviour and individual consumption in the periods of unemployment and relative deprivation: implications for decision taking bodies and business".*

1. Introduction

Customers are a strategic asset and a source of competitive advantage (Porter, 1985) and therefore development of strategies for managing customers is crucial in boosting business growth (Chakravarthy, et al., 2003).

At the beginning of customer relationship management (CRM) formation (1991-2000) computer science played a key role, with customers viewed as an "object" that can be managed better with the help of information and communication technology (ICT) (Nonaka, 1995), like intranet, data warehouses, document management systems or decision support systems (Gummesson, 2003).

In the expansion stage (since 2000), there was a shift in CRM from “IT as databases” to “IT as an interaction and communication technology”. Repositioning CRM as an “IT concept” to CRM as a “social process” emphasized the feedback aspects of customer management (Brown & Duguid, 2001). This approach views customers as a key resource that can create competitive advantage (Vera & Crossan, 2003).

Our paper explores different approaches to the focus in customer relationships management and how it affects the company performance. The principle goal of our research is to determine the impact of the effects that different focus in CRM exhibits on company performance. The CRM in our paper is understood as a business approach that seeks to create, develop and enhance relationships with carefully targeted customers in order to improve customer value and corporate profitability (Payne, 2006). It is a set of processes to bring benefits to both customers and a company (McDonald, 2002). This definition comprises three aspects: a) developing, and enhancing relationships with customers, b) improving customer value, and c) improving corporate profitability. Equal emphasis is put on satisfying customers and enhancing their value. By adopting an integration focus to the CRM, it emphasizes the importance of mutual learning (Brown & Duguid, 2001).

Several literature sources (Schiuma, 2012) examined the relationship between customer management and performance outcomes (Zack, et al., 2009). In contrast to the general views assuming that CRM automatically generates better business performance, we only postulate that customer management could facilitate and simplify managing customers. We do not automatically presume performance gains. The question of CRM impact on company performance is the core of our research.

Three types of focus in CRM are examined in our research: ICT focus, interaction focus, and integration focus. Each of the three named focus categories highlights a different component of CRM. Although these three focus types differ from each other, they could complement each other in managing the different aspects of customers and providing company benefits.

Companies following ICT-focused customer management install technical infrastructure and rely on technology to deliver CM. Such organizations expect that processing customer data automatically leads to customer management. However, providing technological tools is only a passive approach based on the idea that customer relationships will be managed when the technology is used (Nonaka, 1995). However, information technology can only inspire, but cannot create effective customer management, because this requires all three elements of a triad: technology – people – processes (Liao & Wu, 2009).

In an interaction-focused CM, the company focuses on collecting feedback through recording and storing it in data warehouses in order to be accessible and reused in the future by the employees. Firms that use an interaction-focused customer management, view it as a tool to retain their existing customers and to develop an organizational memory (Ziglidopoulos & Schreven, S., 2009) They store documents in repositories. However, in all the repositories only the explicit component of customers’ feedback information can be recorded. The interaction-focused CM does not manage tacit knowledge, because tacit dimensions of knowledge are present only in social interactions. The aspects of tacit knowledge transfer are managed in the integration-focused CM.

Integration-focused CM is guided by the idea that mutual learning is crucial to managing relationships with customers. Integration-focused approach puts an emphasis on mutual learning that arises from mutual interaction between customers and company employees. It enables to leverage customer knowledge and improve company' processes (Peterson & Wilson, 1992). By creating appropriate strategy and culture this integration focus stimulates the process of innovation and creating new knowledge (Christopher, et al., 2002).

Each of the three examined categories emphasize different component of CRM. Technology is a prerequisite for interaction and interaction facilitates integration with effects of mutual learning. Learning processes become more effective when technological infrastructure facilitates communication and transfer of information between company employees and customers (Bhatt, 2001). As a result, these three management approaches can be considered as complementary.

2. Goals and Methods

The goal of our paper is to explore the effects of different focus in customer relationships management on company performance. The principle question we raise in the research is focused on the determination of the effects generated by different CRM focus on business performance. To come to the conclusion, we formulate relevant research hypotheses.

Several authors (Vera & Crossan, 2003) document that a mere focus on technology is not sufficient to manage customers and thus create performance benefits. ICT-focused CRM focuses primarily on delivering infrastructure and does not develop systems and processes to enhance customer relationships.

Companies that emphasize interaction, create repositories in order to store, manage and distribute the customer feedback information. By emphasis put on collecting feedback information they can benefit from accumulated experience / expertise and save the costs. However, because of fast environmental changes, new competitors and fast business development, these benefits may be only short-term. Relying on exploitation of feedback information may weaken innovation and offensive customer strategies. Mere reliance on feedback information prevents companies frequently from product and process innovations that are necessary for growth. Therefore we state following hypotheses:

H1: Interaction-focused CRM will result in a higher level of performance than ICT-focused CRM.

H2: Integration focused CRM will result in a higher level of performance than Interaction-focused CRM.

By providing suitable conditions and processes, the integration-focused management facilitates the creation of customer value and provides performance benefits (Cronin, et al., 2000). Generating performance effects through customer integration into value-chain process of a company is resource intensive and also time-intensive process.

Performance measure used in the research was explored based on several indicators identifying processes ensuring long-term success and survival of a company such as ability to respond to

external changes, innovativeness of a company, relationships to customers and employees, ability to identify new opportunities. Multi-indicators measures were generated on the constructs used in the research (ICT-focused CRM: 3 items, interaction-focused CRM: 3 items, integration-focused CRM: 4 items, performance measure: 5 items). 7-point scale was used to assess the particular indicators, with mean values calculated for every construct.

The indicators used for the questionnaire are given in Table 1.

TAB. 1: Constructs and their indicators

Constructs and indicators
ICT-focused CRM
Implementing ICT-focused CRM in our firm is important for managing customers
Developing ICT-focused CRM is responsibility of specially appointed managers
Our firm uses technology as a principal instrument for managing customers
Interaction-focused CRM
Our firm emphasizes recording and collecting customers' feedback in data repositories
Our firm stores customer feedback for future use
Storing feedback information prevents our firm from losses when employees leave
Integration-focused CRM
Our firm emphasizes involving customers into value chain as an instrument of mutual learning
Customers share their experience with the employees in the firm
Systems in place to motivate integration of customers into a value chain of a company
Customers participate in critical decisions made by the company
Long-term performance (Company processes ensuring long-term success)
Our company is able to respond quickly to changes in customer needs
Our company has a potential of fast innovations
Our company is able continuously to identify new business opportunities
Customers of our company are loyal
Our company has a potential to ensure future performance

Source: own composition

The sample for empirical research consisted of 105 companies from 5 industry sectors: machinery (43), electronics (18), food production (23), wood processing (11) and construction (10). Regarding the focus of CRM, 18 companies employ ICT-focused customer relationship management, 63 companies follow interaction-focused customer relationship management and 24 companies adopt integration-focused customer relationship management. Companies were asked to assess every indicator (see Table 1) on a 1-7 point scale (1=strongly disagree, 7=strongly agree). Following, semi-structured interviews were conducted with eight companies. The interviews covered a range of questions clarifying the concept of CRM in the company.

3. Results and Discussion

The hypotheses were tested using one-way ANOVA. Testing for the significance was done by using F-tests. Hypothesis one proposes that Interaction-focused customer relationship management is associated with higher performance than customer management focused on ICT. An analysis of variance (ANOVA) was undertaken to test the difference. The one-way ANOVA results show that the mean performance for ICT-focused management is significantly less than the mean performance for interaction-focused customer management ($M (ICTCM) = 3,81 < M (IntCM) = 4,88$; $F = 14,801$; $p < 0,001$). Hypothesis H1 is supported due to the fact that an interaction CRM will result in a higher level of performance than ICT-focused customer relationship management.

In hypothesis two a positive difference in performance level was hypothesized between the effects of integration-focused customer relationship management and interaction-focused customer relationship management. The result of the ANOVA confirmed this suggested difference, indicating that the mean performance level associated with integration-focused CRM is significantly higher than the mean performance level of interaction-focused CRM ($M ItgCM = 5,22 > M IntCM = 4,88$; $F = 34,084$; $p < 0,001$). Thus the H2 is supported.

The variance testing revealed that both the hypotheses were supported. In other words, the difference-relationships associated with the focus of customer management were statistically significant.

Interviews with firms supported these findings and suggested that the role of ICT in the performance gains is limited. ICT focus in customer management is unlikely to provide any significant performance benefits. Facilitating the information flow was mentioned by companies as a main benefit of ICT-focused management, however with no direct influence on performance. These findings are in line also with other research studies (Payne, 2006). It was also reported that mere reliance on usage of feedback information weakens the ability to generate new ideas and create new solutions.

Companies following interaction-focused CRM mentioned in interviews such performance benefits as openness in access to databases, fast response or retaining of important knowledge. These are, however, no long-term performance aspects. Both the questionnaire data and interviews suggest that interaction-focused CRM has only limited effects on long-term performance.

The original contribution of our research rests in investigation of differences in customer relationship management focus. We apply a structured approach distinguishing among three distinct types of customer relationship management approach. Most of existing studies do not explore the particular forms and focus of CRM approach and consider it as a whole. Results from our analysis reveal the hierarchy of different CRM focus and indicate that integration-focused CRM has a higher positive effect on long-term performance than both interaction-focused CRM and ICT-focused CRM.

4. Conclusion

The original contribution of the paper rests in examining the impact of different focus types in CRM on company performance. We found that integration-focused customer relationships management

supports long-term benefits better than ICT-focused and interaction-focused customer relationship management.

The analysis of the three different focus alternatives in managing the customers confirmed their hierarchical nature. On the lowest-level is the IT-focused CRM, delivering IT tools in the company with the expectation that it will facilitate and foster information flow. On the middle-level, the interaction-focused CRM encourages feedback information from customers to be codified and stored in the databases. At the highest level, the integration-focused CRM encourages mutual learning and knowledge exchange between customers and a company.

The hierarchical effect was found also in the impact of the three customer focus strategies on company performance. The ICT-focused CRM has lowest documented effect on performance, the interaction-focused CRM has moderate positive effect on performance, and the integration-focused CRM has a highest positive effect on performance. It was documented in the literature (Aydin & Ceylan, 2009) that mere focus on technology and storing information does not generate long-term benefits. The interviews with managers indicated that adoption of interaction-focused CRM does not support the creativity. Relying on IT tools can reduce the face-to-face social interactions necessary for mutual learning and creativity. As a result, the lower level customer relationship management styles produce weaker performance benefits.

Today, the need to find new ways to competitive advantage is driven by changes demanding more customer-oriented perspective. Competitive advantage can be gained by utilizing knowledge of customers' expectations, preferences and behaviour. This involves creating an ongoing dialogue with customers and exploiting benefits from integration customers in the value-chain of a company (Gummesson, 2002). Systematic attention to the customer relationship management can help companies to achieve competitive advantage through mutual learning, which is one of the resources for growth and competitiveness in fast changing world.

Literature:

Aydin, B. & Ceylan, A. (2009). *The Role of Organizational Culture on Effectiveness*. *Ekonomie a Management*, 12(3), p. 33-49.

Brown, J. & Duguid, P. (2001). *Knowledge and Organization: A Social-Practice Perspective*. *Organization Science*. 12(2), 198-213.

Cronin, J., Brady, M. & Hult, T. (2000). Assessing the Effects of Quality, Value and Customer Satisfaction on Consumer Behavioral Intentions in Service Environments. *Journal of Retailing*, 76(2), p. 193-218.

Gummesson, E. (2002). Relationship marketing in the new economy. *Journal of Relationship Marketing*., 1(1), p. 37-57.

Gummesson, E. (2003). *Total Relationship Marketing*. Oxford: Butterworth-Heinemann.

Chakravarthy, B., Doz, Y., Devaki, R. & McEvily, S. (2003). *Knowledge management and competitive advantage*. In: E. M. a. L. M.A., ed. *Handbook of Organizational Learning and Knowledge Management*. London: Blackwell Publishing, p. 305-323.

Christopher, M., Payne, A. & Ballantyne, D. (2002). *Relationship Marketing: Creating Stakeholder Value*. Oxford: Butterworth-Heinemann.

Liao, S.-h. & Wu, C.-c. (2009). The Relationship among Knowledge Management, Organizational Learning, and Organizational Performance. *International Journal of Business and Management*, 4(4).

McDonald, M. (2002). *Marketing Plans: Howto prepare them, how to use them*. Oxford: Butterworth-Heinemann.

Nonaka, I. (1995). *The knowledge creating company*. *Harward Business Review*, 69(November-December), p. 96-104.

Payne, A. (2006). *Handbook of CRM: Achieving Excellence in Customer Management*. Oxford: Butterworth-Heinemann. Elsevier.

Peterson, R. & Wilson, W. (1992). Measuring customer satisfaction: fact and artefact. *Journal of the Academy of Marketing Science*, 20(1), p. 76-89.

Porter, M. (1985). *The Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.

Schiuma, G. (2012). Managing knowledge for business performance improvement. *Journal of Knowledge Management*, 16(4), p. 515-522.

Vera, D. & Crossan, M. (2003). *Organizational learning and knowledge management: Toward an integrative framework*. In: *Handbook of organizational learning and knowledge management*. London: Blackwell Pbl., p. 221-239.

Zack, M., McKeen, J. & Singh, S. (2009). Knowledge management and organizational performance: an exploratory analysis. *Journal of Knowledge Management*, 13(6), p. 392-409.

Ziglidopoulos, S. & Schreven, S. (2009). *Strategic Foresight and the role of organizational memory*. In: L. Costanzo & MacKay, R., ed. *Handbook of Research on Strategy and Foresight*. Cheltenham: Edward Elgar Publishing, p. 435-453.

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KNOWLEDGE MANAGEMENT MODELS IN CREATING, SHARING, USING AND MANAGING THE KNOWLEDGE AND INFORMATION OF A COMPANY

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Abstract: *The article investigates the use of Knowledge Management models in creating, sharing, using and managing knowledge and information in a company. The current trend is to implement various knowledge management models in order to attain effective knowledge management. The sole implementation of such models, however, is no guarantee of effectivity in knowledge management. The main objective of this article is to analyze various models of knowledge management and identify their main pros. This is done with a focus on the company context, so that results clearly state which model would be suitable for a particular type of company. The analysis is not limited to only one group of models, but deals both with object-based models and community-based models in order to identify pros that are common to both types of models.*

Keywords: *Knowledge management, object-based models, community-based models, information management.*

JEL classification: D82, D83

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1. Introduction

Knowledge management is currently a very topical issue, especially with the advent of the modern concept of business management, where knowledge management is considered to be one of the basic prerequisites for successful business management. In addition, today's market environment is rather turbulent. It is thus clear that effective management of all processes that affect the formation of knowledge, its sharing and effective use is highly relevant (Hitka & Balážová, 2015; Lin, McDonough, Yang, & Wang, 2017).

In the last few years it is possible to observe tendency to approach knowledge management systematically. Company representatives are trying to set up a system for management of all activities that can affect the value of knowledge in the company. Mladková (2015) states that knowledge management must be implemented systematically, but not all companies do it this way. A

common mistake that companies often make in the process of system enforcement is the attempt to enforce methods and techniques which are not suitable for their conditions or are in conflict with other subsystems of the management system already in use. Mládková further states that one of the options of systematic approach to knowledge management is to establish a link between knowledge activities and organizational structure of the company (since organizational structure functions as a skeleton of the company and determines the options a company has). Currently it is also common to use various tools of mathematical statistics in order to implement a suitable system of knowledge management that would respect individual functioning of each company (Cui, 2017; Khadivar, Mirshahi, & Aghababaei, 2017).

The main aim of this article is to analyze selected knowledge management models and identify their major advantages in such a way it is clear which models are suitable for management of knowledge in specific companies.

2. Analysis of selected models of knowledge management

Models of knowledge management can be divided into two groups: Object-based models of knowledge management and Community-based models of knowledge management. The main difference between these types of models stems from the concept of knowledge itself (Baskerville & Dulipovici, 2006). Object-based models understand knowledge as a fixed object which is immediately after its acquisition transformed into a knowledge system, so that it can be used in the future, which ensures the top-down system check.

In community-based models, knowledge is ever-evolving and goes through the bottom-up system and cannot be checked from the leadership positions. A team of experts (“community”) constantly revises knowledge, analyzes it and maps its development in real time. Some authors underline the important link between a learning organization and community-based models (King, Chung, & Haney, 2008).

2.1. Hierarchical model

Hierarchical model is one of object-based models because it is focused mainly on general processes and does not target detailed social interactions in the process of acquisition and formation of knowledge (Prat, 2006). Prat defined eight basic factors, which significantly influence the effectiveness of knowledge management of a given company: Organizational strategy, Organizational structure, Organizational culture, Leadership style, HR management, Individual characteristics and specific behavior of employees, Information technologies and methods, External environment of the company.

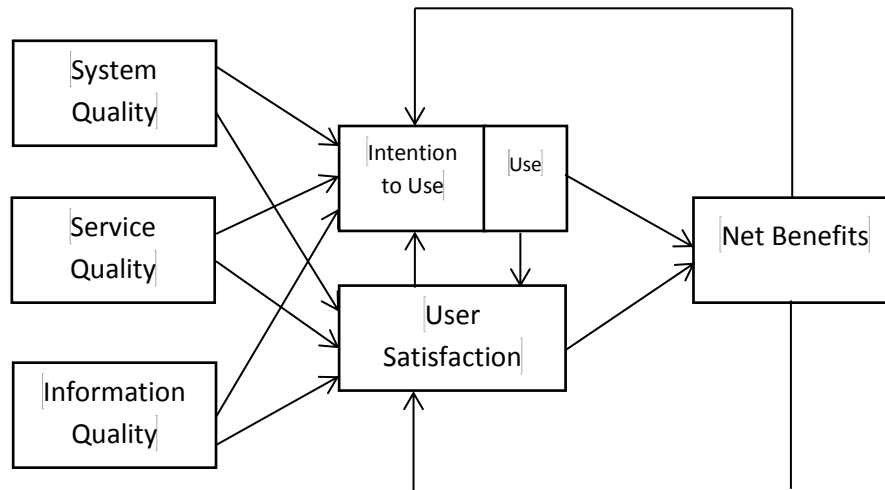
Prat has been criticized for the absence of social interactions in the acquisitions and formation of knowledge.

2.2. Success model

This model was developed by DeLone & McLean (2003) as a theoretical basis for company information system, thanks to which it is a good example of community-based models. Management of knowledge is understood as management of processes: acquisition, storage, transfer and the use of knowledge in a company. DeLone and McLean heed in the design of this model a considerable

emphasis on the user community. Knowledge management achieves its aims through two main factors: whether the user sees and perceives the benefits of using knowledge management system (the intent of the user to use the system), and whether the user is satisfied with the help which the system brings.

FIG. 1: Success Model



Source: DeLone & McLean 2003

These two factors are closely related and influence each other in time. It is evident that if employee does not see the benefits, he or she cannot be satisfied with the system. If an employee uses the system but is not satisfied with the benefits, his or her discontent spreads around the company and the average intent of other users can reduce. These two factors are influenced by three basic elements: System Quality, Service Quality, Information Quality.

2.3. Holistic model

Yang, Zheng, & Viere (2009) draw on theory of individual learning. Knowledge is understood as a unit consisting of three parts: Conceptual knowledge, Perceptual knowledge, Affectual knowledge.

Authors assume that the construction of knowledge is composed of three parts, each of which consists of three layers. These layers are: Foundation, Manifestation, Orientation.

TAB. 1: Holistic model

Knowledge Layers	Knowledge Facets		
	Conceptual	Perceptual	Affectual
Foundation	Axioms, assumptions, beliefs, premises	Habits, social norms, traditions, routines	Values, aspirations, ideals, visions
Manifestation	Theoris, principles, models, conceptual frameworks, formulas, propositions, concepts,	Skills, techniques, tacit understandings, know.how, intuition, mental models	Attitudes, motivations, interests, perceived needs, ethics, moral standards

	assertions		
Orientation	Rationality	Reality	Liberty

Source: Yang, Zheng, & Viere 2009

The basis of the model is the knowledge layer, which comprises all assumptions which are known to be valid but it is not necessary to ask questions such as “What do I know before learning?”. The manifestation layer includes all knowledge which results from learning: "What have I learned?" And finally, the orientation layer defines the direction and trends that encourage learning. These are internal driving forces for learning. “Why am I learning what I am learning?”

Authors assume that organizational knowledge (like individual knowledge) has three components, which are linked to components of individual knowledge via organizational processes. This model links together organizational knowledge and the process of individual learning, and thus differs significantly from other models of knowledge management.

Additionally, this model assumes that in the case when personal vision and values do not align with the vision of the company, such a situation creates here an obstacle to the fulfillment of knowledge management. It can therefore be stated that Holistic Model offers a comprehensive theoretical context from both organizational and individual perspective thanks to its coherence and relation to the process of individual learning.

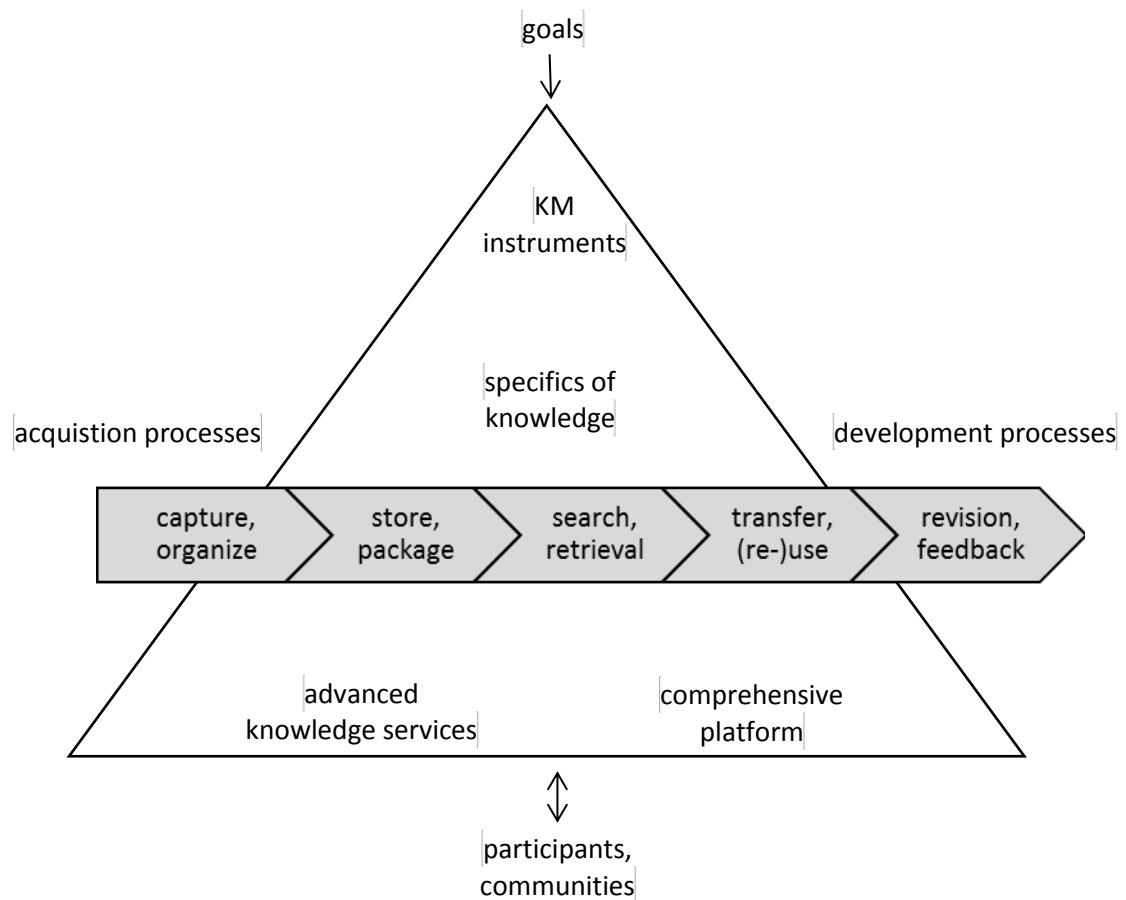
2.4. Knowledge Cycle Model

Knowledge Cycle Model investigates all organizational processes aimed at knowledge. Knowledge Cycle Model assumes that all such processes have an established sequence and this sequence creates a cycle. Knowledge flows in the company in a constant cycle.

Rowley (2001) defined six processes contained in the Knowledge Cycle model: Knowledge creation and construction, Knowledge articulation, Knowledge repository updating, Knowledge access, Knowledge use, Knowledge revision.

Maier & Hädrich (2006a) consider five processes of Knowledge Cycle Model, namely: capture knowledge, store knowledge, search - retrieval of knowledge, transfer – use knowledge, revision – update knowledge.

FIG. 2: Characteristics of Knowledge Management System



Source: Maier & Hädrich 2006b

Based on the above mentioned modifications of Knowledge Cycle Model it is evident that authors identify different number of processes in the knowledge management system. On the other hand, it is also clear that although each author defines a different number of processes, their basic principle is the same, i.e. guarantee chronological sequence of the processes, which together create a cycle.

3. Conclusion

The main aim of this article is to analyze selected knowledge management models and identify their major advantages in such a way it is clear which models are suitable for management of knowledge in specific companies. As the analysis shows, there are two basic types of knowledge management systems. Object-based models of knowledge management (demonstrated through the Hierarchical model) do not take into account the social interactions in the use of the knowledge management system; it focuses purely on procedural part, i.e. the identification of the different processes within a business in which knowledge is developed, transferred or preserved. On the other hand, community-based models put emphasis on user satisfaction and individual perception of the benefits brought by knowledge management system.

One aspect, of course, have all the models of knowledge management in common, and that is a benefit to the business. Knowledge management enables all businesses to take advantage of their own strengths and expertise for the benefit of customers, shareholders and employees – most of the enterprises have all the necessary knowledge in itself.

Literature:

Baskerville, R., & Dulipovici, A. (2006). *The theoretical foundations of knowledge management*. Knowledge Management Research & Practice, 4(2), 83-105. doi:10.1057/palgrave.kmrp.8500090.

Cui, X. (2017). *In- and extra-role knowledge sharing among information technology professionals: The five-factor model perspective*. International Journal of Information Management, 37(5), 380-389. doi:https://doi.org/10.1016/j.ijinfomgt.2017.04.011.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9-30. doi: 10.1080/07421222.2003.11045748.

Hitka, M., & Balážová, Ž. (2015). *The impact of age, education and seniority on motivation of employees*. Business: Theory & Practice, 16(1), 113-120. doi:10.3846/btp.2015.431.

Khadivar, A., Mirshahi, S., & Aghababaei, S. (2017). Modeling and knowledge acquisition processes using case-based inference. *Iranian Journal of Information Processing Management*, 32(2), 467-490.

King, W. R., Chung, T. R., & Haney, M. H. (2008). *Knowledge Management and Organizational Learning*. *Omega*, 36(2), 167-172. doi:http://dx.doi.org/10.1016/j.omega.2006.07.004.

Lin, H. E., McDonough, E. F., Yang, J., & Wang, C. H. (2017). Aligning Knowledge Assets for Exploitation, Exploration, and Ambidexterity: A Study of Companies in High-Tech Parks in China. *Journal of Product Innovation Management*, 34(2), 122-140. doi:10.1111/jpim.12337.

Maier, R., Hädrich, T. (2006a). *Centralized Versus Peer-to-Peer Knowledge Management Systems*. Knowledge and Process Management 13(1), 47-61.

Maier, R., Hädrich, T. (2006b). *Knowledge Management Systems*. In Schwartz, D. G. (Ed.). Encyclopedia of Knowledge Management, (pp. 442-450). Hershey: Idea Group.

Mládková, L. (2015). *A Systemic Approach to Knowledge Management: Evidence From the Czech Republic*. Paper presented at the 16th European Conference on Knowledge Management (EKCM), 556-562. Udine: Italy.

Prat, N (2006). *A Hierarchical Model for Knowledge Management*. In Schwartz, D. G. (Ed.). Encyclopedia of Knowledge Management, (pp. 211-220). Hershey: Idea Group.

Rowley, J. (2001). Knowledge management in pursuit of learning: the Learning with Knowledge Cycle. *Journal of Information Science*, 27(4), 227-237. doi:10.1177/016555150102700406.

Yang, B., Zheng, W., & Viere, C. (2009). *Holistic Views of Knowledge Management Models. Advances in Developing Human Resources*. 11(3), 273-289. doi:10.1177/1523422309338584.

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MODERN THEORY IN ONLINE MARKETING AND READINESS OF CZECH TRAVEL AGENCIES TO USE THE APPROPRIATE TOOLS

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Abstract: *The development of opportunities to promote and communicate on the Internet is moving forward very fast. One of the latest theories in which companies can find inspiration is See-Think-Do-Care theory of Avinash Kaushik, who applies online marketing according to the intent of a potential client. This theory recommends to focus on online marketing as investment in the future as well and to build the relationship with the customer based on his interests. Due to the nature of tourism and travel, this theory seems to be ideally applicable in this field - information, pictures or videos from destinations are welcome by travellers and by many other people. Are the travel agencies in the Czech Republic ready to use this strategy? Do they have experience and knowledge to use the tools for the intent cluster See and Think? The goal of this paper is to find out to what extent the travel agencies use tools suitable for these two intent clusters and whether they take into account different phases of buying process or not. As a method a questionnaire survey on a sample of travel agencies and data analysis were used.*

Keywords: *Travel agency, Online marketing, Purchase decision-making process.*

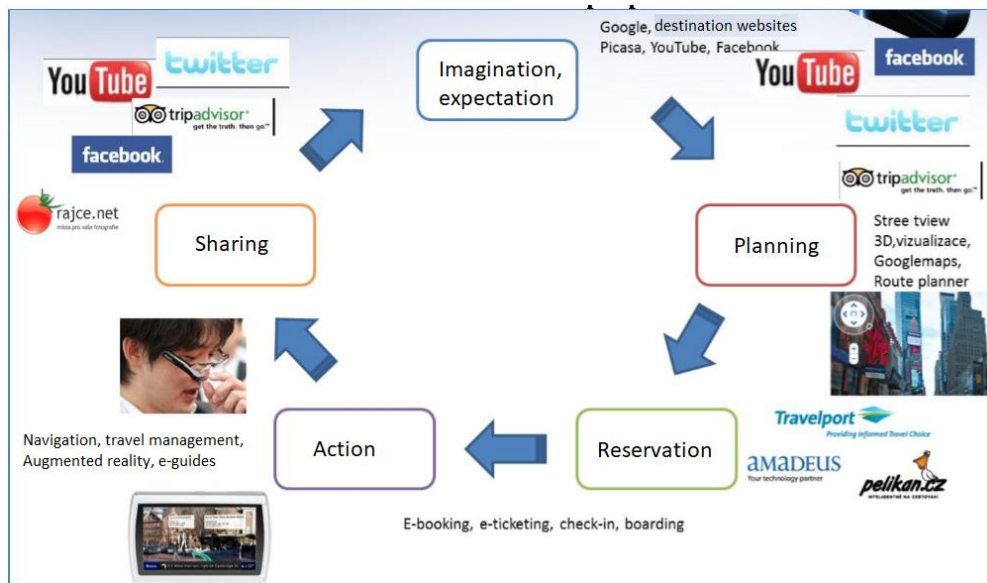
JEL classification: *M31, Z310, L83*

Grant affiliation: *n/a.*

1. Introduction and goal of the paper

The current situation on the travel agencies market in the Czech Republic is very competitive. There are three big companies; around 20 middle-sized and the rest of 881 travel agencies are the small ones. The market is slowly getting consolidated, as the number of travel agencies decreased from 1092 in 2012 (TTG). Total expenditures in Internet Advertising in 2016 was 19,7 bio. CZK (SPIR), travel agencies spend in the high season up to 22 mio. CZK a month in online advertising (AdMonitorOLA). In the Czech Republic there is 88.4 % Internet penetration (Internet live stats). According to NetMonitor in May 2017 (SPIR) there were 7,38 mio users over 10 years old. The online environment is in travelling ubiquitous, as shown on the picture.

PICT. 1: Online environment and its influence on the travelers



Source: own translation based on Vaško (2012)

This paper works with the new framework of Avinash Kaushik called See - Think - Do - Care and examines the readiness of the travel agencies to use the appropriate tools for the first two segments. The assumption is that the travel agencies are most concentrated on the sales increase (Do group) and do not work with the tools for entertaining and educating the qualified audience (See group) and increasing brand awareness (Think group).

2. Consumer purchasing behavior

The decision-making process in tourism and travel sector is very complicated due to the following characteristics: 1. non-tangible product in return to the money spent, 2. the amount of expenditures in comparison to regular earnings, 3. expenditure involves savings and usually it requires a long-term planning, 4. it is not a spontaneous or capricious purchase (Wahab, Crampon, Rothfield, 1976). One of the latest model introduced by Moutinho in 1987 consist of the complete process: Pre-decision and decision process, Postpurchase evaluation and Future decision making. Also other authors of the models usually consider influence of the marketing communication and involve the external stimuli into their models (Chon, Pizam, Mansfeld, 2012).

3. See - Think - Do - Care Framework

According to all the mentioned theories, the company starts working with a potential customer at the moment of potential purchase when the customer is in need, has a problem or intent to buy. How about the potential clients who enjoy travelling, but due to some reasons are not ready to travel yet? The new framework See-Think-Do-Care (STDC) was introduced in 2015 by Avinash Kaushik and is

primarily applicable to the online marketing strategies. The author proposes to divide the market into segments depending on their intent. According to this theory, there are four different audience intent clusters.

The cluster SEE is the largest addressable qualified audience. This segment is interested in travelling but at the moment has no commercial intent, they want to entertain, educate, get something useful or relax. To this intent the style and content of the communication has to be adjusted. The most appropriate channels for this target group can be the social media, YouTube, search engine optimization (SEO), blogs, vlogs, games or display ads. The second cluster is called THINK, which is the largest addressable qualified audience with some commercial intent. They already know that one day they will need something and they will buy. The appropriate channels are for instance: display ads, SEO, own website or mobile marketing. The next channel, social media is still appropriate, however, less than in the See group. The third cluster called DO is the largest addressable qualified audience that has strong commercial intent. Potential customers in this group have already made their mind and decided to buy a particular product, the only question is "where?". The marketing should ensure that your company will be the one. The appropriate channels are display ads, text search, SEO, own website, e-mailing, applications or chat. The fourth cluster called CARE represents the loyal customers that made at least two purchases in the company and they are the potential brand advocates. This group is important to be in contact with. For this audience e-mail marketing is suitable, promotional codes or extra services (free parking, personal advisor, VIP bonus,...).

4. Methodology

A questionnaire was used as a research method. Eleven questions were divided into these areas: 1. used online tools, their importance measured on the scale 0 - 5 (0 means no importance, 5 means highest importance) and the goal of usage, 2. targeting of online campaign and 3. identification (number of clients and online budget). The tools and goals were split according the customer intent cluster. Some tools are appropriate for more groups depending on the content. The next table indicates the tools typical for the particular intent clusters.

TAB. 1: Online tools according to the intent cluster

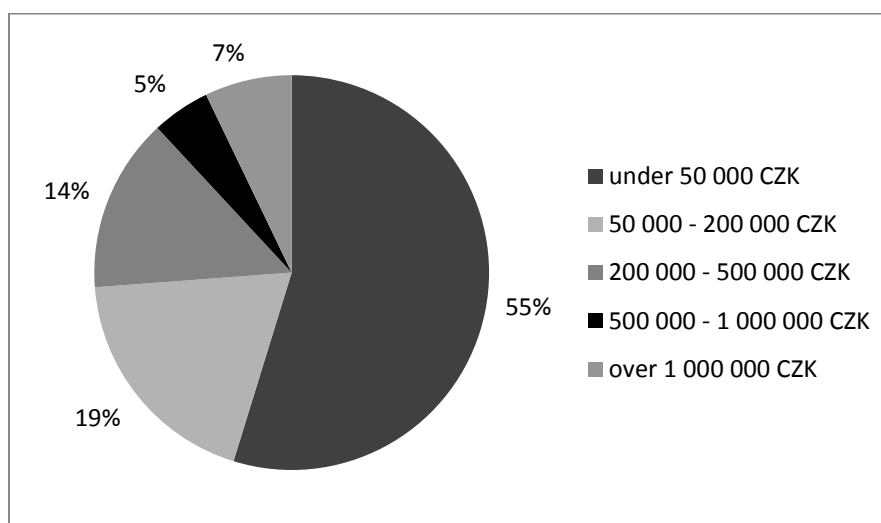
	Tools	Goals
SEE	video, social media, YouTube, blogs and bloggers, vlogs, games	differentiation from competitors, entertain and inform
THINK	website, banners, SEO, mobile marketing	Product information, Brand awareness
DO	website, remarketing, PPC, SEO, QR code, online catalogue	Sales increase
CARE	newsletter, email marketing, social media, applications, SMS marketing	Contact with the customer

Source: own preparation based on experience, consultations and articles stated in the list of references

5. Results of the research

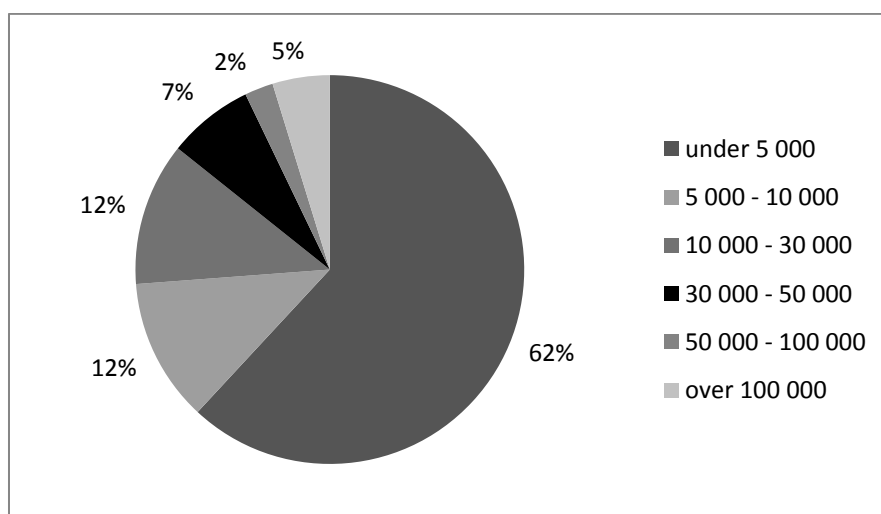
The research was conducted from November 2016 till July 2017. Around 600 travel agencies were contacted, most of them with an individual e-mail. The response rate was around 7 %, as there are only 42 respondents. However, the results are even so very conclusive. The structure is shown on the following graphs.

Graph 1: Respondent structure regarding online marketing budget



Source: Data analysis

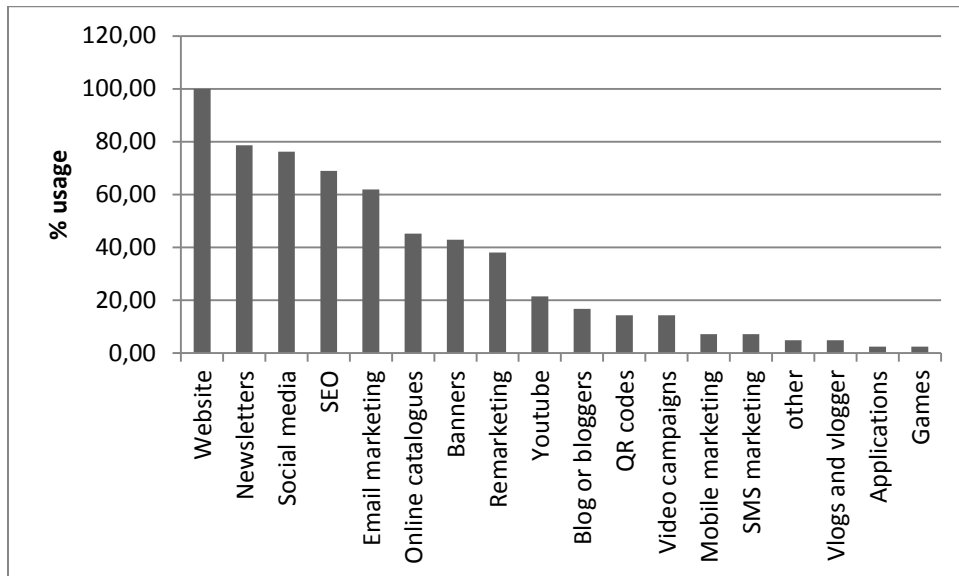
Graph 2: Respondent structure regarding number of clients per year



Source: Data analysis

The main outcomes are shown in the following graphs.

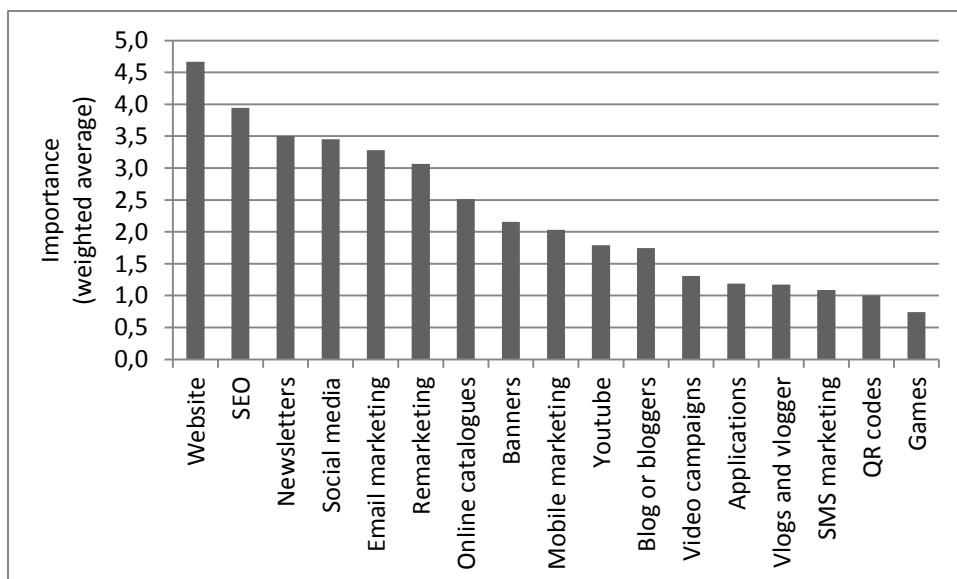
Graph 3: Usage of the particular online tools



Source: Data analysis

The most commonly used tools are website, newsletters and social media. The graph 3 shows that the tools for intent cluster Think (website, banners, SEO, mobile marketing) are more often used than the ones for intent cluster See (video, social media, YouTube, blogs and bloggers, vlogs, games).

Graph 4: Average importance of the particular tools



Source: Data analysis

The most important tools are website (weighted average 4,7 from 0 - 5), SEO (3,9), newsletters and social media (3,5). On the other hand, as the least important tools are seen: YouTube, blogs and bloggers, video campaigns, applications, vlogs, SMS marketing, QR codes, games (importance 2 - 0,7 in order from the highest number). All tools suitable for the intent cluster See (except Social media) are of minor importance. Tools suitable for intent cluster Think are seen as slightly more important (e.g. banners 2,2). The tools suitable for groups See and Think are also very often the unknown ones: blogs (17 % of respondents do not know) mobile marketing, games, QR codes (around 26 %), vlogs (45 %).

The dominant goal of online marketing is sales increase (measured by number of clicks), followed by brand awareness and product information. How tools suitable for the group with intent See and Think are used is shown in the next table.

TAB. 2: Online tools and the pursued goals

Tool, channel	Goal Nr. 1	Goal Nr. 2	Goal Nr. 3
website	product information	sales increase	customer contact
social media	customer contact	brand awareness	product information, sales increase
SEO	sales increase	brand awareness	
banners	brand awareness	sales increase	
YouTube	brand awareness	differentiation from competitors	customer contact
video	brand awareness	differentiation from competitors	product information
blogs and bloggers	brand awareness	differentiation from competitors	product information

Source: Data analysis

The research shows that 61 % of respondents target with online marketing a specific market segment, mostly aged 31 - 55 years, which corresponds with the segment using services of travel agencies. Only half of the travel agencies differentiate the customer according to the purchase stage.

6. Discussion and conclusion

The research confirmed the assumption that the travel agencies will be strongly concentrated on sales, however the tools oriented to entertainment or education of the large qualified audience will be of little importance. Only social media are seen as important communication channel and even here on the third place there is the goal of product information and sales increase. The other tools

like blogging, video marketing, vlogging or games are of a minor significance. There is also a very low acquaintance of these tools. The brand awareness is the second preferred goal and the tool suitable for intent cluster Think are used more often than the ones for See.

There are definitely obstacles in realizing STDC framework as well - tourism industry is a low-margin sector, the products (especially sun and beach product) are very similar to each other, they are easy to copy by a competitor or to be compared by the customer, price remains an important factor. However, an effective adoption of this model could increase the competitive advantage of the company.

This paper opens a complex topic and leaves many questions unanswered. Content analysis or in depth interviews with the managers of the travel agencies could be helpful. The findings might be very useful and might explain if any other models are used by the travel agencies. Additional research could show what the perception of the concept is, what the obstacles are and what the potential benefits are.

Literature:

Chon, K. S., Pizam, A., Mansfeld, Y. (2012). *Consumer Behavior in Travel and Tourism*. Oxford, England: Routledge. p. 18 - 28.

Internet Users by Country. (2016). *Internet Live Stats*. Retrieved June 30, 2017 from <http://www.internetlivestats.com/internet-users-by-country/>.

Kaushik, A. (2015). *See, Think, Do, Care Winning Combo: Content +Marketing +Measurement!*. Retrieved June 30, 2017, from <https://www.kaushik.net/avinash/see-think-do-care-win-content-marketing-measurement/>.

Kutiš, M. (2016). *Chytrá marketingová strategie a STDC*. [Video]. Retrieved June 30, 2017, from <https://www.krutis.com/chytra-marketingova-strategie-stdc-video-kurz/>.

Mountinho, L. (1987). *Consumer behavior in Tourism*. In *European Journal of Marketing*. 21(10), p. 5-44.

Počet cestovních kanceláří se v ČR dlouhodobě snižuje. (2017). *TTG*. Retrieved June 30, 2017, from <http://www.ttg.cz/pocet-cestovnich-kancelari-se-v-cr-dlouhodobě-snižuje/>.

SPIR. (2017). *AdMonitoring*. Retrieved June 30, 2017 from <http://admonitoring.mediaresearch.cz/AdMonitorOLA/public/list>.

SPIR. (2017). *Inzertní výkony*. Retrieved June 30, 2017 from <http://www.inzertnivykony.cz/en>.

SPIR. (2017). *Výzkum návštěvnosti internetu v České Republice*. Retrieved June 30, 2017 from <http://www.netmonitor.cz/verejne-vystupy>.

Vaško, M. (2012). Information and communication technologies and their actual role in Tourism. In Holešinská, A. 3. *Mezinárodní kolokvium o cestovním ruchu*. p. 81 - 90. Brno, Masarykova Universita

Wahab, S., Crampon, L.G., Rothfield, L.M. (1976). *Tourism Marketing*. London, England: Tourism International Press.

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CONSCIOUS LEADERSHIP AS ONE OF THE PILLARS OF CONSCIOUS BUSINESS

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Abstract: *In response to many problems our global society faces nowadays, the concepts of conscious capitalism and conscious business emerged. In this paper the basic pillars of conscious business are explained with particular attention being paid to the concept of conscious leadership. The main goal of the paper is to introduce the basic principles of conscious business and conscious leadership to academia and to discuss how to implement them into university education and spread them into businesses around the world. This is a culturally sensitive intention. Even though the principles of conscious business can be considered generally agreeable, they have to be presented with a very careful consideration of every concrete national culture and history.*

Keywords: *Conscious business, conscious leadership.*

JEL classification: L21

Grant affiliation: IGA_FF_2017_011 *Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

Our global society faces many serious problems nowadays but on the other hand, many great ideas and practices which can help to improve the situation arise. In this paper the ideas of conscious business are presented. Conscious business is based on four basic tenets of the philosophy of conscious capitalism. These four tenets which represent the main principles of conscious business are as follows: higher purpose, stakeholder integration, conscious leadership, and conscious culture and management (Mackey, J., & Sisodia, R., 2014). The principle of conscious leadership is particularly important because conscious business starts with conscious leaders (Sisodia, R., Sheth, J. & Wolfe, D. B., 2014). Thus conscious leadership is a pillar of conscious business.

One global problem is that too many businesses generate financial wealth at the expense of social, cultural, environmental, intellectual, physical, and spiritual wellbeing. They are extracting value rather than creating value. It is because generations of economists and entrepreneurs have been influenced by Milton Friedman's theories. It is well known that Milton Friedman was a firm proponent of free markets and individual choice. Friedman (1962) argued that the only concern of a

company is to increase profits for itself and for its shareholders. His (Friedman, 2007) statement “There is only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.”, is widely quoted.

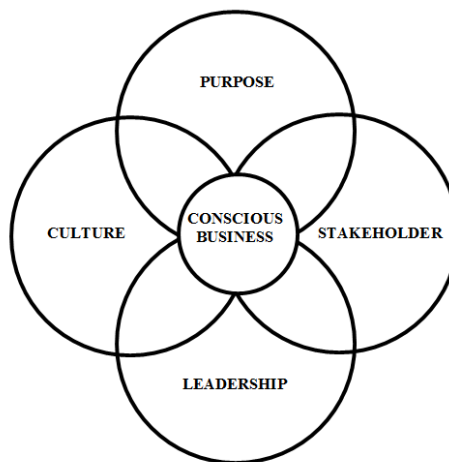
On the other hand doing business consciously means doing it with a spectrum of positive effects. It does not mean that profit does not matter. Profit matters because only profitable business is able to fulfill its mission and to support wellbeing of all its stakeholders. John Mackey (Friedman, M., Mackey, J. & Rodgers, T. J., 2005) explained this approach using a metaphor: Just as people cannot live without eating, so a business cannot live without profits. But most people don't live to eat, and neither must businesses live just to make profits. And it has been proved (Sisodia, R., Sheth, J. & Wolfe, D. B., 2014) that conscious companies financially overperform the others. As conscious business is beneficial for both our society and our environment, we believe that its principles should be widely spread. Universities can play an important role in doing so. Below, the four principles of conscious business are explained in more detail.

2. The principles of conscious business

To be conscious means to fully understand all short term as well as long term consequences of our actions. It means that we are aware of the impacts we have on the world. Conscious business is a business that is conscious of its higher purpose, it impacts on the world, and the relationships with its stakeholders. It empowers people and engages their best contribution in service of a higher sense of purpose and makes a net positive impact on the world. Conscious businesses have a simple but powerful belief that the right actions undertaken for the right reason lead to positive outcomes.

Mackey and Sisodia (2014) introduced the philosophy of conscious capitalism which forms the basis for conscious business. Conscious capitalism is a complex philosophy of doing business. However, to be applicable in common business practice the ideas are structured into four tenets which create the principles for conscious business. In their book Mackey and Sisodia (2014) call these principles Higher purpose and core values, Stakeholder integration, Conscious leadership, and Conscious culture and management. On the website of Conscious Capitalism (2017) which is a non-profit organization dedicated to cultivating the theory and practice of conscious capitalism the names of the principles are simplified and their relations to conscious business is shown as follows (picture 1):

PICT. 1: Four principles of conscious business



2.1. Higher purpose

Purpose is the reason a business exists. Purpose activates and motivates people. Conscious businesses can answer questions such as: Why does our business exist? Why does it need to exist? What core values inspire our business and unite all stakeholders? Higher purpose goes beyond only generating profit.

2.2. Stakeholder integration

Stakeholders are all the entities that impact or are impacted by a business. Conscious businesses realize that each of their stakeholders is important. Every business and its stakeholders are mutually interconnected and the business has to create value for all of them. The stakeholders share the core values of the business.

2.3. Conscious culture and management

Conscious culture and management evolve from the purpose and are based on the core values of the company. Conscious cultures share traits such as trust, accountability, transparency, integrity, loyalty, egalitarianism, fairness, personal growth, and love and care. Approach to management is consistent with the culture and is based on decentralization, empowerment and collaboration.

2.4. Conscious leadership

Mackey and Sisodia (2014) consider conscious leadership to be probably the most important tenet of conscious capitalism. As it is well-known that the leaders are a model for their coworkers and their behavior strongly influences the culture of the company we argue that conscious leadership is one of the main pillars of conscious business.

Conscious leaders are motivated primarily by the higher purpose of the business and by creating value for all stakeholders. Their way of thinking is very sophisticated and complex thus their view of the business is complex and holistic. They understand the complex relationships between all stakeholders. Conscious leaders usually have high analytical intelligence (measured by traditional IQ tests). But they also have high emotional intelligence, spiritual intelligence and systems intelligence.

The nature and importance of emotional intelligence are well-known especially thanks to Daniel Goleman's work (for example his (Goleman, 1995) famous book Emotional Intelligence). Systems intelligence is not stressed out much in managerial literature. It represents the ability to see the system as a whole and to understand its inner interconnections. Thanks to this ability the leaders are able to anticipate the immediate as well as long-term consequences of actions. They are also able to see the roots not only symptoms of problems. Thanks to high systems intelligence the leaders devise fundamental solutions instead of applying only symptomatic fixes.

The concept of spiritual intelligence is almost never mentioned in western managerial literature. According to Zohar and Marshall (2004, p.3) "Spiritual intelligence is the intelligence with which we access our deepest meanings, values, purposes, and higher motivations. It is ... our moral intelligence, giving us an innate ability to distinguish right from wrong. It is the intelligence with which we exercise goodness, truth, beauty, and compassion in our lives." High spiritual intelligence helps the leaders to navigate their organizations towards their higher purpose and to sense when things are beginning go off track.

Conscious leaders seek to make a positive impact on the world through their business. They help people to derive meaning from their work and grow. They always make transparent and consistent moral choices. According to Mackey and Sisodia (2014, pp. 193-194) "Conscious leadership is fully human leadership; it integrates the masculine and feminine, the heart and the mind, the spirit and the soul. It integrates Western systems and efficiency with Eastern wisdom and effectiveness."

Even though the idea and practice of conscious business are already quite widespread, particularly in the U.S., many businesses around the world behave in accordance with Friedman's theories and some myths about conscious leadership arise. Young (2017) defines five most common myths about conscious leadership and rejects them.

The first myth says that conscious leaders concerns only about encouragement and appreciation and do not hold their coworkers accountable to performance metrics and results. But in fact, conscious leaders know that part of caring about the people is helping them be their best.

According to the second myth, conscious leadership is only aimed at building great workplace cultures. Conscious leaders do build great cultures because a culture nurtured by a conscious leader is one of the main reasons top talents stay and embrace a shared purpose. But conscious leaders are looking to create positive change in the world, not just in their workplaces.

The third myth lies in the belief that conscious leadership is only for those with an executive title. However, conscious leaders can be found at all levels of an organization. Conscious leaders across the organization create an environment where employees are motivated to do their best for all stakeholders.

The fourth myth saying that conscious leaders do not care about making money is probably the most common one. Some think that conscious leaders are focused on achieving social impact at the expense of hitting financial goals. Some mistake conscious business for philanthropy or for environmental sustainability. While these pursuits are often part of it, the aim is to create value and enable widespread prosperity. Conscious leaders know that making money equates to making a

greater impact on the world which includes creating new jobs, innovating, serving others, courageously addressing an issue that needs solving, etc.

The fifth myth lies in the idea that conscious leadership is about how you lead others. Conscious leadership is about leading others, but much more about leading ourselves. It demands authenticity, consideration of different points of view, and the ability to filter information and make decisions that consider all stakeholders. Conscious leaders are learners and take responsibility for their actions. They see mistakes as great opportunities to grow.

Conscious leaders lead by example, they inspire, motivate, and mentor their coworkers. Mackey and Sisodia (2014) call them missionary leaders who are inspired by Mahatma Gandhi's idea that we must be the change we wish to see in the world. At the same time, conscious leaders are strong individuals with outstanding moral courage. They are willing and able to withstand scrutiny and criticism from people who view business in terms of traditional "profit-making only".

3. Discussion

Why do we think it is good to practice conscious business and to teach students its principles? As already mentioned, our society faces many problems. If we examine their causes, we realize that too often they arise from our belief that the more money and material things we have the happier we are. It is quite understandable as economic education has been based on the principles of the utility and profit maximization for decades. In the Central European countries which have started market economy in the 1990s these ideas are the only younger people are taught, whereas the older generation has in general the word capitalism connected with negative associations. This is also the reason why in this paper the phrase conscious capitalism is used carefully and the phrase conscious business or conscious company is used instead. The authors and ambassadors of conscious capitalism/conscious business Mackey and Sisodia are not very consistent while using these terms. But as pointed out above when speaking about conscious capitalism and business we have to be very culturally sensitive. It is not only the problem of the word capitalism. The ambassadors of conscious business are mainly from the U.S. In this culture it is normal to use words which can be perceived as too strong and too emotional in other cultures. It is, for example, the word love, endearment, passion, heroic spirit, to mention at least some of them. On the other hand, we believe that practicing conscious business can alleviate global problems and finding ways how to spread its principles is worth it.

One problem is the burnout of our society. Han (2015) refers to our society as an achievement society, where success is judged by the prestige of the work position people have, and the volume of consumption that they can afford thanks to their income. This competition and pursuit of success cause an individual to be hyperactive, which is logically followed by stress, fatigue, and burnout. According to Han this burnout concerns the whole society as it became tired of its own way of life. Other problems caused by our belief in utility maximization are presented by Brown. Brown (2017) warns that free market economics is not guiding us toward meaningful lives in a healthy world, nor is it offering solutions to our concerns about wars, income inequality and environmental threats. She suggests reprogramming of our economic system to develop well-performing economies that provide meaningful life for everyone while protecting the planet.

The ideas of conscious business and Buddhist economics may sound too idealistic or even utopic. However, Sisodia, Sheth, and Wolfe (2014) created measurements of conscious companies and on their basis assessed many businesses. They argue that companies that do not understand capitalism's evolving identity toward conscious capitalism could have a short life expectancy because the forces driving this development are unstoppable. They provide a list of companies which are conscious. Companies such as Amazon, FedEx, Google, Starbucks, Honda, Ikea, or Unilever are on the list to mention at least few examples. Another question is if there are also conscious customers who are willing to choose conscious company and to pay often prices above the average. Currid-Halkett (2017) analyzes changing patterns of consumption of rich Americans. They tend to consume goods that are good for both their health as well as for the environment. Also education is of great importance to them. Ding and Xu (2015) describe a similar trend in China, where the wealthy are becoming low-key, healthy, traditional and more intellectual. So some optimism regarding the demand-side can be also expressed.

4. Conclusion

The purpose of this paper is twofold. First, it presents the principles of conscious business and its pillar conscious leadership as emerging trends of business and management. Second, it suggests that these concepts should be parts of university curricula alongside the traditional courses of macroeconomics, microeconomics, business, management, decision making, etc. Although the beliefs in profit and utility maximization are still prevalent among people, there are groups and individuals who have been starting to question them. These people realize the broader consequences of the traditional Friedmanite free market supported competition and individualism. It is proved that competitive and individualist approach towards business and consumption can be beneficial for an individual in the short term, however, it is harmful in the long term for both an individual and the society not to mention the environment.

There is a broad discussion about these new concepts. Both the traditional free market based on Friedman's ideas and conscious market, which is actually also free, however, based on different principles with conscious businesses on the supply-side and conscious consumers on the demand-side definitely have their pros and cons. As universities enjoy academic freedom and attract thinking people we believe they are the ideal environment where to spread the ideas of conscious business. The students can compare them with the more traditional ideas and choose which way is the best.

Literature:

Brown, C. (2017). *Buddhist Economics*. An Enlightened Approach to the Dismal Science. New York, NY: Bloomsbury Press.

Conscious Capitalism (2017). Retrieved from <https://www.consciouscapitalism.org/>.

Currid-Halkett, E. (2017) *The Sum of Small Things: A Theory of the Aspirational Class*. Princeton, NJ: Princeton University Press.

- Ding, M. & Xu, J. (2015) *The Chinese Way*. London: Routledge.
- Friedman, M. (1962). *Capitalism and Freedom*. Chicago, IL: University of Chicago Press.
- Friedman, M. (2007). *The Social Responsibility of Business Is to Increase Its Profits*. In W.C. Zimmerli, M. Holzinger & K. Richter (Eds.), *Corporate Ethics and Corporate Governance*. Berlin, Heidelberg: Springer.
- Friedman, M., Mackey, J. & Rodgers, T. J. (2005). *Rethinking the Social Responsibility of Business*. A Reason Debate. Retrieved from <http://reason.com/archives/2005/10/01/rethinking-the-social-responsibility/singlepage>.
- Goleman, D. P. (1995). *Emotional intelligence: Why it can matter more than IQ for character, health and lifelong achievement*. New York, NY: Bantam Books.
- Han, B. C. (2015). *The Burnout Society*. Stanford, CA: Stanford University Press.
- Mackey, J., & Sisodia, R. (2014). *Conscious capitalism, with a new preface by the authors: Liberating the heroic spirit of business*. Brighton, MA: Harvard Business Review Press.
- Sisodia, R., Sheth, J. & Wolfe, D.B. (2014). *Firms of Endearment: How World-Class Companies Profit from Passion and Purpose*. 2nd ed. Upper Saddle River, NJ: Pearson Education.
- Young, T. (2017). *5 Myths about Conscious Leadership*. Conscious Company, July/August 2017, 4-16.
- Zohar, D., & Marshall, I. (2004). *Spiritual capital: Wealth we can live by*. Oakland, CA: Berrett-Koehler Publishers.

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YOGA, HEALTH AND BUSINESS

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Abstract: *Yoga is rooted in ancient Indian philosophy as mostly a spiritual practice for self-development. Early in the twentieth century the application of yoga as a therapeutic intervention began and emphasized physical postures, breathing practices and meditation. Beneficial effects on different mental and physical conditions were gradually improved. In the same time yoga gained a great popularity in Western society as a route to well-being in general and alongside it became a subject of business with all aspects of the free market economics. The market analytics call this segment of the free market as LOHAS - Lifestyles of Health and Sustainability, where the consumers are relatively upscale and well-educated people, which are seeking for ecological and healthy products. But it still works on the principles of the free market economics, which are against some of yoga principles such a non-possessiveness or contentment. As a solution of this contradiction we present the newly formulated principles of Buddhist economics by Clair Brown - quality of life, sustainability and shared prosperity, which will be discussed in detail.*

Keywords: *Yoga, health, free market, Buddhist economics.*

JEL classification: I39

Grant affiliation:

1. Introduction

In the several past decades we can observe a yoga boom worldwide. Yoga is introduced in many ways – as a spiritual practice, as a special type of exercise, as a means for reaching psychological and physical well-being or as a therapeutic method for many different conditions. At the same time yoga becomes a subject of business – there are offered many yoga courses, yoga holidays, courses for yoga teachers, yoga books and journals, yoga clothes and tools, natural cosmetics or healthy foods for yoga practitioners. It is seemingly in stark contrast to the basic yoga tradition and moral principles such non-possessiveness or contentment. Could the Buddhist economy be a solution to these contradictions? We will try to answer this question in this paper.

2. Yoga in the past and now

Yoga is rooted in ancient Indian philosophy as mostly a spiritual practice for self-development. The Indian epic Bhagavadgita is considered as the most important authority in yoga. In the book Krishna explains to Arjuna the meaning of yoga as a deliverance from contact with pain and sorrow.

The first book, which systemizes the yoga theory, is Yoga Sutras by Patanjali from about 200 BC. It presents eight stages of yoga: 1. yama – universal moral commandments, 2. niyama - self purification by discipline, 3. asana -posture, 4. pranayama - rhythmic control of the breath, 5. pratyahara – withdrawal of the senses, 6. dharana – concentration, 7. dhyana – meditation, 8. samadhi – a state of super-consciousness brought about by profound meditation, in which the individual aspirant becomes one with the Universal Spirit (Iyengar, 1982).

Another classic yoga book, Hatha Yoga Pradipika from the 15th century, is considered as a major treatise with practical guidelines. It presents 15 yoga asanas and deals more with postures, breathing, cleansing practices and control of energy. According to Iyengar “...it takes the practitioner from the culture of the body towards the sight of the self...” (Svatmarama, 1992).

Most contemporary yoga schools refer to these or other traditional yogic texts. But “...there are significant differences between the yoga of pre-modern India and present-day forms of Anglophone transnational yoga.” (Baier, 2011)

The so called Modern yoga started to develop during the 19th and early 20th centuries, when India was a British colony. As a part of the nationalistic physical culture movement the yoga exercises of traditional poses and breathings were mixed with gymnastics and modern physical training. That is probably one of the important factor, why the “asana-centred” or “body-centred” yoga has emerged (Singleton, 2010).

Nowadays three main branches of yoga can be distinguished: 1. modern postural yoga – the most popular and most secular form concentrated on physical practice; 2. denominational yoga – mostly in the neo-Hindu communities practicing yoga; 3. secularised variant of the denominational type – various national and international yoga associations (Baier, 2011).

The reason for popularity of Modern postural yoga in the developed industrial countries can be found in its multiple facets. This type of yoga can be perceived as a purely physical and health oriented exercise as well as a path to spiritual development. A qualitative research among yoga practitioners in Germany led by Verena Schnäbele revealed even a social function - the practitioners achieve a greater inner freedom and psychological distance from the internalised work ethic and are able to adjust better to working conditions as a result (Baier, 2011).

3. Yoga and health

Physiological, psychological and medical effects of yoga have been broadly explored. We can say that yoga research started in 1920s in India, where two Yoga institutes were founded – one in Santa Cruz near Bombay by Shri Yogendra and the second in Lonavla near Calcutta by Swami Kuvallyananda. Their research promoted yoga as a lifestyle, which would lead to physical, emotional and spiritual health and had an important influence on the development of Modern yoga.

After the World War II, with expansion of the pharmacotherapy, surgical methods and medical technologies, the yoga research was on the decline and only a small amount of papers were published. Alongside both the growing popularity of yoga in the West and increasing global healthcare burden especially on chronic diseases after 2000, the scientific interest in yoga started to rise again.

Over the past decades there has been an exponential increase in publications of yoga related research. The modern evidence-based medicine approach to yoga is focused on psycho-physiological therapeutic practices that include postures, movements, breathing and attention-based techniques, whose main goal is to optimize health, promote stress reduction and increase self-regulation (Schmalzl, Powers, & Henje Blom, 2015).

Therapeutic effects of yoga were proved on various psychological conditions including anxiety and depression, pain syndromes (back pain, headaches, arthritis), cardiovascular diseases (hypertension, coronary artery disease), autoimmune conditions (asthma, diabetes) and others (Field, 2011). Although the therapeutic effects of yoga are mostly small or moderate, the advantage is that there are no or minimal side effects.

We can deduce the importance assigned now to yoga and other alternative therapeutic methods from attention paid to them by National Institutes of Health (NIH). One of the institutes - the National Center for Complementary and Integrative Health - conducts and supports research and provides information about complementary health products and practices ("National Center for Complementary and Integrative Health," n.d.).

4. Yoga and business

According to 2012 National Health Interview Survey (NHIS) yoga is among the most popular mind and body practices used by adults in the USA. The reported data are indicative for a real yoga boom. Whereas the use of some complementary health approaches between 2002 and 2012 did not change significantly (e.g. dietary supplements, chiropractic manipulation, tai chi or meditation) or showed a small linear increase (e.g. homeopathy or acupuncture), the use of yoga nearly doubled from 5,1% in 2002 to 9,5% in 2012 (Jackson, 2015).

Another survey, from the Sports and Fitness Industry Association, cited by USA Today, says more than 24 million U.S. adults practiced yoga in 2013, up from 17 million in 2008. That makes it roughly as popular as golf (Painter, 2015).

The latest survey conducted by Yoga alliance and published in 2016 says that there are 36.7 million U.S. yoga practitioners, 72% of them are women and they all spend 16 billion dollars per year – 5.8 billion for yoga classes, 4.6 billion for yoga clothes (pants, shirts, etc.), 3.6 billion for yoga equipment (mats, straps, etc.) and 2.8 billion for yoga accessories (oils, crystals, jewelry, etc.). The four top reasons to start and to continue practicing yoga are flexibility, stress relief, general fitness and improvement of overall health. The spiritual development is a reason only for less than 25% of practitioners. Cost, convenience, quality of instruction, cleanliness and personality of teachers are the five most important yoga studio traits to practitioners. A very interesting piece of information is that a vast majority of yoga teachers communicate with their students using social media – Facebook

89%, Instagram 50%, Twitter 48% and YouTube 31%. Over 50% of practitioners report eating sustainable or local foods and living green compared to a third of American general population. 44% of yogis are using natural health and beauty products compared to 21% of Americans (Ipsos Public Affairs, 2016).

These statistics are in agreement with the market analysts, that identify yoga as part of a demographic known as LOHAS – Lifestyles of Health and Sustainability. A relatively upscale and well-educated people are drawn to sustainable living and ecological initiatives. They buy organic, natural or fair trade products, drive hybrid cars or ride bikes, build green homes and use complementary, alternative and preventive medicine. Another fact is that women make up more than 70% of yoga practitioners. They buy more books than men, read more, spend more on consumer goods and pay more attention to their health and appearance. That is the purpose why the advertisements in yoga journals and web pages target mostly this part of the market (Broad, 2012).

5. Yoga and Buddhist economics

Although there is a noticeable effort for sustainability in the yoga community, especially in the USA it still works on the principles of the free market economy – to maximize economic benefit by providing the most goods possible at the lowest cost. According to Clair Brown, the author of the new book *Buddhist economics*, free market economy says, that everyone can increase their happiness and life satisfaction by buying and consuming more (Brown, 2017).

That is clearly against some of yoga principles such as *aparigraha* (non-possessiveness or non-hoarding) and *santosa* (contentment). In Patanjali tradition, *aparigraha* means that one should not take things that he does not really need and not collect things that one does not require immediately. *Santosa* means contentment with given state, tranquility of mind without desire (Iyengar, 1982).

The Buddhist teaching could be seen similar: like the *santosa* and *aparigraha*, Buddha taught that all people suffer from their own mental states, with feelings of discontent that come from desiring more and more. That feeling does not arise from the inherent desirability of the objects that people are seeking but from their own mental illusions. We can end suffering by changing our states of mind, which translates into finding happiness through living a meaningful life (McLeod, 2017).

There are proposed three principles of Buddhist economics in Brown's book. The first principle is a quality of life – it means allowing us to live holistically once our basic needs are met. It is not based upon personal consumption, but on creating a system that works for everybody. The second principle is sustainability – we have to recognize, that we are interconnected with nature and we have to heal and protect it. Nature is not a commodity that we use to increase our consumption, but we have to care about it for future generations and for all species. The third principle is shared prosperity – it means less income inequality. There is an idea that people at the top are spending money on positional or status goods that do not help society at all. And because we are interdependent and interconnected with each other, it is fine to take the money that they spend on status goods and give it to the people who need it to buy the basics of life. Because when I suffer, you suffer too (Brown, 2017).

6. Discussion

The first two principles of Buddhist economics are in agreement with the traditional yoga principles of aparigraha and santosa and could be adopted by the yoga community to promote health not only for themselves but for the society and nature too. It can be realized by focusing not mainly to the body and exercise practices, but more to the attention-based and meditation techniques.

However, the third principle about sharing prosperity is more disputable. In a simplified way, it claims to take something from the rich people and give it to the poor people. The question is how much this process would be consensual. If not, it could be strongly against the yogic principle of non-stealing (asteya) and non-violence (ahimsa). These principles are intrinsic for Buddhist teaching too, and although the third principle of Buddhist economics could be rightful, it seems to be in contradiction to both yogic and Buddhist principles.

We agree more with the proposition that Buddhist economics means to conduct economic affairs in congruence with The Four Noble Truths and these principles should be used to guide economic actions in the whole life of an individual as well as an organization. Buddhist economics could be critical to the dominant system, such as light capitalism, but primarily it is about a circular striving for the realization of Buddhist economics (Lennerfors, 2015).

Similarly yoga could be consider as a path to a self-realization of the individual, which means living without pain and striving and in union of self and Universe.

Literature:

Baier, K. (2011). *Modern Yoga Research: Insights and Questions*. University of Vienna, 5(5), 1–20. Retrieved from https://www.academia.edu/1239028/Modern_Yoga_Research.

Broad, W. J. (2012). *The science of yoga*. New York, NY: Simon & Schuster.

Brown, C. (2017). *Buddhist economics*. New York, NY: Bloomsbury Press.

Field, T. (2011). *Yoga clinical research review*. *Complementary Therapies in Clinical Practice*, 17(1), 1–8. Retrieved from <http://doi.org/10.1016/j.ctcp.2010.09.007>.

Ipsos Public Affairs. (2016). *2016 Yoga in America Study*. Yoga Journal. Retrieved from [https://www.yogaalliance.org/Portals/0/2016 Yoga in America Study RESULTS.pdf](https://www.yogaalliance.org/Portals/0/2016%20Yoga%20in%20America%20Study%20RESULTS.pdf).

Iyengar, B. K. S. (1982). *Light on Yoga*. Yoga Dipika. Retrieved from <http://doi.org/10.1007/s13398-014-0173-7.2>.

Jackson, C. (2015). *Trends in the use of complementary health approaches among adults in the United States: new data*. *Holistic Nursing Practice*, 29(3), 178–9. Retrieved from <http://doi.org/10.1097/HNP.000000000000088>.

Lennerfors, T. T. (2015). *A Buddhist future for capitalism? Revising Buddhist economics for the era of light capitalism*. *Futures*, 68, 67–75. Retrieved from <http://doi.org/10.1016/j.futures.2014.09.003>.

McLeod, M. (2017). *The promise of Buddhist economics*. *Lion's Roar*, 2(1).

National Center for Complementary and Integrative Health. (n.d.). Retrieved July 30, 2017, from <https://nccih.nih.gov/>.

Painter, K. (2015, March 1). *Ancient practice of yoga now a growth industry*. *USA Today*. Retrieved from <https://www.usatoday.com/story/news/nation/2015/03/01/yoga-health-fitness-trends/23881391/>.

Schmalzl, L., Powers, C., & Henje Blom, E. (2015). *Neurophysiological and neurocognitive mechanisms underlying the effects of yoga-based practices: towards a comprehensive theoretical framework*. *Frontiers in Human Neuroscience*, 9(May), Article 235. Retrieved from <http://doi.org/10.3389/fnhum.2015.00235>.

Singleton, M. (2010). *Yoga Body: The Origins of Modern Posture Practice*. doi.org/10.1093/acprof:oso/9780195395358.001.0001.

Svatmarama, S. (1992). *Hatha yoga pradipika*. The Aquarian Press. Retrieved from <https://terebess.hu/english/HathaYogaPradipika2.pdf>.

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ANALYSIS OF COMPETITIVENESS OF THE SLOVAK BUSINESS ENVIRONMENT

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Abstract: *The business environment is the basis for long-term development of entrepreneurial activity of business entities, for sustainable increase of economic performance and living standards of population. The quality of business environment is mainly influenced by factors such as political stability, economic stability and growth, the level of legislation and the real enforcement of law. The quality of business environment can be quantified through indexes, reports and evaluations that use different inputs and changing variables for the purpose of evaluation. The business environment in the Slovak Republic in the current period shows a trend of slight stabilization, which corresponds to the positive assessment in all observed indices. The most serious threats to the competitiveness of the Slovak business environment are corruption, low law enforcement, outflow of qualified labor abroad, unstable and unclear tax and levy system (including tax increases) and underdeveloped infrastructure.*

Keywords: *Business environment, rating indices, quality, business competitiveness.*

JEL classification: L25, L 26, M13

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1. Introduction

Good business environment means good conditions for free enterprise – the maximum possible space for free enterprise and private initiative. The business environment is closely linked to the market economy and greatly affects the performance of the business sector. Discussions on solving Slovakia's economic and social problems have seen a positive shift in recent years. Even a few years ago they were dominated by themes such as, for example, expansive fiscal policy, high interest rates, unavailability of credit, etc. At present, one of the main economic policy priorities has been to create a favourable business environment for small and medium-sized enterprises (SMEs). It is therefore obvious that the quality of business environment is the decisive element for the development of business sphere in Slovakia. The aim of the submitted paper is to evaluate the current state and competitiveness of Slovak business environment on the basis of an analysis, and subsequently to

identify the common features in the positively and negatively evaluated areas of selected foreign indices.

2. Methodology and Data

The object of investigation in the paper was the assessment of Slovak business environment in the selected foreign indices and reports: Global Competitiveness Report (GCI), Doing Business (DB) and The Worldwide Governance Indicators (WGI). Achieving of the goal was ensured by scientific methods of secondary data analysis and subsequent synthesis into relevant findings. The method of comparison was used in the final evaluation of the common features of positive and negative quality assessments of the business environment in individual indices. We have developed a comprehensive database by systematization in order to prove the competitiveness of Slovak business environment within the foreign indices concerned and to identify weaknesses, the removal of which could help Slovakia achieve more positive assessments within the examined indices.

3. Literature review

The surrounding environment greatly affects the existence and performance of the business sector. If it is favourable, it supports business and vice versa (Juríčková, 2006). The business environment can be defined as a set of elements of subsystems, which are connected to a unified system in which the entrepreneurial activity of business entities is realized (Šubertová, 2014). A good business environment has multiplier effects on the strength of the economy and the achievement of economic growth (Kuzmišin, 2009) and is the basic prerequisite for business development, as well as increasing the country competitiveness on an international scale (Strčík & Meheš, 2012). It is broadly classified into two categories: micro-environment and macro-environment (Surbhi, 2015). The macro-environment is predefined from the point of view of the average enterprise and acts as a complex of vis major factors (Slávik, 2013). The macro-environment of the enterprise is influenced by whole range of social influences. These influences directly affect the micro-environment of the enterprise and thus influence the process of exchange between the target market and the enterprise (Stážovská et al., 2016). The term macro-environment defines the surroundings of an enterprise where entities are located that can influence or influence the activity of the enterprise by its activity (Slávik, 2013). It consists mainly of economic, political, social and cultural, technological and legal impacts of the company affecting the activities of enterprises. Professional literature refers to them as PESTLE factors (Political, Economic, Sociokultural, Legal and Environmental) (Debra et al., 2010). In short, it can be said that the business environment is formed by uncontrollable factors that surround the enterprise. (Brassington & Pettitt, 2003).

4. Assessment of business environment quality

Quality assessment of Slovak business environment is also part of a number of foreign indices and reports (Jenčíková, 2005; Šubertová, 2013).

Global Governance Indicators (WGI) aggregate indicators include country and quality assessment indicators, and are based on 340 variables from 32 different sources, including commercial information providers, internal company and household surveys, NGOs and government organizations. The survey is attended by 200 countries. Slovakia's "Responsibility and Freedom of Speech" indicator for the year 2015 (last known index rating) is 75.37%, but we interpret it as 75.37% of 200 countries, The remaining 24.63% of the countries were better in the rankings. The most positive values during the whole period under review in the WGI were achieved in the indicator of "Government Efficiency" by the Slovak economy. Also in the indicator of "Political stability and absence of violence", it reached 88.63%. This indicator is still the most positively rated for Slovakia among all indicators. Similar development in the period under review was also retained by the "Responsibility and Freedom of Speech" indicator. The indicators "Corruption Control" and "Legal State" had disturbing ratings. The lowest ratings among all indicators were achieved by the indicator that measures the functioning of the judicial system and compliance with the rules. The values of this indicator never exceeded 70%.

The ability of countries to ensure a high level of prosperity for their citizens is assessed by Global Competitiveness Report (GCI) acc. to The World Economic Forum (WEF), which monitors the functioning of public institutions, analyses economic policies and factors conducive to sustainable economic growth in the medium term. The result is a list of prosperous and less prosperous countries. Slovakia was ranked 65th in the overall rating in 2016 and in the group of 140 countries ranked in the first half, where are the most of EU countries. Slovakia has achieved the best evaluations in health indicators and primary education, financial market maturity, technological readiness, macroeconomic environment, market efficiency, which mainly concern the openness of the economy, its export orientation and direct foreign investments. According to the report, areas such as tax rates and regulations and ineffective government bureaucracy are negatively evaluated. Compared to the previous year, perceived corruption (including a high degree of clientelism in the country) has worsened, and even in the last year was ranked first among the problematic factors of business in Slovakia. The most often mentioned competitive disadvantages have also been departure of qualified labour, low law enforcement, low public confidence in the financial integrity of politicians (corruption) and lack of transparency in public procurement.

Doing Business is another of the quality assessment of the business environment at international level. The ranking is carried out by the World Bank, which for the year 2017 evaluated 190 countries. In total, it examines 10 parameters that can measure the level of regulation and bureaucracy throughout the lifecycle of small and medium-sized enterprises in order to provide objective assessments of the legal environment. Slovakia was on the 30th place in the overall assessment. The best assessed indicators were business start-ups, property registration and international trade, while the worst in the assessment were the indicators were the area of protection of minority investors, building permits, law enforcement and corruption.

5. Discussion and Conclusion

We have created a synthetic chart with positive and negative ratings in order to evaluate the state of the business environment. Since each index is mostly focused on different areas, it has been difficult to find common characteristics. We have grouped all of the evaluated areas into 5 groups according

to the most similar features and marked those that were ranked the most positively/most negative in the index.

TAB. 1: The most positive and most negative evaluated areas in the Slovak business environment in selected indices, 2016

	WGI	DB	GGI
POSITIVES	Legal area	x	x
	Fiscal area		
	Efficiency area	x	
	Corruption area		
	Area of Slovakia development		x
	WGI	DB	GGI
NEGATIVES	Legal area		x
	Fiscal area		
	Efficiency area	x	
	Corruption area	x	x
	Area of Slovakia development		

Source: Own processing acc. to WORLD ECONOMIC FORUM, 2016, THE WORLD BANK, 2016, 2017

Aggregate governance indicators of WGI interpret that because of political stability and absence of violence, Slovakia belongs to countries where minimum level of terrorism and violence prevail. However, according to the report, public power is heavily influenced by interest groups, therefore entrepreneurs have identified corruption control as the area that most businesses have failed in and rated it as the most critical area of the business environment.

Doing Business (DB) survey positively evaluates handling of all necessary activities for business start-ups and positively evaluates the registration of assets and the ease of company establishment, but also a well-built infrastructure. Entrepreneurs complaint most often about the withdrawal of qualified workforce, licensing talks, the problem they see in the complexity of obtaining a building permit. They complain about the low efficiency and corruption of state administration and the judiciary.

The most positive assessment in the Global Competitiveness Report (GGI) was reached by Slovakia in macroeconomics, public health and education system, on the other hand a large negative the report

points out is poor law enforcement, long period in dealing with trade disputes and the associated high costs. Highly criticized are, in particular, the area of judicial independence and corruption.

The analysis shows that the business environment in the Slovak Republic shows a moderate stabilization trend based on several positive measures of the Slovak government. Stabilization of conditions has resulted in simplification of business start-up conditions, access to financial resources, technological development, good level of infrastructure and active macroeconomic policy. The positive is a stable political situation. However, in the long run, alarming is the state of clientelism and corruption in the country, which is reported consistently across all indices within the negatively evaluated areas. Corruption constitutes the greatest obstacle which distorts the business environment in the country and also negatively affects the assessment of Slovakia's competitiveness in foreign indices.

It may be noted that high-quality business environment is essential for long-term development of the business activities of business entities, for sustainable increase in economic performance and living standards of Slovak inhabitants. Systematic implementation of positive changes in the business environment (e.g. elimination of corruption, clientelism and increase in law enforcement) can significantly accelerate economic development in the medium term, but also help to achieve a higher assessment within the competitive global economy of the indices.

Literature:

Brassington, F., & Pettitt, S. (2003). *Principles of Marketing*. London: Prentice Hall.

Debra, P., Yeates, D., & Cadle, J. (2010). *Business analysis : Second edition*. Swindon: British Informatics Society Limited, 2010. 272 p. Retrieved July 18, 2017, from <http://www.bcs.org/upload/pdf/business-analysis2.pdf>.

Jenčíková, Š. (2005). *Kritériá hodnotenia podnikateľského prostredia*. Košice: TUKE, EF. Retrieved July 19, 2017, from <http://www3.ekf.tuke.sk/work/Konferencia%20Herlany/zbornikCD/doc/Jencikova.pdf>.

Juričková, V. (2006). *Podnikateľské prostredie a firemné stratégie*. Bratislava: Ekonomický ústav Slovenskej akadémie vied, 2006, s. 172. ISBN 80-7144-154-6.

Kuzmišin, P. (2009). *Kvalita podnikateľského prostredia a jej vplyv na konkurencieschopnosť podniku*. Retrieved June 19, 2017, from <http://www.cjournal.cz/files/5.pdf>.

Slávik, Š. (2013). *Strategický manažment*. Bratislava: Sprint 2, 2013, 390 s. Economics.

Strážovská, H., Strážovská, L., Krošláková, M., & Bažó, L. (2016). *Malé a stredné podnikanie : zmeny obsahu ekonomických nástrojov*. Bratislava: Sprint 2.323 p.

Stričík, M., & Meheš, M. (2012). *Vybrané kapitoly z podnikania v malých a stredných podnikoch*. Ekonomická univerzita v Bratislave, Podnikovo-hospodárska fakulta v Košiciach. Bratislava: Ekonóm.

Surbhi, S. (2015). *Difference Between Micro (Internal) and Macro (External) Environment*. Retrieved June 19, 2017, from <http://keydifferences.com/difference-between-micro-internal-and-macro-external-environment.html>.

Šúbertová, E. (2014). *Podnikateľské prostredie v Európskej únii*. Bratislava: KARTPRINT. 126 p.

Šúbertová, E. (2013). *Hodnotenie podnikateľského prostredia na Slovensku: metódy, faktory, ukazovatele*. In Aktuální problémy teorie a praxe v ekonomice. Aktuální problémy teorie a praxe v ekonomice: sborník příspěvků z akce Týden teorie a praxe v ekonomice 2013: Pardubice, 4.-8.11.2013.

The World Bank. (2016). *Worldwide Governance Indicators*. Retrieved July 18, 2017, from <http://info.worldbank.org/governance/wgi/#home>.

The World Bank. (2017). *Doing Business 2017: Equal Opportunity for All*. Washington, DC: World Bank. Retrieved July 16, 2017, from <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf>.

World Economic Forum. (2017). *The Global Competitiveness Report 2016-2017*. Geneva 2016 Retrieved July 10, 2017, from <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>.

Worthington, I., & Britton, CH. (2006). *The Business Environment*. 5. edition. London: Copyright Licensing Agency Ltd, 2006. 527 p. Retrieved July 10, 2017, from https://books.google.sk/books?hl=sk&lr=&id=09uqSNHNT9EC&oi=fnd&pg=PT19&ots=thrZ_CfC3b&sig=k828mygzX8XnB0GN5boJLZf3hvc&redir_esc=y#v=onepage&q&f=false.

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SOCIAL ENTREPRENEURSHIP: ITS DEFINITION AND POSITION IN THE ECONOMIC ENVIRONMENT OF THE CZECH REPUBLIC

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Abstract: *Social entrepreneurship is one of trends in the current economy. These business activities include, on the one hand, the pursuit of profit and, on the other, fulfilling a certain public interest. The aim of this contribution is to introduce the concept of social entrepreneurship, to give its definition in economic theory and to outline the current state of social business in the Czech Republic. Applied research methods will include data collection and analysis. Conclusions will be provided by the own author's opinion regarding trends of social entrepreneurship and another research possibilities in this area.*

Keywords: Social entrepreneurship, responsibility, profit, disadvantaged people, legislation.

JEL classification: M14

Grant affiliation: *Work on this article was supported by the grant from Faculty of Arts of Palacký University of Olomouc, IGA_FF_2017_011 Continuities and Discontinuities of Economy and Management in the Past and Present 3.*

1. Introduction

Social business is a developing trend in the current economy. While the primary objective of classical enterprises is to maximize profits and market values, social business pursues an additional goal of increasing public, economic, social, cultural or environmental benefits. Social enterprises occupy an increasingly important place in the Czech economy. However they stand at the threshold of their work, and their actual asset is not known yet.

2. Social business in the context of other approaches to responsible business

Corporate social responsibility is, at first glance, a very similar concept, which is currently widely discussed. V. Kunz defines it as follows: "It is a behavior of firms that take into account the needs of their internal and external environments in order to generally contribute to the overall improvement

of society within and beyond their commercial operations“(Kunz, 2012). Although these activities are aimed at fulfilling the public interest through compliance with certain principles in the economic, social and environmental spheres, these principles comply also a strategy to strengthen the competitive advantage of the company in the market and to strengthen the relationship with customers.

The idea of social business is however much deeper. According to the Social Business Act, which is still under preparation, a social enterprise should use more than half its profit to further develop and meet beneficial goals, take account of the environment, use local labor, and what is important - employ thirty percent of disadvantaged workers (whether they are Long-term unemployed, disabled or members of minorities) (Czech chamber of commerce, 2016).

Profit, one of the most important economic concepts, is viewed from an ethical point of view by A. Putnova and P. Seknicka. These authors discuss the question of the adequacy of profits from the point of view of ethical and social criteria in close proportionality. The basis of the assessment of this proportionality becomes the correlation of the enterprise and the profit, with a detailed valuation of the ways in which profit is earned and distributed, in the realm of the particular corporate social responsibility (Putnova and Seknicka, 2007).

Returning to the topic of social business, we find that D. Hejlová defines it as "probably the highest degree of social responsibility" (Hejlova, 2015). It does not consist only in the communication or occasional activities of the employees, but in the combined approach of business and social responsibility within its foundation.

M. Dohnalová points out that social entrepreneurship is a relatively recent phenomenon that began to appear in the 1990s in the US and Western Europe (Dohnalova, 2013). The concept combines an economic point of view (permanent activity focused on the production of goods or services with the aim of making a profit), and the social perspective (the aim of benefiting a society or a specific group of people and promoting a sense of social responsibility).

Regarding business aims, A. Nicholls also argues that firms of this type should provide services and produce goods that the market is unable or unwilling to offer for some reason, create opportunities in the form of jobs and integrate socially excluded people (Nicholls, 2006).

The importance of social enterprises is then underlined by J. Procházka, who considers them to be important governmental partners in fulfilling public policies (Prochazka, 2016).

The European Commission, as one of the most important authorities of the European Union, defines the social enterprise as a provider of goods or services whose aim is to achieve social benefits rather than generate profits for its owners. A social enterprise can be beneficial in several areas, for example, in the field of employment integration for disabled or unemployed people, in providing publicly beneficial services (education, health care, etc.) and in the development of disadvantaged zones (European Commision).

In addition to social business and corporate social responsibility, I would like to introduce the so-called "conscious business" model, which is currently developing mainly in the US. According to J. McKay, who is a respected expert on the subject, conscious business conceals 4 basic pillars of business, namely: higher purpose, stakeholder integration, conscious leadership, and conscious

culture and management. Comparing this entrepreneurial philosophy with the social enterprise approach would be, in my view, a beneficial topic for further research (Schawbel, 2013).

3. The current situation of social entrepreneurship in the Czech Republic

According to the web mapping database, 213 social enterprises operate in the territory of the Czech Republic. This directory was created and updated on the basis of telephone surveys by TESSEA (a non-profit organization) and from the activities of social entrepreneurs who are registered in the database. It must be added that although not exact, it is at present the only source for this type of information. Table 1 shows their partition in individual regions.

TAB. 1: Number of social enterprises in individual regions of the Czech Republic

Region	Number of enterprises
Prague	52
Central Bohemian region	19
Pilsen region	8
Karlovy Vary region	3
Usti region	16
Liberec region	2
South Bohemian region	11
Vysocina region	11
Hradec Kralove region	12
Pardubice region	7
South Moravian region	21
Olomouc region	16
Zlin region	15
Moravian-Silesian region	20

Source: České sociální podnikání, own processing

The table shows that most social enterprises operate in the capital city of Prague, followed by the South Moravian, Moravian-Silesian and Central Bohemia regions, which are the regions with the highest population and the number of business entities in general. However, there are also interesting disproportions; for example, in the Olomouc and Pilsen regions, which are very similar in

the number of inhabitants and business entities, the Olomouc Region has 16 social enterprises and the Pilsen region 8).

If we look at the focus of social enterprises in the Czech Republic, we find that they operate mainly in the hospitality industry, accommodation, food production, decorative production, cleaning, textile services and mediation services.

One of the social enterprise principles is to employ disadvantaged groups of people. Table 2 associates the number of social enterprises with eight types of disadvantaged workers.

TAB. 2: Groups of disadvantaged workers in social enterprises

Type of disadvantage	Number of enterprises
People with disabilities	151
Young and young adults in difficult life situations	33
People without shelter and people after prison sentence	22
People with addictions	14
Ethnic minorities	33
Long-term unemployed	70
People caring for family members	30
Other	34

Source: České sociální podnikání, own processing

4. Topics of possible research in social business

Social entrepreneurship is still a new economic trend and offers a number of topics and issues for research. Many issues remain undetermined for the time being. One of them is the magnitude and impact of social business on the public economy and especially the scope of its influence in the inclusion of disadvantaged groups of people and hence in reducing unemployment.

Other topics of relevance to be researched relate the administration of these enterprises. This is because they require specific ways of management, namely regarding human resources (ways of recruiting and selecting employees, their remuneration) and forms of financing.

Social entrepreneurship opens new possibilities of evaluation regarding its access and influence within the Czech market. What seems inspiring from other countries could help us to develop these kinds of initiatives in our country.

5. Conclusions

Social business seems to me to be an appropriate option to complement the business environment. Because social enterprises are set up within a specific frame for profit-making, they have to respect a number of economic laws, be competitive and, as far as possible, financially healthy. Their parallel goal of meeting the public interest then brings added value to society and to the economy.

Czech Social entrepreneurship is at its beginnings. If appropriate conditions were created it could be sufficiently popularized and therefore further development would be expected. As a necessary step, I now consider as indispensable the inclusion of the social business model in Czech legislation and the creation of clear legal limits which enable an enterprise with the status of "social" to progress.

Literature:

Dohnalová, M. (2013). *Sociální ekonomika*. Wolters Kluwer.

Hejlová, D. (2015). *Public relations*. Praha: GradaPublishing.

Czech chamber of commerce. *Věcný záměr zákona o sociálním podnikání*. Retrieved April 20, 2017, from: <http://www.komora.cz/pro-podnikani/legislativa-a-normy/pripominkovani-legislativy/nove-materialy-k-pripominkam/75-16-vecny-zamer-zakona-o-socialnim-podnikani-t-20-4-2016.aspx>.

European Commission. *Social enterprises*. Retrieved April 4, 2017, from: http://ec.europa.eu/growth/sectors/social-economy/enterprises_cs.

Kunz, V. (2012). *Společenská odpovědnost firem*. Praha: Grada Publishing.

Nicholls, A. (2006). *Social Entrepreneurship*. Oxford.

Procházka, J. (2016). *Ekonomická demokracie*. Česká společnost pro zaměstnaneckou participaci.

Putnová, A., Seknička, P. (2007). *Etické řízení ve firmě*. Praha: Grada Publishing.

Schawbel, D. (2013). John Mackey: Why Companies Should Embrace Conscious Capitalism. *Forbes*.

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CLUSTERS AND SMALL AND MEDIUM-SIZED BUSINESSES

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Abstract: *Small and medium-sized enterprises are capable of absorbing a substantial part of the workforce, contributing to GDP creation and are also an important source of innovation and are therefore a stabilizing element of the economic system of each region. The paper deals with the assessment of the state of small and medium-sized enterprises in Slovakia and with suggestions for improving the position of cluster building in small and medium-sized enterprises with emphasis on research, development and innovation. Building a networked business is one of the few possibilities for SMEs to be competitive with strong, often highly integrated partners.*

Keywords: *Small and medium-size enterprises, cluster, competitiveness.*

JEL classification: M13 O 17 O31

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1. Introduction

Small and medium-sized enterprises significantly influence the business environment and form an integral part of the business environment of each economy. They form the basis of a modern economy, promote employment, contribute to economic growth and development and contribute to building sufficient competition in the market. In the structure of all enterprises are most SMEs. 19 million small and medium-sized enterprises (SMEs) are European business area, the account for 99.8% of all businesses operating in the EU. The importance of small and medium-sized enterprises is far more extensive. They are innovators and have creative ideas. They are very flexible and dynamic. They can quickly emerge, filling the market place even in regions where large businesses do not invest. It is precisely through improving the conditions for small and medium-sized enterprises in individual regions that economic differences between regions can be wiped out, thus maintaining social cohesion and stability in society.

2. Small and medium-sized enterprises in the Slovak Republic and clusters

The dynamics of the economic development of the country is markedly determined by the development of small and medium-sized enterprises in the country. Small and medium-sized enterprises represent the backbone system of the economy of each country. Even in the Slovak national economy, small and medium-sized enterprises are one of the pillars of economic development. Under the conditions of the Slovak Republic, small and medium-sized enterprises account for 99.9% of the total number of business entities, which means that their number represents a group of companies that cannot be ignored. They provide employment opportunities of 73.6% of the active labour force in the business economy of the Slovak Republic. Small and medium-sized enterprises have a 52.8% share in added value creation.

We can also say that small and medium-sized enterprises have characteristics that are specific and inimitable. The roles of small and medium-sized enterprises in the company are irreplaceable. Enterprises of this type mostly represent local capital, local ownership, and are indispensable for the economy of the state and for the economy of the regions. They are excellent identifiers of the regional needs of the population. The irreplaceable role of small and medium-sized enterprises, especially in the area of balancing disparities in regional development and introducing innovation into economic practice. In addition, small and medium-sized enterprises stimulate competitive dynamics and directly or indirectly operate on large enterprises, notably in terms of efficiency gains. Large businesses will thus never be able to replace small and medium-sized businesses in many ways. For this reason, the development of SMEs is considered to be the main factor of economic development, irrespective of the economic development of the country.

On the other hand, small and medium-sized enterprises are increasingly sensitive to the quality of the business environment. For this reason, it is an important role of the government to systematically improve the business environment, which is then reflected in improving their competitive capabilities both in domestic and foreign markets. That is why countries are paying the greatest attention to SMEs and are constantly taking measures to develop them, because, unlike large enterprises, small and medium-sized enterprises very difficult to cope with competitive disadvantages.

In today's highly competitive environment, small businesses finding and use different ways to gain and retain competitive advantage. Small and medium-sized enterprises are very vulnerable from the point of view of competitiveness itself, unlike large enterprises, because they are not able to use economies of scale, do not have sufficient capacity and resources to research, educate their staff, get information, Globalization and the development of large multinational corporations cause small and medium-sized enterprises to be forced to look for opportunities for cooperation to ensure their existence and success. According to Haviernikova (2013), the creation of different types of temporary, special or strategic alliances or partnerships, which may have several forms: hidden or apparent, free or contractual, has become an important means of gaining and consolidating positions in global conditions. Creating partnerships allows to use the effect of concentration on solving larger problems that cannot be managed by a micro subject. The benefit is the active use of the synergy effect that will arise from such partnerships within the region. In this context, cooperation as a cluster of small and medium-sized enterprises, through clusters, is an opportunity to increase their competitiveness and can also contribute to the development of the region itself.

The most important participants in the clusters are small and medium-sized enterprises. Clusters improve the competitiveness of small and medium-sized businesses, leading to improve of their performance. Appropriate tools for increasing competitiveness, developing small and medium-sized enterprises and reducing regional disparities are cluster initiatives. The importance of clusters and their impact on regional development and the development of small and medium-sized enterprises in the regions are currently addressed by several authors, Strunz, Vojtovič, Krajnakova, Krajco, Haviernikova, Strunz, Pavelkova. Small and medium-sized businesses in the clusters benefit from mutual cooperation and proximity to other businesses, institutions, intermediaries, and local governments. The concentration of small and medium-sized enterprises in the same or related sector allows for knowledge transfer between interconnected institutions and also creates a labour market for skilled labour.

TAB. 1: List of active clusters by region

Region	Number of clusters	Cluster list
Region of Bratislava	4	Danube Knowledge Cluster, EMOCITY - Cluster for E-mobility and Smart City, National Energetic Cluster NEK, ABC - Academic Business Cluster,
Region of Trnava	6	Automotive Cluster Slovakia, Electrotechnical Cluster - West Slovakia, Energetic Cluster - West Slovakia, Cluster of Tourism - West Slovakia, Cluster for Green and Innovative Technologies Support, Smolenice Cluster,
Region of Trenčín	1	SLOVAK IT CLUSTER,
Region of Nitra	3	Cluster for Energy Storage of RE, Slovak Plastic Cluster, Cluster Topoľčany - association of tourism,
Region of Žilina	4	Cluster LIPTOV - association of tourism, Cluster Orava, Cluster TURIEC - association of tourism, Z@ict
Region of Banská Bystrica	6	1st Slovak Engineering Cluster, Cluster HOREHRONIE - association of tourism, Cluster of Border Castles, Cluster Triskel, Tourism association Balnea Cluster, Cluster VÁH
Region of Prešov	3	Energetic Cluster of region Prešov, Cluster of Tourism Slanské Vrchy, Railway Transport Cluster
Region of Košice	6	Cluster AT+R, Cluster RADAR, Technology Cluster for Earth Resource Utilization, BITERAP, Košice IT Valley, Cluster of Tourism Košice Tourism

Source: Own processing

The general benefits of cluster-building for SMEs as well as the development of regions' competitiveness and the removal of regional disparities by Gajdovej (2012) can be included in the following points: increasing the qualification of the workforce, increasing demand for cluster-based products and services, improving technology capabilities by companies, increasing the specialization of suppliers, improving supplier specialization, improving access to local and global markets, reducing costs, restructuring and development of the regional and (national) economy, development of international cooperation in the field of market segmentation, implementation of new technologies, development of new products, more efficient use of regional public resources. However, the role and importance of clusters is still underestimated in the conditions of the Slovak Republic. To date, there is not yet a comprehensive system of support for the creation and development of cluster organizations in Slovakia. The current state of affairs represents a barrier to the development of clusters, and thus individual entrepreneurs, sectors or regions.

Hlušková - Šášiková (2014) indicate the following as the key barriers to the development of clusters in the conditions of the Slovak Republic:

- there are barriers to the involvement of small and medium-sized enterprises themselves in clusters: limited financial and human resources, lack of information on clustering, corporate risk aversion, distrust of suppliers and competition, limited innovation capabilities of companies and lack of motivation for networking. The elimination of these barriers requires active, continuous dialogue between firms and regional actors, access to key resources (infrastructure, skilled labour, advantageous loans), support for services requiring knowledge and technological advancement in the region of traditional industries for their innovative development, support for existing Innovative networks, motivation for bell-seekers, conditions for interregional cooperation and financial resources to develop feasibility studies,
- Slovak legislation does not define the term "cluster" and therefore does not directly support it. Slovakia has no support mechanisms in place for the emergence, development and support of clusters. Existing clusters in Slovakia must therefore seek the most appropriate legal form for their existence within the limits of the law,
- In other countries, cluster initiatives are supported by the public sector directly by the government but also by the regional government of the countries. In Slovakia, cluster initiatives support higher territorial units and the private sector, but they quantify this initiative's aid as very low, minimum.

TAB. 2: Development of SMEs in the regions of the Slovak Republic between 2010 and 2015

Region/Year	2010	2011	2012	2013	2014	2015
Region of Bratislava	111 969	115 256	117 545	121 735	124 110	114 238
Region of Trnava	57 629	56 890	56 425	56 690	56 644	52 971
Region of Trenčín	57 385	56 565	55 587	55 765	54 801	51 938
Region of Nitra	65 938	65 331	65 665	67 731	68 104	64 569

Region of Žilina	72 329	75 535	72 512	74 502	75 534	72 365
Region of Banská Bystrica	57 098	56 394	55 870	57 385	57 409	53 952
Region of Prešov	72 928	72 680	71 379	71 694	70 871	66 766
Region of Košice	57 449	56 957	56 625	57 999	57 768	54 209
Sum:	552 725	555 608	551 608	563 501	565 241	531 008

Source: Processed based on data from: <http://datacube.statistics.sk/TM1WebSK/TM1WebLogin.aspx>

From the regional point of view, the largest share of small and medium-sized enterprises in 2015 is in the Bratislava region (21.5%) and the smallest share is in region of Trenčín (9.8%). Due to the fact that the trend of the lowest representation of small and medium-sized enterprises (Tables 2 and 3) is the long-term trend in the Trenčín Region, we decided to carry out a questionnaire survey among the SMEs in this region and identify the reasons Low representation of this group of enterprises in this region as well as a small number of active clusters (Table 1).

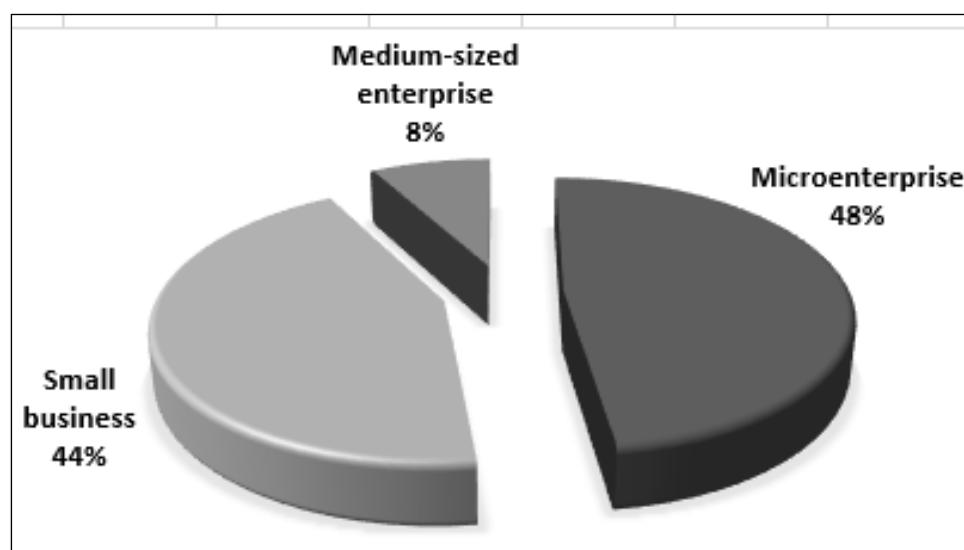
TAB. 3: Number of business entities in individual regions of Slovakia in 2015

Region/Year	Natural persons - entrepreneurs			Business			SMEs
	tradesmen	free occupations	farmers	small (0-49)	Medium (50-249)	Big (250 -)	
Region of Bratislava	45 507	4 105	185	63 656	785	214	114 238
Region of Trnava	33 950	1 534	508	16 705	274	61	52 971
Region of Trenčín	34 619	1 661	234	15 121	303	85	51 938
Region of Nitra	40 571	2 139	771	20 749	339	62	64 569
Region of Žilina	49 842	1 889	556	19 740	338	70	72 365
Region of Banská Bystrica	33 883	2 172	825	16 834	238	49	53 952
Region of Prešov	46 586	1 891	611	17 409	269	62	66 766
Region of Košice	31 501	2 299	608	19 571	230	57	54 209
Sum:	316 459	17 690	4 298	189 785	2 776	660	531 008

Source: SBA: Small and Medium Business in Numbers in 2015, p.28

Therefore, in 2016, a survey was conducted using a standardized questionnaire between small and medium-sized business entities established in the Trenčín self-governing region. It was the task of the survey to identify only of the frameworks of business issues in a given region and the possibilities of engaging in cluster initiatives. In the first round of the questionnaire survey, 250 respondents were contacted, i.e. small and medium-sized enterprises, of which 172 completed questionnaires were returned, representing a return of 68.8%. The share of individual respondents who participated in the questionnaire survey is represented by the following figures¹.

FIG. 1: Percentage representation of individual business entities in terms of size



Source: Own processing of the results of the questionnaire survey

In terms of type of business, the largest represented business entities operating in tourism, accommodation and restaurant services (45%), the smallest represented the transport sector (2%). In the questionnaire are respondents to express: to the availability, quality and structure of the labour force in the region, to the quality of the business environment in the immediate vicinity of their business, to activities of self - government and to cluster issues. The survey showed that small and medium-sized businesses are negatively evaluating in particular: infrastructure of the region, conditions for investment, they expressed low interest in innovation, collaborative research and involvement in cluster initiatives that causes as they have stated: low awareness of cluster issues, mistrust and low motivation for networking, clustering. A sample questionnaire survey on small and medium-sized enterprises in the region of Trenčín pointed to the low level of interest of small and medium-sized enterprises in clustering (as shown in Table 1, which shows the number of clusters in individual regions - region of Trenčín has only one active cluster). According to small and medium-sized businesses surveyed, this is a result of poor awareness of cluster positivity's for SMEs, low promotion, and, of course, the absolute absence of businesses. This is evidenced by the statistical data that clearly show that are the small number of small and medium-sized enterprises and the minimum number of clusters in the region of Trenčín which are to support the development of small and medium-sized enterprises and the competitiveness of the region.

3. Conclusion

In conclusion, we have to state that the problem of clusters in small and medium-sized enterprises in the Trenčín region is markedly underestimated for a long time. Small and medium-sized enterprises are not sufficiently informed about the benefits of cluster initiatives and are therefore not interested in collaborating on such networks. Many SMEs in the region are often inadequately innovative or have the problem of converting the results of their activities into successful market innovations. The current situation in the Trenčín region also limits the development of promising industries with great innovation potential (eg creative industry, automation and robotics). Therefore, support for cluster initiatives should be an integral part of the development policies of the Trenčín self-governing region. The development of clusters in the region should be seen both from the point of view of the development of small and medium-sized enterprises, but also in the context of the development of the economy of the national economy. It is necessary at regional level to create conditions for the development of clusters and small and medium-sized enterprises in order to be able to compete in global conditions but also to use regional resources.

Literature:

Balog, M. (2015). *Klastrova politika v podmienkach Slovenska*. Bratislava, Slovenská inovačná a energetická agentúra, ISBN 978-80-88823-62-9, Retrieved from https://www.siea.sk/materials/files/inovacie/publikacie/studia_SIEA_Klastrova_politika_web.pdf.

Gajdová, D. (2012). *Klastre a klastrové iniciatívy v Slovenskej republike*. Aktuálne problémy podnikovej sféry: zborník vedeckých prác [z medzinárodnej vedeckej konferencie, Bratislava 17. 5. 2012]. - Bratislava: Vydavateľstvo EKONÓM, 2012. ISBN 978-80-225-3427-7, p. 106-110.

Havierniková, K. a kol. (2013). *Teoreticko-metodologické aspekty merania ekonomickej výkonnosti klastrov v Slovenskej republike*. TnUAD FSEV, Trenčín 2013, ISBN 978-80-8075-619-2,

Havierniková, K., Strunz, H. (2014) The comparison of selected methods used for identification of cluster potential in the regions of the Slovak Republic In: *SGEM conference on political sciences law, finance economics & tourism : Conference proceedings volume IV*. Economic & tourism. - Sofia : STEF92 Technology, 2014. - ISBN 978-619-7105-28-5. - p. 693-699.

Hlušková, T., Šášiková, M. (2014). *Marketing alliances, clusters and their role in facilitation of the foreign market entry (the example of Slovak wineries)*, Economics of Agriculture, volume XIV. 1 / 2014 National Agricultural and Food Centre, 82 Research Institute of Agricultural and Food Economics , retrieved from: http://www.vuepp.sk/EP2014/1/6_Hlusk.pdf.

Krajňáková, E., Krajčo, K. (2016) The risk and clusters in the V4 countries and in the EU 27. In: *3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016 : Political sciences, law, finance, economics and tourism*. Book 2, Volume III. - Sofia : STEP92 Technology Ltd., 2016. - ISBN 978-619-7105-74-2. - p. 1135-1142.

Lesáková, Ľ., Klementová, V., Elexa, Ľ., Klement, L. (2017). *Súčasný stav a perspektívy rozvoja technologických klastrov v Slovenskej republike*. Belianum 2017, Univerzita Matela Bela v Banskej Bystrici, ISBN 978-80-557-1182-9

Mynarzová, M., Kaňa, R., Okreglicka, M. (2016). *Selected Aspects of Public Support for Small and Medium-sized Enterprises in European Union through the Prism of Block Exemption Regulation*. CITPM 2016 : proceedings of the 1st international conference Contemporary issues in theory and practice of management : 21st -22nd April 2016, Czestochowa, Poland, Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej, 2016, p. 294-301, ISBN 978-83-65179-43-2

Pavelková, D. (2013) *Klastrové politiky a jejich vliv na rozvoj klastru a klastrových organizací*. Vyd. 1. Praha. Linde. 231 s.

Strunz, H., Vojtovič, S. (2014) Vocational training and employment in the creative industry. In: *SGEM conference on political sciences law, finance economics & tourism : Conference proceedings volume III Economics & Tourism*. - Sofia : STEF92 Technology, 2014. - ISBN 978-619-7105-27-8. - p. 787-794.

Small and Medium Business in Numbers in 2015, Bratislava 2016, retrieved from: http://www.sbagency.sk/sites/default/files/msp_v_cislach_v_roku_2015_0.pdf.

Veber, J., Srpová, J. a kol.(2005). *Podnikání malé a střední firmy*. Praha: Grada Publishing, 2005. 304 s. ISBN 80-247-1069-2.

Zavarská, Z.(2012). *Legislatívne a ekonomické aspekty združovania podnikov*. In: Zborník vedeckých prác katedry ekonómie a ekonomiky anno 2012. Prešov: Prešovská univerzita, ISBN 978-80-555-0608-1.

For more see: <http://datacube.statistics.sk>.

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ANALYSIS OF THE IMPACT OF ECONOMIC EDUCATION ON THE LEVEL OF FINANCIAL LITERACY

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Abstract: *Financial literacy is one of the key competencies of modern man, not excluding the university graduates. This article focuses on the analysis of the influence of economic education on the changes in the financial literacy level. It brings a comparative analysis of the level of financial literacy before the start and after the finishing of the elementary economic course. The analysis is performed in relation to the self-reflective evaluation of the respondents. This allows making conclusions about the necessary adaptations of the content and the way of the education in the basic courses in economics and finance.*

Keywords: *Financial literacy, financial education, finance, Industry 4.0.*

JEL classification: A20, A21, A23

Grant affiliation: FVG/23/2017 Financial literacy at universities.

1. Introduction

The technological development is an important indicator of the advanced knowledge economy. Therefore, there is a significant demand for employees who use specific advanced technical knowledge. "The current labour market effects the university education to a large extent requiring a graduate of interdisciplinary knowledge and with the skills to find the solutions to both technological and economic issues" (Ďurišová, 2013). The importance of the employees' knowledge in a real enterprise environment has been emphasized by authors (Vodák & Kucharčíková, 2011): "The era when the most important assets of the organization were tangible assets, has definitely ended. Some enterprises actually do not own any real estate or production lines, on the contrary, the source of their competitive advantage has become knowledge of their employees and the company as a whole".

Only well-functioning universities enable us to foster society's prosperity through research and development in the field of intelligent and knowledge-based technologies. „It has been found that

the successful transition to the knowledge economy typically involves elements such as long-term investments in education, developing innovation capability, modernizing the information infrastructure, and having an economic environment that is conducive to market transactions“(Chen & Dahlman, 2005).

2. High schools, financial education, and financial literacy

Higher education is a response to the needs of the knowledge society when most of the industrial and modern world is growing due to innovation. All human expertise—even at the far-right tail of the distribution—depends on experience and training. (Kaufman & Duckworth, 2015). Endogenizing financial knowledge has important implications for welfare as well as policies intended to enhance levels of financial knowledge in the larger population (Lusardi & Mitchell, 2013).

„Empirical evidence suggests that people with a higher financial literacy are less likely to experience financial disputes. When the purchase of financial products and services leads to a financial dispute, people with a higher financial literacy will aggressively handle the problem“(Chung-Hua Shen, Shih-Jie Lin, De-Piao Tang & Yu-Jen Hsiao, 2016). Findings from recent research (Braunstein & Welch, 2002) on personal money management styles, combined with an awareness of human behavioral traits, offer insights that may be useful in developing successful training programs and strategies.

Global research points to the fact that financial illiteracy in the population is also found in advanced economies of the world, such as the United States, Japan, Germany, and so on. These are people with a lower level of education; women, young people and the older generation. Authors (Lusardi & Mitchell, 2011) in their study state that people with higher education are better informed but the level of financial literacy is still far from being perfect. The relation between financial literacy and financial education - especially in the area of understanding basic financial applications - was confirmed by a number of research projects (Lyons, Palmer, Jayaratne, & Scherpf, 2006; Morton, 2005; Braunstein & Welch, 2002). This area of education is based on an understanding of economic principles that require logical and rational thinking. "The ignorance of the basic definitions as well as of the mathematics fundamentals is therefore also unacceptable as, for example, Ignorance of the alphabet when writing or ignorance of language when communicating abroad"(Tokarčíková, 2013).

3. Methods and data collection

The basic method of data collection was a questionnaire survey. The first phase took place on a sample of students who had not yet completed the subject, and the second sample consisted of students after the course. So we obtained two samples of ranges 88 and 104 respondents before completing and after completing the course respectively. The research focused on the students of the informatics and management science. These students undergo the subject of "Corporate Finance," which includes chapters on financial literacy. The essential characteristics of our samples are presented in Table 1.

TAB. 1: The essential structure characteristics of the sample

Before completing the course				After completing the course			
Gender	Number	Study field	Number	Gender	Number	Study field	Number
Men	42	Management	56	Men	46	Management	72
Women	46	Informatics	32	Women	58	Informatics	32

Source: own processing

In order to analyze the influence of the financial education on the results, we applied statistical tests. As the variances of the analyzed samples were different, we used the Welch *t*-test.

4. Results

First, we evaluate the results of the self-reflective assessment of respondents. The shares of respondents according to their self-assessment of financial literacy are summarized in Table 2. There we can observe a certain self-critical shift. Moreover, after the passing of the subject, there are those who have lowered their abilities to zero, despite the fact that they did not exist before starting the course. The positive thing is that the share of this group does not reach even one percentage point and aggregated with the group of very low literate. The most significant increase is seen in the group of those who are assessed to be in a position to decide correctly in most situations.

TAB. 2: Percentages of the respondents according to their self-assessment before and after passing the course

Self-assessment before the course		Self-assessment after the course	
Level	Share (in %)	Level	Share (in %)
Fully literate	3.41	Fully literate	2.88
Mostly	26.14	Mostly	30.77
Average	32.95	Average	30.77
Feel some deficit	28.41	Feel some deficit	27.89
Very little	9.09	Very little	6.73
Not at all	0.00	Not at all	0.96

Source: Own processing

Another important factor in view was the perception of the importance of financial literacy. The obtained values are presented in Table 3, where beside the percentages as well absolute figures are given.

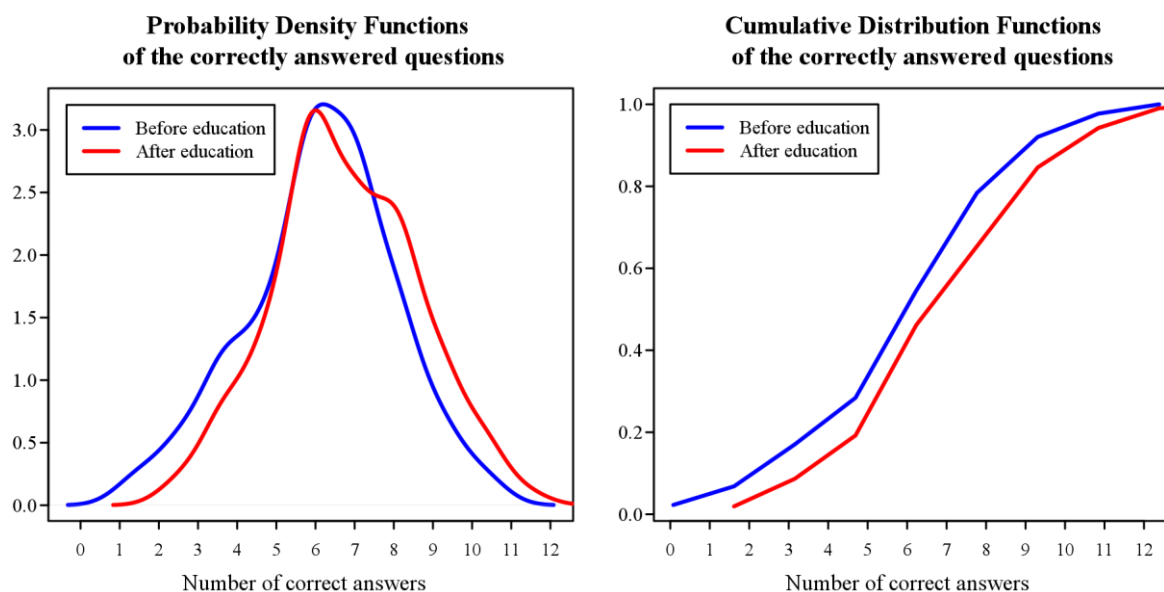
TAB. 3: Percentages and counts of the respondents according to their importance of the financial literacy perception before and after passing the course

Importance perception before the course			Importance perception after the course		
Level	Percentage	Count	Level	Percentage	Count
Vital	12.50	11	Vital	10.58	11
Very important	53.41	47	Very important	51.92	54
Important	31.82	28	Important	35.58	37
Little importance	2.27	2	Little importance	1.92	2

Source: Own processing

The main objective of the research was to assess the impact of financial education on the resulting level of financial literacy. The results are graphically presented in Figure 1. Here are illustrated the graphs of the probability density functions and cumulative distribution functions of the random variable representing the success of the respondents before and after absolving the course. The probability density functions clearly show the change of the skewness in favor of higher performance. Comparison of the cumulative distribution functions then confirms that the distribution function has shifted to the right, which means that the average performance after completing the course demonstrates the first order stochastic dominance above the average performance before the course.

FIG. 1: The probability density functions (left) and cumulative distribution functions (right) of the average performance before and after completing the course



Source: Own processing

TAB. 4: Numerical characteristics of the performance before and after completing the course

Before completing the course						
Mean	Median	10 % quantile	25 % quantile	50 % quantile	75 % quantile	90 % quantile
0.4790	0.4615	0.3077	0.3846	0.4615	0.5385	0.6154
After completing the course						
Mean	Median	10 % quantile	25 % quantile	50 % quantile	75 % quantile	90 % quantile
0.5237	0.5385	0.3846	0.4615	0.5385	0.6154	0.6923

Source: Own processing

The increase in average performance can also be confirmed by a statistical test. As we are interested in the increase in the mean value, we perform the t -test with the one-side alternative, that the average performance after the course is greater than before the course. The numerical characteristics of the average performance and the test results are summarized in Table 4 and Table 5. Table 4 shows the increase of all important quantiles of the performance distribution. From the Table 5, we can deduce, the null hypothesis, that the average performance remains after completing

the course the same as before it can be rejected at the confidence level 99 %. So we confirmed the significant increase of the financial literacy level, immediately after completing the course.

TAB. 5: Results of the Welch two sample *t*-test for the mean performances before and after completing the course

Mean performance		<i>t</i> -statistics value	<i>p</i> -value
Before course	0.4790	-2.3717	0.009374
After course	0.5237		

Source: Own processing

5. Conclusion

The aim of the research was to verify the positive influence of financial education on the level of financial literacy in the sample of university students of managerial and informational orientation. This assumption has been confirmed in our research sample. Moreover, as an important factor influencing the progress in financial literacy during education, we have detected the importance that the respondents attribute to the financial literacy.

The results obtained make it possible to conclude that a change in student attitudes is an important element in improving the effectiveness of financial education.

Literature:

Braunstein, S., & Welch, C. (2002). Modern methodological approach to teaching business economics for IT students. *Federal Reserve Bulletin*, vol. 88, p. 445-457.

Đurišová, M. (2013). Modern methodological approach to teaching business economics for IT students. In: *Procedia - social and behavioral sciences* (pp. 1850-1856). Vol. 106, ISSN 1877-0428.

Chen, D., & Dahlman, C. (2005). *The Knowledge Economy, the KAM Methodology and World Bank Operations*. Retrieved Jun 2, 2017 from http://siteresources.worldbank.org/KFDLP/Resources/KAM_Paper_WP.pdf.

Chung-Hua Shen, Shih-Jie Lin, De-Piao Tang & Yu-Jen Hsiao. (2016). The Relationship Between Financial Disputes and Financial Literacy. *Pacific-Basin Finance Journal*, vol. 36, issue C, pp 46-65.

Kaufman, S.B., & Duckworth A. L. (2015). *World-class expertise: a developmental model*. WIREs Cogn Sci 2015. doi: 10.1002/wcs.1365.

Lusardi, A., & Mitchell, O., S. (2011). Financial Literacy Around the World: An Overview. *CeR – Journal of Pension Economics and Finance*, Volume 10, Issue 04, pp. 497-508.

Lusardi, A., & Mitchell, O. (2013). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52 (1), p. 1-40.

Lyons, A. C., Palmer, L., Jayaratne, K.S.U., & Scherpf, E. (2006). Are we making the grade? A national overview of financial education and program evaluation. *The Journal of Consumer Affairs*, 40 (2), p. 208-235.

Morton, J. S. (2005). The interdependence of economic and personal finance education. *Social Education*, 69(2), p. 66-70.

Tokarčíková, E. (2013). Teaching and Learning Economics - Methods and Innovations. In: *Knowledge for Market Use* (pp.310-315). Olomouc, IL: Societas Scietiarum Olomucensis II.

Vodák, J. & Kucharčíková, A. (2011). *Effective employee training*. Praha: Grada Publishing.

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LONGEVITY RISK IN THE CZECH LIFE INSURANCE MARKET

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Abstract: Life insurance can be characterized as the contract between the policyholder and the insurer that covers the risks of the life. One of such kind of risks is as well the risk of the older age, usually covered by the pension schemes. These life policies are frequently whole life investments and so they are exposed to many risks. One of them is as well longevity risk. The longevity risk is the risk of populations living longer than expected. It ranks among the significant risks affecting the solvency of life insurance companies and pension funds. Neither Czechia is no exception to this risk exposition. The present paper focuses on the longevity problem in the Czech life insurance market in the last decades and its influence on the solvency of the insurers. Here are also mentioned some possibilities of the risk transfer.

Keywords: Life insurance, mortality, longevity risk, risk transfer.

JEL classification: G22, J11, C46

Grant affiliation: FVG/16/2017.

1. Introduction

Life in the modern world brings with it many risks. The basis of successful survival is to master their management. One of the key risk management tools is insurance. Insurance can be characterized as protection against financial loss caused by the acquisition of a certain risk.

In the last years, we could observe the new risk of the longevity enters in the life insurance business worldwide. The survey of the longevity brings (International Monetary Fund, 2012, Chapter 4). It is shown here, the life expectancy has grown in the past 100 years. Therefore the governments, but also private insurers face to the financial risk that people will live in average longer than expected.

Longevity risk for an annuity provider is the risk that an annuitant will live more than forecasted. The total longevity risk in a country can be decomposed into two elements (Favero & Giacoletti 2011):

- An idiosyncratic one and aggregate one.
- An idiosyncratic risk represents a specific risk, which concerns single individuals and very specific subgroups of the population.
- An aggregate risk is generated by uncertainty around the general downward trend in mortality rates.

Pricing of this aggregate longevity risk requires predicting mortality rates and having a measure of the uncertainty of predictions.

2. Data source

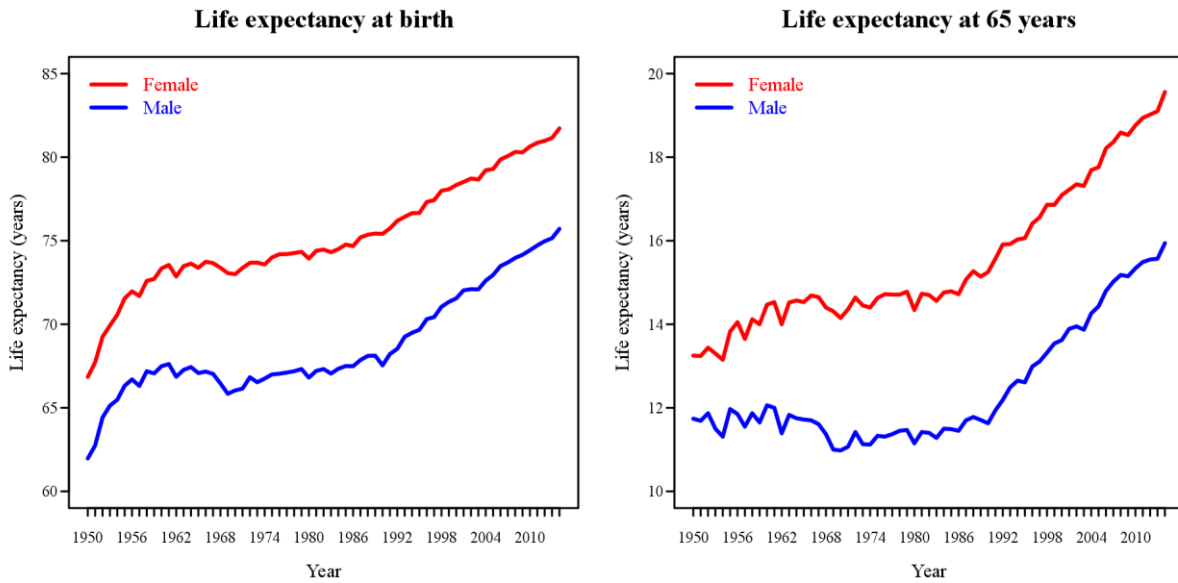
In order to make relevant mortality analysis, it is necessary to get reliable data. For our purposes, we took The Human mortality database (HMD) which is a collaborative project involving research teams in the Department of Demography at the University of California, Berkeley (USA) and at the Max Planck Institute for Demographic Research (MPIDR) in Rostock (Germany). The database is freely accessible at <http://www.mortality.org> and provides a highly valuable source of mortality statistics. The HMD contains original calculations of death rates and life tables for national populations, as well as the input data used in constructing those tables.

3. Longevity risk in the Czech Republic

One of the risks associated with changes in mortality is the risk of the longevity that can be in general defined as the risk of populations living longer than expected. It is the result of complex interactions of various factors such as increased prosperity, changes in lifestyle and progress in disease diagnostics, to mention a few.

Life expectancy at birth is defined as how long, on average, a newborn can expect to live, if current death rates do not change. Life expectancy at age 65 years old is the average number of years that a person at that age can be expected to live, assuming that age-specific mortality levels remain constant.

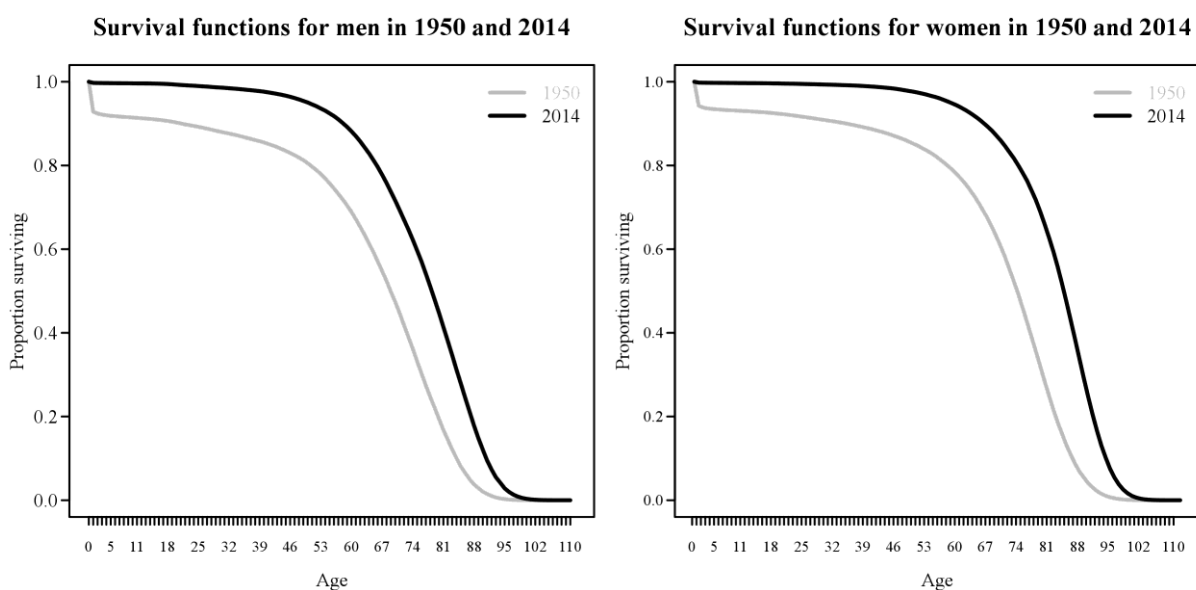
FIG. 1: The life expectancy at birth (left) and at age 65 years (right) in the period from 1950 till 2014



Source: Own processing

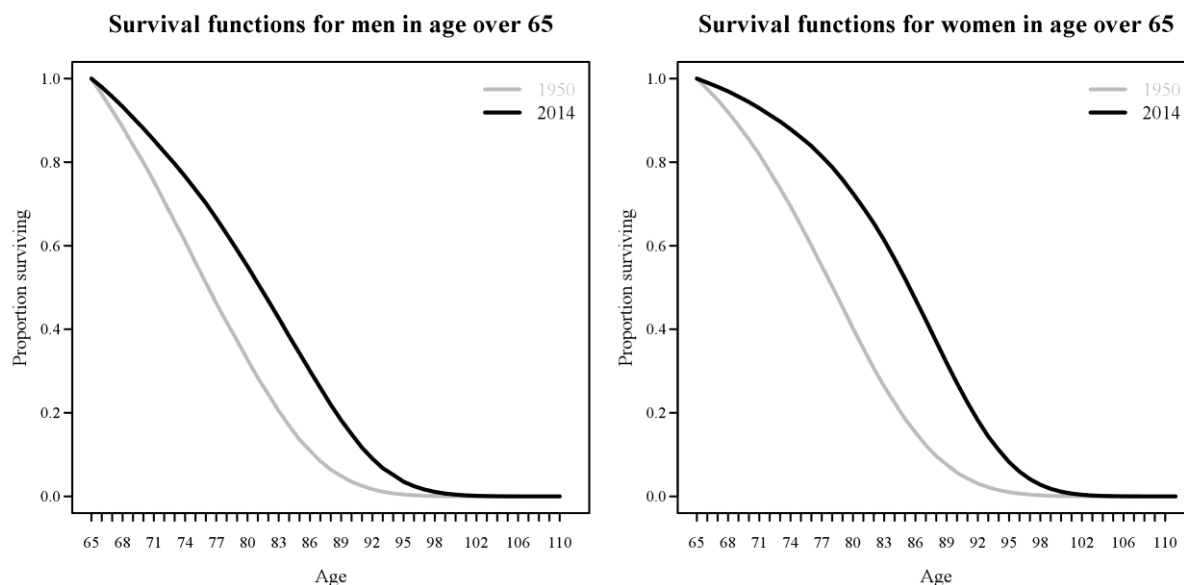
How declared in (OECD, 2015), life expectancy at birth continues to increase steadily in OECD countries, going up on average by 3 to 4 months each year. And the Czech Republic is no exception. Development of the life expectancy is illustrated in FIG 1. These graphs cover the period from 1950 till 2014. Life expectancy at age 65 has in the Czech Republic grown from 12.6 years in 1950 to 17.9 years in 2014 for men resp. from 13.25 years to 19.6 years for women. This is visible on the right side graph in FIG 1.

FIG. 2: Graphs of the survival functions in 1950 and 2014 for men (left) and for women (right)



Source: Own processing

FIG. 3: Graphs of the survival functions in the age over 65 in 1950 and 2014 for men (left) and for women (right)



Source: Own processing

The survival functions for the newborn in the Czech Republic are depicted in FIG 2. The significant move of the survival function to the right among the years 1950 and 2014 is visible. It means increasing the chances the people to live longer. On FIG 3 we present the change of the survival function at the age 65, where we observe the same shift.

The graphs document, that government, private companies and individuals all potentially face the longevity-born financial risk. Tables 1 and 2 illustrate the present values of the life annuities at fixed interest rate of 2%. The values demonstrate the increasing present discounted values of the liabilities of the defined-benefit pension plans.

4. Alternatives for the risk transfer

Hedging of the longevity risk is highly desirable, but there has historically been limited appetite from reinsurers and no credible capital-market solution. (Thomsen & Andersen, 2007) literally say: "Traditionally, reinsurance companies have provided capital to life insurance companies and pension funds seeking hedging opportunities. However, longevity risk is so specific that reinsurance companies have so far been reluctant to undertake business unless it was part of an existing client relationship."

TAB. 1: Present values of the unit life annuities in selected years from the period from 1950 till 2014 for men in different ages. Supposed annual interest rate is 2 %

Age	Year							
	1950	1960	1970	1980	1990	2000	2010	2014
60	11.8176	12.0786	11.3032	11.4610	11.6703	13.3401	14.5964	15.0987
65	9.5983	9.8381	8.9987	9.1552	9.4946	11.0025	12.2590	12.6765
70	7.5026	7.7713	7.0335	7.0421	7.5421	8.7916	9.9635	10.3830

Source: own calculations

TAB. 2: Present values of the unit life annuities in selected years from the period from 1950 till 2014 for women in different ages. Supposed annual interest rate is 2 %

Age	Year							
	1950	1960	1970	1980	1990	2000	2010	2014
60	12.1885	13.0623	12.8493	12.9813	13.5122	14.6527	15.5651	15.9863
65	9.9537	10.7488	10.5578	10.6837	11.2383	12.3704	13.3512	13.8018
70	7.7963	8.5091	8.2913	8.4015	9.0018	10.0374	11.0356	11.5013

Source: own calculations

How stated in (Cipra, 2004), the alternative risk transfer methods are modern techniques of the insurance industry which are more appropriate in today's world than the classical cession of insurance risks as, for example, in classical reinsurance. These methods are motivated by the effort to cede huge insurance risks to capital markets, whose capacity many times exceeds the insurance markets. One of the typical solutions of the alternative risk transfer is securitization.

4.1. q-forwards

A q-forward or 'mortality' forward is a financial derivative that can be used to manage or actively take exposure to mortality risk. The q-forward is an agreement between two counterparties to exchange at a future date (the maturity of the contract) an amount equal to the realized mortality rate of a given population at that future date (the floating leg), in return for a fixed mortality rate agreed upon at the inception of the contract (the fixed leg). It is a cash settled forward contract linked to the mortality rates of a given population. The only cash flows exchanged in a q-forward are at maturity. Contract settlement allows for netting so that there is a net payment from one counterparty at maturity. Consider an example in which a longevity protection seller pays the fixed mortality rate and receives the floating mortality rate on a q-forward contract with maturity T . The fixed mortality rate for the transaction is the forward mortality rate agreed between the parties at time $t = 0$ corresponding to the forward time period T for the index and is denoted by $q_{forward}(0, T)$. The actual floating mortality rate is the realized mortality rate for the index at time T and is given by $q_{realized}(T)$. A net payment is made at maturity T - the Net Payoff Amount (NPA) is given by:

$$NPA(T) = Notional \times [q_{realized}(T) - q_{forward}(0, T)].$$

4.2. Longevity swap

A longevity swap transfers the risk of pension scheme members living longer than expected from pension schemes to an insurer or bank provider. The trustees of the pension scheme agree to pay a fixed series of payments, representing the expected benefits payable under the pension scheme plus a fee, in return for the swap provider paying the benefits that in fact fall due, based on actual scheme mortality. The trustees, therefore, have certainty over the payments that they are expected to make, even if scheme members live longer than expected. Mechanics of longevity swaps:

- Pension fund pays fixed leg equal to expected pension payments plus longevity risk premium.
- Pension fund receives floating leg from counterparty equal to pension paid to plan member.
- Term: fixed period or until the last member dies (run-off).

4.3. Longevity bonds

The payout on longevity bonds depends on the longevity experience of a given population so that the payment is related to the number of survivors in the population. Longevity bonds (LBs for short) are instruments, whose payoffs $f(t, S(t))$ are linked to the realized mortality of an underlying reference population, represented by a survivor index, $S(t)$. This index represents the proportion of initial population alive at some future time.

Longevity bonds can take a variety of forms, depending on the type of bond, survivor index chosen, specification of the payment function $f(t, S(t))$, maturity, credit risks involved, position to be hedged, and institution and portfolio type (e.g., life insurance or annuity contracts). The following list is based on Blake et al. (Blake, Cairns, Dowd, & MacMinn, 2006):

- Standard LBs.
- Inverse LBs.
- Longevity Zeros.
- Principal-at-risk LBs.
- Survivor bonds.

5. Conclusion

The risk of longevity is a complex and difficult predictable risk on the life insurance market. This complexity is based on its specificities compared to other insurance risks, in particular, the sensitivity to trends, geographic variability, the extremely long maturity of such insurances, and their potential correlation with many other risks. However, the longevity risk is far from being a concern for the insurance industry alone. It is indeed at the core of an open discussion for politicians, economists, and strategists, who have to determine the "effective" pension scheme.

Literature:

Blake, D., Cairns, A. J. G., Dowd, K., & MacMinn, R. (2006). *Longevity Bonds: Financial Engineering, Valuation, and Hedging*. The Journal of Risk and Insurance, 73(4), p. 647 – 672.

Cipra, T. (2006). *Insurance mathematics. Theory and Practice* (in Czech). Praha: EKOPRESS, s.r.o.

Favero, C.A. & Giacoletti, M. (2011). *Progress in medicine, limits to life and forecasting mortality*. (NBER Working Paper No. 406), Milano, Italy: CEPR, NBER and Università Bocconi.

International Monetary Fund (2012). *Global Financial Stability Report. The Quest for Lasting Stability*. Global financial stability report, Washington, D.C..

OECD. (2015). *Health at a Glance 2015*. OECD Publishing. Retrieved June 21, 2016, from https://doi.org/10.1787/health_glance-2015-en.

The Human mortality database. Retrieved January, 21, 2017 from <http://www.mortality.org>

Thomsen, J., & Andersen, J. V. (2007). *Longevity Bonds - a Financial Market Instrument to Manage Longevity Risk*. Monetary Review, 4th Quarter, p. 29 – 44.

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SENTIMENT ANALYSIS AND ONLINE REPUTATION OF AUTOMOTIVE COMPANIES IN SLOVAK REPUBLIC

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Abstract: *The concept of corporate reputation has been known for many year and it has been of major interest in the academic literature from the 1950s onwards. But its importance has grown with the development of the Internet and its use as a tool of marketing communication. The aim of this paper is to analyze reputation of the automotive companies in Slovakia. The paper presents theoretical background and literature overview of corporate reputation and it focuses on reputation in online environment – online reputation. There are analysed three world-class automotive companies established in Slovakia: Volkswagen Slovakia), PSA Peugeot Citroën Slovakia and Kia Motors Slovakia.*

Keywords: *Online reputation, sentiment, automotive industry.*

JEL classification: *M15, M31, M10*

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1. Introduction

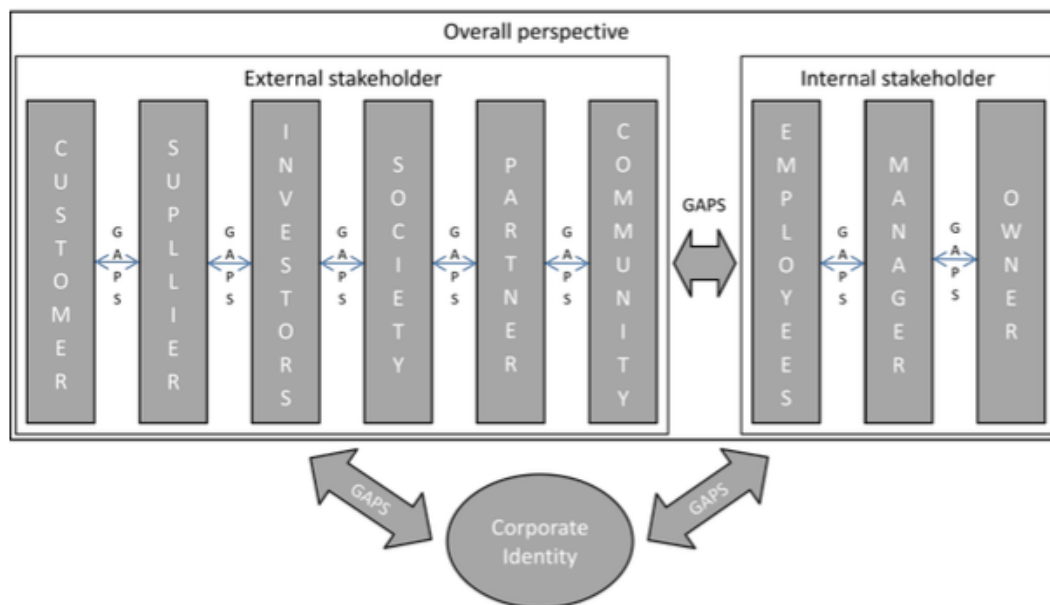
A good corporate reputation is one of the most valuable assets. It is increasingly necessary for businesses to make more and more effort to leave a positive trace in the minds of their potential or existing consumers. Business efforts and their activities are associated with reputation. With the advent of the Internet and the World Wide Web, building and destroying reputation has reached a whole new level. An increasing number of consumers depend on online opinions when making purchasing decisions and a good online reputation is one of the most important components of effective marketing. One of the challenges faced by managers of online environments is that of fostering positive interactions between members. There are plenty of personal and business data available on the Internet, and it's almost impossible for someone to completely delete traces from the web. In this paper, we describe and categorize existing reputation systems and outline a

reputation system based on information about interactants' social networks. We then describe the results of an experiment designed to identify the types of reputation information users value for different online environments.

2. Concept of corporate reputation

The concept of corporate reputation, its value, implementation and relation to other constructs are vast. Corporate reputation is a term that has been adopted by a wide range of disciplines. The concept has been studied from the perspectives of financial success, competitiveness, corporate responsibility, cultural representations, and risk management (Aula, 2010). There are many ways to define, categorize and measure the concept of corporate reputation. Reputation refers to mental associations about the organization actually held by others outside the organization' (Walsh et al., 2009, p. 189). Corporate reputation is the stakeholders' overall impression of an organization over time (Bailey, 2005). According to Fombrun and Shanley (1990, p. 235), corporate reputations represent publics' cumulative judgments of firms over time which, in turn, hinge on firm's, relative success in fulfilling the expectations of multiple stakeholders. It reflects the organization's relative standing, internally with its employees, and externally with its other stakeholders (Fombrun et al., 2000). Reputation can be seen as the summarized view of the perceptions held by all relevant stakeholders of an organization, that is, what customers, employees, suppliers, managers, creditors, media and communities believe the organization stands for, and the associations they make with it (Chun, 2005, p. 105).

FIG. 1: Key elements of corporate reputation



Source: According to Chun (2005)

The corporate reputation literatures revealed that competing firms offering similar range of products and services could differentiate themselves from their competitors. Kay (1993) argues that corporate

reputation creates distinctive value for the company alongside corporate architecture and innovation and enables the company to enjoy competitive superiority in the market.

2.1. Importance of corporate reputation

Good corporate reputation has an increasingly significant effect on organisations success. Helm (2007) states that return still is the prime factor for investment, but that corporate reputation climbs up the scale of importance. Power (2007) argues that since reputation is socially constructed almost anything within a firm can be rationalised and described in terms of its reputational implications.

Having a favourable reputation has been argued to be one of the best ways to :

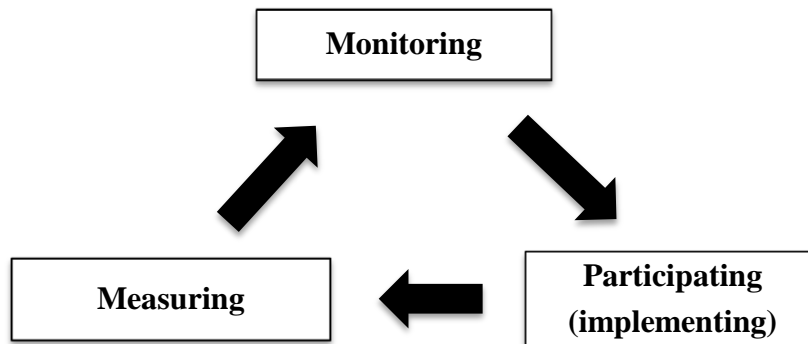
- create competitive barriers and reduce marketing costs: positive reputation can differ products and services competing firms and it can reduce advertising costs and costs for marketing communications.
- buffer effects of negative information: reputation is a valuable asset in the crisis and can help companies overcome it and prevent high economic losses (Jones, 2000). It can reinforce the image and thus influence the perception of the problems faced by enterprises (Jones et al., 2009).
- increase attractiveness to investors and enhance access to capital markets: favourable reputation can lead to financial benefits such as an increase in the value of the company's shares. It can indicate the future cash flow and therefore serve as an indicator of reducing the company's performance risk on the capital market. This means that investors are more willing to give money to companies in the form of shares. (Sarstedt, 2009).
- increase organisational attractiveness: positive reputation attracts highly qualified jobseekers. It can influence strong organizational identification and even increase collaboration between organizations or influence citizens' behavior, which positively affects both future and current employees (Caruana, 1997).
- improve customer loyalty: positive reputation increases satisfaction and encourages the creation and maintenance of loyal relationships with customers (Rice, 2010). The result is increased sales of enterprise products and growth and their market shares (Chun, 2005).
- charge premium prices: positive reputation can increase the perceived quality of products for consumers who are willing to pay a higher price for the product. In addition, businesses can use their reputation as a source of differentiation from their competitors.

2.2. Online reputation

Walter (2013) argues that reputation in life and business is everything. It means that reputation is very fragile and one mistake may sometimes cause irreversible damage. An increasing number of consumers depend on online opinions when making purchasing decisions and a good online reputation is one of the most important components of effective marketing (Hung et al, 2012). According to Jones et al (2009), online reputation is a reputation, which involves a corporate reputation created on the online environment. Consumers tend to use the internet to read, track, listen and buy products or services, and often look for recommendations and referrals from consumers who have tried the product and have a personal experience with it before purchasing a particular product or service. Many companies are aware of the need to track messages and what's

happening in the online world, especially after the introduction of new Web 2.0 technology. The online environment enables online communities to participate, collaborate, play their role in shaping the business process and influence the corporate reputation, sales turnaround, profit margin and even its existence. This "virtual consumer community", which exchanges ideas and cooperates, as well as sharing knowledge about a particular situation, influences the business process (Solomon et al., 2006, p.354).

FIG. 2: On-line reputation management process



Source: Jones, et al. (2009)

One of the challenges faced by managers of online environments is that of fostering positive interactions between members. The role of online reputation management is to interact with people online, create shared content, track what stakeholders say, address negative content, and enable ideas that are shared through social media.

3. Sentiment analysis as a method of online reputatin measurement

Using social networks means that both organizations and consumers generate a huge amount of data. Users interact with each other, discuss about experiences with various companies and their products, and subsequently influence each other's opinions and decisions. Sentiment analysis is one of the tools which enable us to measure the level of business online reputation.

Sentiment analysis is a systematic analysis of online expressions. It evaluates opinions and attitudes on a specific topic. General description says that sentiment analysis is a data mining technique that uses natural language processing, computational linguistic and text analytics to identify and extract content of interest from a body of textual data (Rambocas, Gama, 2013).

Sentiment analysis is one of the most used rating systems for online reputation in Europe. Rajzák (2010) used this method to analyse on-line reputation in banking sector. This method is based on assessment of first ten organic results of a search engine. Each partial result and sentiment is analysed and followed by the final assessment of the company. That serves as a criterion for evaluation of success or failure of the entity in selected segments. In order to eliminate the

probability of customized search results, it is recommended to use a proxy server, which secures anonymity and finds only the most relevant results. The final score is calculated according to scoring system listed in below table (Tab 1).

TAB. 1: Sentiment analysis scoring system

Sentiment/Position of the result	1	2	3	4	5	6	7	8	9	10
Positive sentiment	20	19	18	17	16	15	14	13	12	11
Website of company	10	9	8	7	6	5	4	3	2	1
Neutral sentiment	2	2	2	2	2	2	2	2	2	2
Negative sentiment	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11

Source: Rohál', Sasko (2011)

Fedorko, Nastišin and Pollák (2015) used this method in their research to analyze online reputation of selected Slovak start-up companies. The aim of this study was to measure online reputation of selected subjects, and recommend venture capitalists they should take corporate reputation seriously since it reflects many actual and ongoing indications that can be helpful when deciding about future actions.

Bačík, Paolone and Nastišin (2016) examined the relationship of corporate performance indicators and online reputation in selected Europe food industry countries with use of sentiment analysis, too. They found that for food industry, online reputation has no direct impact on performance of companies. However, they note that the relationship of online reputation and company performance should be analysed and evaluated in other industries.

Sentiment analysis was used also to evaluate online reputation of twenty biggest Slovak towns (Dorčák, Pollák, Szabó, 2014). According to authors, the study should motivate towns to publish information that are relevant and needed for potential visitors. Towns ought to decrease negative publicity and focus on improving the sentiment at least in first ten results of search engine.

Dorčák, Breza and Pollák (2013) did the research in health care subjects operating in Slovakia. They found the differences in online reputation and real-world reputation of these subjects by using sentiment analysis. The results of their findings backs the thesis that online reputation management is very important part of complete corporate management, especially in health care entities.

Rambocas and Gama (2013) used sentiment analysis in their paper and found that sentiment analysis is an important technique capable of triangulating qualitative and quantitative methods through innovative real time data collection and analysis.

In this paper, we used the methodology called "sentiment analysis" to assess virtual reputation of automotive manufacturers in Slovakia - Volkswagen, KIA and Peugeot Citroen. We directly analysed the relationship of reputation and these three companies, and thus we used following keywords:

"volkswagen reputation", "kia reputation" and "peugeot citroen reputation". Then, online reputation of these subjects was studied with the use of Google search engine. To ensure objectivity of the results, the proxy anonymizer was used in order to increase anonymity. Proxy anonymizer secures that results of searching are not biased - search engines usually personalize the search through the history of Internet activity. Only organic results were included in the survey, paid contextual advertisements of the Adwords system were excluded. We took into account first 10 search results.

To evaluate the sentiment of searched websites, a free sentiment analyzer on the web address danielsooper.com was used. Sentiment scores range from -100 to +100, where -100 indicates a very negative and +100 indicates a very positive tone. For purposes of this paper, we used following distribution: results with score above +30 were evaluated as "positive", results below -30 as "negative" and results from interval <-29; +29> were considered as "neutral". To determine the final score of sentiment analysis, we used the scoring system according noted above in Table 1. The results of the research are presented in Table 2.

TAB. 2: Results of sentiment analysis of Slovak automotive manufacturers

	1	2	3	4	5	6	7	8	9	10	Score
KIA	2	-19	18	17	16	2	14	13	12	11	86
VW	-20	-19	18	-17	-16	15	-14	13	2	-11	-49
PSA	20	-19	2	2	-16	15	-14	2	12	-11	-7

Source: own processing

According to the research results, Kia placed in first place with 86 points. Peugeot Citroen with Volkswagen both have negative score with -7 and -49 points, respectively. While Kia can be satisfied with these results, Peugeot Citroen and mainly Volkswagen should take steps to improve the online reputation among first ten results of used search engine.

4. Conclusion

In today's era of the Internet, it is a general effort in applying marketing tools to build a quality brand and publicizing the brand to wider audience, also in online environment. Positive reputation, especially in the online environment of immediate decisions, is often a critical factor for customers when purchasing products, visiting an institution, or ordering services. Organizations must be aware of online reputation phenomena, and they should also implement systems for measuring of online reputation. Sentiment analysis is one most popular methods which can reliably measure the online reputation of companies. This paper focused on sentiment analysis and online reputation of Slovak automotive producers. The results of this research proved, that these companies still can strengthen their online reputation and improve their overall image.

Literature:

Aula, P. (2010). Social media, reputation risk and ambient publicity management. *Strategy & Leadership*, 38 (6), p. 43-49.

Bačík, R., Paolone, F., Nastišin, Ľ. (2016). Financial Performance and On-Line Reputation: Empirical Evidence from a Random Sample of European Food Industry. *Journal of Social Sciences*, 7 (1), p. 105-115.

Bailey, A.A. (2005). Non-fulfillment of promotional deals: The impact of gender and company reputation on consumers' perception and attitudes. *Journal of Retailing and Consumer Services*, 12 (4), p.285-295.

Caruana A. (1997). Corporate reputation: concept and measurement. *Journal of Product&Brand Management*, 6 (2), p.109-118.

Dorčák, P., Breza, J., Pollák, F. (2013). On-line reputácia poskytovateľov zdravotnej starostlivosti na slovenskom trhu. *Manažment podnikania a veci verejných – dialógy*. 9 (25), p. 55-63.

Dorčák, P., Pollák, F., Szabó, S. (2014). Analysis of the possibilities of improving an online reputation of public institutions. *IDIMT-2014. Networking societies – cooperation and conflict : 22nd interdisciplinary information management talks*, Linz : Johannes Kepler Universitat, p. 275-282. ISBN: 978-3-99033-340-2.

Fombrun, C., Shanley M. (1990). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal*, 33 (2), p.233-58.

Fombrun, C., Gardberg ,N.A.-Server, J.M. (2000) The Reputation Quotient: A Multi- Stakeholder Measure of Corporate Reputation. *Journal of Brand Management*, 7(4), p. 241-255.

Helm, S. (2007). One reputation or many? Comparing stakeholders' perceptions or corporate reputation. *Corporate Communication: An International Journal*, 12 (3), p.238- 254.

Hung, Y. et al. (2012). Online reputation management for improving marketing by using a hybrid MCDM model. *Knowledge-Based Systems*, 35 (1), p. 87-93.

Chun ,R. (2005). Corporate reputation: meaning and measurement. *International Journal of Management Reviews*, 7(2), p. 91-109.

Jones, G.H. (2000). Reputation as reservoir. *Corporate Reputation Review*, 3 (1), p.21-29.

Jones, B., Temperley, J., Lima, A. (2009). Corporate reputation in the era of Web 2.0: The case of Primark. *Journal of Marketing Management*. 25 (9), p. 927-939.

Kay, J. (1993), *Foundations of corporate success*, Oxford: Oxford university press.

Rambocas, M., Gama, J. (2013). *Marketing Research: The Role of Sentiment Analysis*. [online]. Retrieved July 15, 2017, from <http://www.fep.up.pt/investigacao/workingpapers/wp489.pdf>.

Rajzák, P. et. al. (2010). *Systém pre hodnotenie on-line reputácie bánk*. Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice, p. 652-657, ISBN: 978-80-553-0460-1.

Rice, D. (2010). Managing your reputation in a viral world. *Security Distributing & Marketing*, 40 (3), p. 93-100.

Rrohát, R., Sasko. J.(2011). *Analýza sentimentu výsledkov slovenských firiem*. Visibility, s.r.o. [online]. Retrieved July 5, 2017, from http://reputation.sk/wp-content/uploads/2014/01/Analiza_sentimentu_reputation_sk.pdf.

Sarstedt, M. (2009). Reputation management in times of crisis. *Journal of Brand Management*, 16 (8), p. 499-503.

Solomon, M. et al. (2006). *Consumer Behaviour A European Perspective*, 3rd edition, Harlow: Pearson.

Walsh, G., Mitchell, V.W., Jackson, P. R., et.al. (2009). Examining the Antecedents and Consequences of Corporate Reputation: A Customer Perspective“. *British Journal of Management*. 20 (2), p. 187-203.

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THE REVIVAL OF ZERO-BASED BUDGETING

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Abstract: *The zero-based budgeting approach means treating each budgeting cycle as autonomic, with no support of historical data. One of the most important reasons for its re-popularity is to focus on significant cost reductions and continuous improvement of the company's operations. However, zero-based budgeting is not considered as a cost-only tool, but as a vital coherent element of enterprise management, which forces changes in the roles and criteria for decision making, introduces responsibility, effective supervision and effective action. The purpose of this article is to critically analyse the new approach to this concept.*

Keywords: *Zero-based budgeting.*

JEL classification: *G30, M41*

Grant affiliation:

1. Introduction

The American company Texas Instruments undertook the first attempt to implement zero-based budgeting in 1969 for one department, and the next year for the whole enterprise. In 1970, the first article was published in the Harvard Business Review, written by Peter A. Pyhrr, a Texas Instruments employee. In 1973, the author published a book on the basics and procedure of zero-based budgeting. This marked the beginning of the rapid and short popularity of this concept, especially in the United States and the Anglo-Saxon countries. In 1978, President Carter introduced the annual zero-based budgeting cycle to the federal government. However, after three years, this method was abandoned because it turned out to be inconvenient, overly complex, and there were no significant savings in government spending associated with its use. This method of budgeting also failed in the enterprise sector. Its failure was mainly attributed to the complex procedures and much longer time needed to develop such a budget than with a traditional incremental method. (Anthony, Hawkins, Merchant, 2011) Since then, the literature on the subject has indicated the use of zero-based budgeting as a possible method of supplementing and verifying a traditional budget. However, it

should be emphasized that it was usually regarded as a marginal method in business operations. (Kowalewski, 2017)

This concept resurfaced in the 21st century. During this period, major consulting companies, such as Boston Consulting Group, Bain, McKinsey or Accenture announced a great deal of interest among business managers worldwide over zero-based budgeting. Of course, this concept had been modified with respect to its original assumptions, with new terms such as Zero-Based Budgeting 2.0, Beyond Zero-Based Budgeting or Smart Zero-Based Budgeting. (Fitzpatrick, Hawke 2015 and Heinrich, Garton, Martin 2016) The purpose of this article is the critical evaluation of the new approach to this concept.

2. The basics of zero-based budgeting

The original version of zero-based budgeting, described by Pyhrr, consists of two basic steps. These include (Pyhrr, 1973):

- developing decisions (actions) to be taken in the form of so-called decisional packages,
- determining the ranking of individual decision packages.

The development of these two key stages in the full zero-based budgeting procedure is as follows (Sierpińska, Niedbała 2003):

- creating a list of organisational cells on the basis of the enterprise strategy that should be budgeted,
- precise specification for each organisational unit included in the budgeting process of the goals and component functions,
- verification of the current performance level for individual component functions,
- creation of the so-called decision package, i.e. defining the priority list of all the component functions,
- choosing a decision, starting with the most important ones (first on the list), until the full use of funds,
- final approval and adoption of budgets,
- permanent control and verification of budgets during their implementation.

By applying the concept of zero-based budgeting, an analysis of the effectiveness of the activities carried out in the enterprise is made by comparing their benefits and costs. The analysis enables the elimination of activities that do not benefit the individual and it enables the improvement of other activities. In its original form, zero-based budgeting was treated, above all, as a valuable search for savings and as a fresh, unburdened with the past glimpse into the functioning of the business on the market. However, despite a number of attributes, it did not work well in managing organisations.

3. The current use of the concept of zero-based budgeting

At the beginning of the presentation of the new approach to zero-based budgeting, one should ask the question: is it a good idea to return to this concept after several years and what are the reasons behind it? Especially if we analyse the primary use of zero-based budgeting in the 1970s and 1980s, which was characterised by over-complicated procedures, high costs and excessive time commitment of managers compared to the achieved effects. Nowadays, it is also clear that using this concept solely as an effective cost-recovery tool may not be successful, but the interest in zero-based budgeting among managers is enormous. It is clear from the reports and research of the consulting firm Bain that about 50% of the surveyed managers from various companies are interested in implementing this concept (especially in Asia). (Heinrich, Garton, Martin, 2016) In addition, numerous publications point out that this is one of the most important global business trends in 2017. (Mahler 2016 and Bacon, Rogers, Chahal, 2016). Referring to this information, it is useful to analyse the reasons for the re-popularity of zero-based budgeting and to determine how the modern use of this concept differs from its original foundations.

One can point to several key success factors that determine the ability to effectively use this concept in an enterprise. Firstly, an effective cost accounting system is clearly indicated with a detailed costing analysis. Contemporary managers require precise information on what factors influence the level of particular cost categories in the enterprise and its cells. It requires the establishment of cost centres, among others, and the assignment of managers to them in the enterprise. Accurate estimation of responsibility for costs is a prerequisite for better cost management and reduction. (Fitzpartick, Hawke 2015) As previously mentioned, in case of zero-based budgeting, decision packages are created bottom-up, starting the whole procedure from the level of cost centres, followed by the ranking of individual decision packages and the consolidation to the level of the entire enterprise. The next step is the choice of decision packages, starting with the most important ones (first on the list), until the resources are fully utilised. One again, it is worth pointing out that decisions and alternative decisions were identified in each decision package together with a cost-benefit analysis for each of the variants. For the creation of decision packages in each of the cost centres there is a responsible manager along with the supervising manager. The result of their cooperation should be a list of decision packages along with their ranking. Each package should have specified the optimal way to implement it, often in a modified manner resulting in significant cost reduction.

The second factor is to integrate zero-based budgeting into a rigorous planning and control system for the enterprise. The foundation of this system is a strategy with a set of ambitious, up-to-date goals developed by the top managers. These goals should be reflected in the budget. In addition, they are one of the main criteria for determining the ranking for individual decision packages. Verification of the planning system is carried out on a monthly basis with particular emphasis on the cost-cutting effects of the individual centres. Another factor is the motivating system suited to this kind of planning and control. The core measure used in cost centres is the rate at which they are reduced, with particular emphasis on continuous improvement and innovation. The centre managers, of course, are responsible for managing those costs on which they have real impact. (Fitzpartick, Hawke 2015) It is worth mentioning yet another change in the way managers think about business operations and the decision-making process. Zero-based budgeting as an important new

element of the management system forces changes, enhancing business activity and constant focus on cost reduction, and it continually seeks new ways to implement the undertaken decisions.

When discussing the factors associated with the successful implementation of zero-based budgeting in an enterprise, it is important to emphasize that this is a very difficult concept to implement and most companies may not be ready for such radical changes. There are a number of reasons why it is impossible to fully realise the potential of zero-based budgeting in managing a contemporary business (own study based on Heinrich, Garton, Martin, 2016):

1. Lack of a clear alignment and support for the management of the company in the face of the changes, especially in the area of cost management and organisational culture.
2. Inability to update and adapt strategies to new business conditions.
3. Inability to fit the zero-based budgeting system to the needs and requirements of a particular company.
4. Inability to employ a holistic approach to solving key business issues such as the elimination of excessive organisational and procedural complexity, simplification and continuous improvement of the business.
5. Inability to convince the company's employees of the rightness of the changes.

4. Conclusion

Zero-based budgeting has been identified as one of the most important business trends in 2017. Regardless of whether this concept will be adopted for enterprise management systems or whether it is a temporary fashion, it is a confirmation of changes in organisations. These changes seek to find the best concepts and methods for successful transformation of an enterprise into an adaptive, flexible, innovative organisation aimed at continuous improvement of its business and finding the best, innovative solutions not based solely on past achievements.

At this point, it is difficult to say with any certainty whether re-using this concept will be effective. However, it is possible to point to the benefits and risks of using zero-based budgeting. Among the benefits, there is the possibility of a strong budget linkage with the strategy, which is very illusory for traditional budgeting. This concept is undoubtedly an effective tool for cost reduction in enterprises and continuous improvement of key business areas. It also forces significant changes in the organisational culture of the company by moving away from the automatic, default way of making decisions and understanding the business, which is usually conducted through analogy.

However, as already mentioned, zero-based budgeting scratch is a difficult concept to implement and effectively integrate into the management system of the enterprise. To sum up, it is worth mentioning its defects and risks. First of all, this is a more costly, complex and time-consuming approach to budgeting than the traditional one. In addition, it can adversely affect employees and the corporate culture of the company. Poorly implemented zero-based budgeting will cause excessive bureaucracy and may even destabilise the functioning of the enterprise.

Literature:

Anthony R. N., Hawkins D. F., Merchant K. A. (2011). *Accounting Text and Cases, Thirteenth Edition*, McGraw-Hill International Edition.

Bacon J., Rogers C., Chahal M. (2016). *Trends for 2017: Zero-based budgeting & influencers 2.0*. Retrieved from <https://www.marketingweek.com/2016/12/08/trends-2017-zero-based-budgeting-influencers-tv/>.

Fitzpartick M., Hawke K. (2015). *The Return of zero-base budgeting*, McKinsey & Company. Retrieved from <http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-return-of-zero-base-budgeting>.

Heinrich J., Garton E., Martin B. (2016). *Betting on Zero-Based Budgeting's Trifecta*, Bain & Company. Retrieved from <http://www.bain.com/publications/articles/betting-on-zero-based-budgetings-trifecta.aspx>.

Kowalewski M. (2017). *Ewolucja koncepcji budżetowania od zera*. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 471.

Mahler D. (2016). *Zero-Based Budgeting Is Not a Wonder Diet for Companies*. Harvard Business Review, June.

Pyhrr P., (1973). *Zero-Base Budgeting A Practical Management Tool for Evaluating Expenses*, John Wiley & Sons.

Sierpińska M., Niedbała B. (2003). *Controlling operacyjny w przedsiębiorstwie*. Wydawnictwo Naukowe PWN, Warszawa.

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CROSS-COUNTRY COMPARISON OF HUMAN WELL-BEING IN THE EUROPEAN OECD MEMBER STATES

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Abstract: *There is a debate about the link between the country's economic performance and human well-being in the economics. According to the wider consensus, growth of GDP p.c. is no longer seen as the appropriate indicator for the measurement of the progress in human development and well-being, because of their multidimensionality. Therefore, some alternative measures were introduced that dealt with their several dimensions. The aim of this paper is to classify and sort European OECD Member States with respect to their achievements in the field of human development and well-being in the year 2015. In order to meet this aim, we briefly describe the theoretical framework of human development and well-being and explain two possible approaches to the measurement of them. Then we use them for the identification of existing disparities in this field between analysed countries. Our conclusions are based on a review of the relevant scientific sources and on own statistical analysis.*

Keywords: *Human Development, Human Development Index, Better Life Index, Well-Being.*

JEL classification: *I31, O15*

Grant affiliation:

1. Introduction

Humans consider well-being and high quality of life as the final objectives of their lives. Generally, good health, positive social relations and availability of decent living standard are understood as the basic categories of the well-being and the main preconditions for high quality of life. Economists debate about how to measure progress in such areas of human lives. In 1990, the United Nations Development Programme (UNDP) initiated concept of human development defined as the enlargement of people's choices to live the life they value, and the Human Development Index (HDI) measuring progress in this area. In response to the criticism of HDI, other alternative measures were introduced. In 2011, the Organisation for Economic Co-operation and Development (OECD) offered its own indicator called Better Life Index (BLI), designed as the interactive composite index that combines information on eleven dimensions of well-being.

The aim of our paper is to classify and sort European OECD Member States with respect to their achievements in the field of human development and well-being in the year 2015. We choose two indicators, namely HDI and BLI, for our analysis. To meet our aim, we briefly describe the theory of human development and well-being and explain both indicators. Then, we use them for the classification and sorting of 24 European OECD Member States.

2. Theoretical framework

Traditionally, economic theory as well as practical economic policies understood country's development as the growth of GDP, measured by its year over year changes. Breakthrough in understanding of development was the introduction of the concept of human development in the first Human Development Report, issued by UNDP in 1990. This concept emphasised that the basic purpose of development had to be the enlargement of people's choices to live the life they valued.

The same report introduced a new indicator called Human Development Index. Based on objective and hard data concerning life expectancy, education and living standard, it measures progress in human development and offers countries' rankings differing from those based on GDP. However, substantial critical remarks to HDI were presented. For instance, see papers of Sagar and Najam (1998), Ranis, Stewart and Samman (2005), or Alkire and Forster (2010). UNDP reflected this criticism and reviewed HDI several times.

Over time, other alternative measures of human well-being were designed. In 2011, OECD introduced own indicator called Better Life Index. This indicator brings together hard and soft data concerning well-being. It tries to remove shortcomings traditionally connected with composite indicators and thus removes partially criticism similar to that of HDI. However, values of BLI are calculated only for the OECD Member States.

3. Formulation of the research problem

European countries are generally described as the developed countries with the sustained progress in human well-being. However, some indications show that significant disparities in this field may exist between them. We try to identify them with the use of two indicators.

Human Development Index is defined as the summary measure of average achievements in three dimensions of human development (see Scheme 1).

Scheme 1: Human Development Index

Dimension	Long and healthy life	Knowledge	Decent standard of living
Indicator(s)	Life expectancy at birth	Expected years of schooling	Mean years of schooling
			Gross national income p.c. (PPP Dollars)

Dimension index	Life Expectancy Index (LEI)	Education Index (EI)	GNI Index (II)
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Source: UNDP (2017)

Better Life Index measures well-being across eleven dimensions. One to four sub-indicators measure achievements in each dimension of BLI (see Scheme 2).

Scheme 2: Better Life Index

Dimension	Sub-indicators	Dimension Index
Housing	Dwellings without basic facilities; Housing expenditure; Rooms per person	Hol
Income	Household net adjusted disposable income; Household net financial wealth	II
Jobs	Employment rate; Job security; Long-term unemployment rate; Personal earnings	JI
Community	Quality of support network	CI
Education	Educational attainment; Student skills; Years in education	EdI
Environment	Air pollution; Water quality	EnI
Civic engagement	Consultation on rule-making; Voter turnout	CEI
Health	Life expectancy; Self-reported health	HeI
Life satisfaction	Life satisfaction	LSI
Safety	Assault rate; Homicide rate	SI
Work-life balance	Employees working very long hours; Time devoted to leisure and personal care	WLI

Source: OECD (2017)

Every sub-indicator of HDI and BLI is expressed on different units. To compare achieved values, we normalize them with respect to their methodology on a scale 0 to 1. Within every dimension of HDI and BLI, we consider sub-indicators to have the same importance. We calculate values of dimension indexes as the arithmetic means of normalized values of sub-indicators.

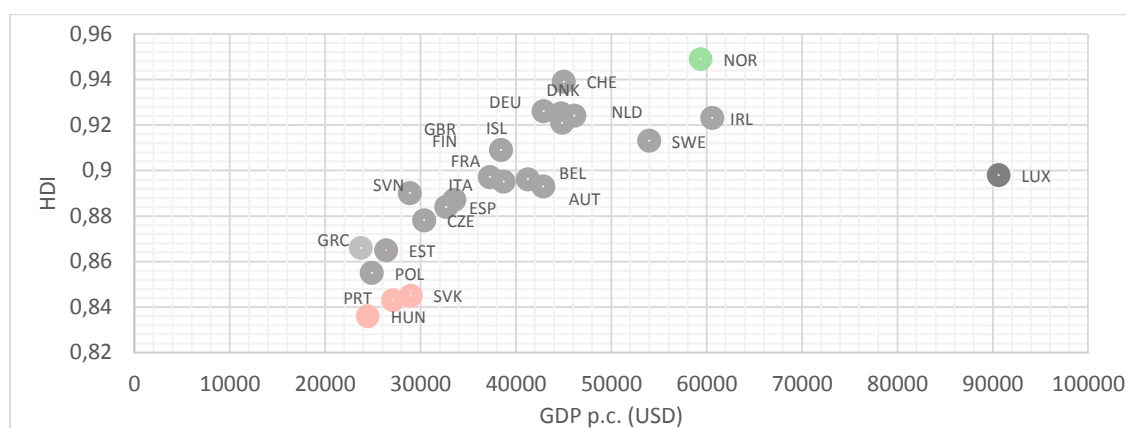
Final comparison is based on countries' classification according to their values of HDI and BLI dimension indexes. We identify the best-performing countries that achieved the normalized values of dimension indexes within the best interval (5th best value, 1st best value), and the worst-performing with the values within the worst interval (1st lowest value, 5th lowest value). To make countries' classification more visible, we indicate the best-performing countries with green colour and the worst-performing countries with red colour.

4. Solution of the research problem

Our analysis is focused on the comparison of achievements in the field of human development and well-being between 24 European OECD Member States in the year 2015. First, we compare achieved values of GDP p.c. and HDI. This simple comparison is seen in FIG. 1.

Hungary, Portugal and Slovakia are the countries with the lowest values of GDP p.c. and the lowest values of HDI, whereas Norway is the country with relatively high GDP p.c. and high value of HDI.

FIG. 1: Countries' classification: GDP p.c. and HDI



Source: Own processing of UNDP (2016) and OECD (2017) data

Next, we classify countries with respect to their achievements in three dimensions of HDI (see TAB. 1). We identify the best- and worst-performing countries within every dimension. We do not see any significant disparities between analysed countries in the dimension evaluating life expectancy. Disparities that are more significant exist in the second dimension concerning education. However, the most significant disparities are identified in the third dimension, evaluated by GNI index.

TAB. 1: Countries' classification: HDI dimension indexes

Country	LEI	EI	II	Country	LEI	EI	II
Austria	0,95	0,82	0,58	Italy	0,97	0,82	0,45
Belgium	0,94	0,84	0,55	Luxembourg	0,95	0,79	0,83

Czech Republic	0,90	0,88	0,37	Netherlands	0,95	0,90	0,62
Denmark	0,93	0,96	0,59	Norway	0,95	0,92	0,90
Estonia	0,88	0,88	0,35	Poland	0,89	0,85	0,32
Finland	0,94	0,85	0,52	Portugal	0,94	0,76	0,35
France	0,96	0,84	0,51	Slovakia	0,87	0,82	0,36
Germany	0,94	0,92	0,60	Slovenia	0,93	0,88	0,38
Greece	0,94	0,83	0,33	Spain	0,97	0,82	0,44
Hungary	0,85	0,83	0,31	Sweden	0,96	0,86	0,62
Iceland	0,96	0,93	0,49	Switzerland	0,97	0,89	0,75
Ireland	0,94	0,93	0,58	United Kingdom	0,94	0,90	0,51

Source: Own processing of UNDP (2016) data

We classify Hungary as the worst-performing country in all dimensions of HDI, followed by Estonia, Greece, Poland, Portugal and Slovakia being the worst-performing in two dimensions. Netherlands, Norway and Switzerland are identified as countries with the best performance in all dimensions.

Last part of our analysis is focused on countries' classification according to the dimension indexes of BLI (see TAB. 2). To ease our analysis, we identify the number of dimensions in which countries are classified as the best- or worst-performing.

TAB. 2: Countries' classification: BLI dimension indexes

Country	HoI	II	JI	CI	EdI	EnI	CEI	HeI	LSI	SI	WLI	Best	Worst
Austria	0,63	0,55	0,82	0,46	0,59	0,57	0,54	0,69	0,78	0,80	0,28	0	1
Belgium	0,77	0,65	0,71	0,85	0,71	0,57	0,55	0,73	0,78	0,41	0,74	4	1
Czech Republic	0,39	0,12	0,60	0,15	0,73	0,64	0,33	0,39	0,63	0,81	0,44	2	4
Denmark	0,61	0,42	0,82	0,92	0,72	0,82	0,69	0,68	1,00	0,76	0,94	5	0
Estonia	0,38	0,00	0,56	0,46	0,81	0,68	0,18	0,19	0,30	0,11	0,57	1	7
Finland	0,70	0,32	0,71	0,92	0,95	0,82	0,59	0,62	0,96	0,78	0,56	4	0
France	0,71	0,49	0,65	0,31	0,49	0,67	0,38	0,73	0,63	0,62	0,49	0	1
Germany	0,73	0,55	0,82	0,85	0,78	0,82	0,35	0,64	0,81	0,77	0,60	3	0

Greece	0,37	0,11	0,14	0,00	0,43	0,13	0,37	0,74	0,00	0,63	0,46	0	7
Hungary	0,36	0,03	0,47	0,31	0,56	0,52	0,44	0,15	0,04	0,68	0,61	0	6
Iceland	0,51	0,36	0,97	1,00	0,63	0,81	0,49	0,93	1,00	0,88	0,13	6	1
Ireland	0,89	0,30	0,63	1,00	0,67	0,61	0,60	0,87	0,81	0,83	0,61	4	0
Italy	0,45	0,44	0,52	0,54	0,36	0,29	0,41	0,73	0,44	0,64	0,58	0	2
Luxembourg	0,79	0,77	0,84	0,31	0,37	0,74	0,66	0,76	0,78	0,71	0,62	4	2
Netherlands	0,87	0,61	0,83	0,54	0,75	0,47	0,48	0,80	0,93	0,60	0,83	6	2
Norway	0,93	0,39	0,91	0,85	0,63	0,80	0,64	0,82	0,96	0,78	0,77	7	0
Poland	0,39	0,07	0,49	0,62	0,85	0,18	0,53	0,28	0,37	0,93	0,22	3	5
Portugal	0,71	0,22	0,41	0,23	0,29	0,62	0,30	0,34	0,11	0,50	0,33	0	8
Slovakia	0,31	0,05	0,42	0,54	0,45	0,63	0,32	0,34	0,48	0,75	0,44	0	5
Slovenia	0,66	0,14	0,59	0,54	0,70	0,49	0,46	0,58	0,33	0,75	0,40	0	1
Spain	0,72	0,24	0,24	0,92	0,41	0,22	0,48	0,83	0,63	0,70	0,78	3	3
Sweden	0,74	0,55	0,76	0,69	0,69	0,94	0,90	0,91	0,89	0,60	0,72	6	1
Switzerland	0,69	0,89	0,96	1,00	0,73	0,75	0,31	0,97	1,00	0,71	0,45	5	1
United Kingdom	0,68	0,51	0,75	0,62	0,53	0,76	0,70	0,76	0,74	0,95	0,17	4	1

Source: Own processing of OECD (2017) data

We classify Greece, Hungary and Portugal as the worst-performing countries, whereas Norway as the best-performing one.

5. Conclusion

In our paper, we apply two possible approaches to the measurement of the human well-being, namely Human Development Index and Better Life Index on classification of 24 European OECD Member States. Summary of our analysis is shown in TAB. 3.

TAB. 3: Summary

Part of the classification	Best-performing countries	Worst-performing countries
GDP p.c. and HDI	NOR	HUN, POL, SVK
HDI dimension indexes	NDL, NOR, SWE	EST, GRC, HUN, POL, PRT, SVK
BLI dimension indexes	NOR	GRC, HUN, PRT

Source: Own processing

To conclude our analysis, we can say that significant disparities in human well-being between analysed countries concern especially material living standard.

Literature:

Alkire, S., & Foster, J. (2010). *Designing the Inequality-Adjusted Human Development Index (HDI)* (Human Development Research paper 2010/28). New York: UNDP. Retrieved May 25, 2017, from http://hdr.undp.org/sites/default/files/hdrp_2010_28.pdf.

Organisation for Economic Co-operation and Development. (2017). *OECD.Stat. Annual National Accounts* [Data file]. Retrieved May 5, 2017, from <http://stats.oecd.org/>.

Organization for Economic Co-operation and Development (2017). *Better Life Index* [Data file]. Retrieved May 5, 2017, from <http://www.oecdbetterlifeindex.org/>.

Ranis, G., Stewart, F., & Samman, E. (2005). *Human Development: Beyond the HDI* (Center Discussion Paper 916). Yale: Economic Growth Center Yale University. Retrieved June 3, 2017, from <http://www.wrojasdatabank.info/cdp916.pdf>.

Sagar, A. D., Najan, A. (1998). The Human Development Index: Critical review. *Ecological Economics*, 25 (3), p. 249-264.

UN Development Programme. (1990). *Human Development Report 1990*. Retrieved June 2, 2017, from http://hdr.undp.org/sites/default/files/reports/219/hdr_1990_en_complete_nostats.pdf.

UN Development Programme. (2016). *Human Development Report 2016*. Retrieved June 1, 2017, from http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.

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A BUDGET IN A DISTRICT HEALTHCARE CENTRE

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Abstract: *Costs of medical services and medical institutions such as hospitals and healthcare centres are becoming higher. In this situation, budgeting and controlling systems are put into use and improve the sector. Such a budget has to take into consideration, on the one hand, entire bodies like hospitals and specialist clinics, and on the other, individual hospital wards, clinical facilities, diagnostic labs, buildings and other resources. One important element of the budget's implementation is the creation of a manual for preparing a budget and a plan of accounts, another is the expressed interest of the management, otherwise such implementation will not be effective. The aim of this paper is to present the scope and structure of a budget proposed for a health centre in one of Polish districts.*

Keywords: *Hospital, budgeting.*

JEL classification: *Accounting.*

Grant affiliation: *The Wrocław University of Economics, The University of Gdańsk.*

1. Introduction

The cost of medical services and of the activity of the health service institutions - hospitals and healthcare centres - are becoming higher. Local government, district ('powiat') authorities establish public limited companies, private limited companies and so-called public budget units responsible for health care. Independently from these, legal and organizational solutions within the medical sector systems of budgeting and controlling are being perfected and implemented. Their budget has to consider entire subjects, i.e. hospitals and specialist healthcare centres, and individual hospital wards, healthcare centres, diagnostic labs, buildings and other relevant resources.

An important element of the implementation will be instructions on preparing a budget and internal plan of accounts, equally vital is the interest of management in this system otherwise the whole implementation will not be effective.

The aim of this paper is to present the scope and structure of a budget for a healthcare centre in a Polish administrative district. The authors used their own experience in implementing budgeting systems in such subjects. The paper also analyses the literature on cost accounting and budgeting regarding healthcare subjects.

2. The essence and aims of budgeting of a district healthcare centre

Budgeting constitutes an element of management enabling effective task-setting for subordinate levels of an organization and a better coordination between the units of an organization. Budgeting breaks the frequent 'vicious circle' arising from overgeneralized plans, inadequate information and the imprecisely defined responsibilities.

The preparation of a budget is based on the targets set by the management or the owner, to be determined beforehand. A budget is only an operational tool which serves to attain the targets and tasks contained in the organizational strategy. The basic aims which can be reached through budgeting for a district healthcare Centre are:

- enabling the realization of the accepted operational strategy,
- help in planning and organizing the work,
- planning the engagement and wear of material, human and financial resources as well as those non-material,
- ensuring coordination of the activities of various organizational units,
- revealing the level of income and revenue at the planning stage,
- revealing the level of expenses and costs at the planning stage and not at the point of incurring them,
- motivating management and staff for effective and rational activity,
- controlling the level of planned and incurred costs of providing services and the activities,
- lowering the level of risk and uncertainty in the activities,
- learning about the cost of medical procedures,
- facilitating negotiations on prices of services with the National Health Fund (if possible),
- improving communication with the district authorities,
- rational management of resources,
- monitoring the activities,
- help in evaluating staff performance.

Achieving the set aims will certainly result in the better management of a centre. Budgeting should improve the process of managing, and facilitate decision-making for the managers and accomplishing tasks.

The defined areas of activity, processes and cost centres determine the budgeting system for the operations of a district healthcare centre. Therefore its budget has to include: the defined relevant areas of a hospital activity and the processes occurring, maintenance of the vital resources, organizational units. Thus it requires the knowledge of the activities conducted by such a subject.

Later the authors present an example of an operational budgeting system of the costs of activities for a district healthcare centre.

3. Cost budget of a district healthcare centre – a case study

Every subject has to plan its income and expenses, as well as revenue and costs of its activity. A budget is a tool which can help every organization in achieving these tasks, however it has to be adapted to the organization, and in particular should consider the clearly defined key areas of responsibility, the processes and the relevant cost centres. It should be designed so that it reflects the activity of the subject and satisfies the managers.

A district healthcare centre is a complex subject. It consists of: a hospital, a specialist clinic, local clinics and a nursing home. Due to its legal and economic context it is a limited company and it fulfills public functions in healthcare. The centre is the property of an administrative district (powiat) financed mostly from public funds - the contract with the National Health Fund and subsidies for special tasks, like educating medical staff, conducting proactive programmes and medical care for schools. The funds are obtained from the Ministry of Health, local government and the EU grants.

The construction of a budget has to include the defined areas of the centre's activities, its subjects and their costs as shown in Table 1.

The budget shown in Table 1 presents the costs of the most important areas of the centre's activity from the viewpoint of the management and the costs incurred. It distinguishes the costs of the hospital, the specialist clinic, the nursing home and the separate tasks performed, also the costs of maintaining the resources. They refer to the entire activity, among them the maintenance costs of the general infrastructure, car fleet and the general costs of operation. This allows for better planning and controlling costs and provides the owners with a clear view of the cost of activity.

Each of the designated areas of the activity has its own individual budget. In this case 17 partial budgets are distinguished, together with the operational budget of the centre. For example, the hospital costs entail the costs of individual wards (six), the hospital admissions unit, the operating theatre, the specialist diagnostic labs, the maintenance of the dispensary, the sterilization room, the oxygen room and the hospital kitchen. These costs include diverse processes. The operational costs of the hospital comprise: treatment of patients, patients hospital stay, human resources (doctors, nurses, physiotherapists etc.), maintenance of medical equipment and the general costs of the ward.

TAB. 1: Cost budget of a district healthcare centre

No	Name of a centre of responsibility	I quart er	II quart er	III quart er	IV quarte r	Total cost in zł	Structur e%
1.	Costs of a hospital						
2.	Costs of a specialist clinic (hospital)						
3.	Costs of a local health centre I						
4.	Costs of a local health centre II						
5.	Costs of a nursing home						
6.	Costs of school surgeries						
7.	Costs of health programmes						
8.	Costs of educating medical staff						
9.	Costs of activities of district nurses						
10.	Costs of maintaining the car fleet						
11.	Marketing costs						
12.	Costs of management and company services						
13.	Costs of maintaining general infrastructure						
14.	General costs of the company						
15.	Total costs						
16.	Accrued costs						
17.	Structure						

Source: own elaboration.

In the case of a specialist clinic, the budget includes the following: human resources (doctors, nurses), maintenance of individual surgeries and of medical facilities and specialist surgeries, e.g. gynecology and obstetrics, ophthalmology, USG lab, patients register, building maintenance and the general cost of this activity. They were also defined from the viewpoint of the vital processes and their relevance for the entire operation of the centre, and the settlements with the paymaster of services, i.e. the National Health Fund.

One of the areas is related to nursing and care services requiring 24-hour patient care and rehabilitation. Within the budgets there is an individual budget of the nursing home which includes: treating patients, patients stay, specialist surgery and medical equipment, human resources (doctors, nurses, psychologists, physiotherapists and carers), kitchen and the general costs. The cost of stay, including catering, is partly covered by the patients, hence should be separated.

For proactive programmes, it distinguishes individual costs including planning and control. The customer requires a presentation of costs to appraise the project and its profitability.

Budget tables alone are insufficient for the system's effectiveness, each has design instructions (the aims, formal requirements - preparation and auditing) timetabling, description and scope of the forms and attachments. This orders and uses the knowledge about the operating costs. All the employees apply the same definitions of terms, processes and costs, with staff turnover this facilitates induction.

The same scope is applied in the internal plan of accounts compatible with the budgets, otherwise the implementation will be ineffective for IT support, improving functioning of budgeting and obtaining useful information, and lowers its cost.

4. Conclusion

The presentation of costs of a district healthcare centre requires a good knowledge of its activities and the processes vital for management and costs. The process is not too complicated, however requires precision and a different approach to operational costs, not just regarding its cost centres and calculating the costs according to kind, in practice the usual solution. This example aims at supporting management, not just financial reporting.

Management is a vital element of a budgeting system. The lack of interest from managers means no practical point to implementing this type of systems. By definition, a budgeting system is to support management in running a district healthcare centre. Experienced managers can see in this system an excellent instrument for decentralizing management and for empowering supervisors in particular areas of activity within the organization.

Literature:

Chalastra, M. (2013). *Jak dostosować rachunek kosztów rzeczywistych do wymogów budżetowania w szpitalu*. Controlling i Rachunkowość Zarządcza, 12, pp. 55-63.

Kotapski, R. (2013). *Implementing a hospital budget as an element of changes in its management*. Economics, Vol. 92(3), Supplement A, pp.268-276.

Kotapski, R. (2015). *Budżet działalności pracowni diagnostycznych w szpitalu*. Zeszyty Naukowe Uniwersytetu Szczecińskiego, 854, pp.969-977.

Kotapski, R. (2015). *Calculation and accounting of services costs in the hospital diagnostic laboratories*. In Slavičková, P., Tomčík, J. (Eds.), Knowledge for Market Use 2015: Women in business in the Past and the Present (pp. 406-413). Olomouc, Societas Scientiarum Olomucensis II.

Kotapski R. (2016). *Koszty leczenia pacjenta a rachunek kosztów szpitala*. *Finanse, Rynki Finansowe, Ubezpieczenia*, 1(79), pp. 490-491.

Kotapski R. (2017). *Budżetowanie a organizacja*. *Controlling i Zarządzanie* 4(18), pp. 37-38.

Kotapski R., Chalastra M., Siemionek A. *Management accounting in hospitals, its scope and instruments*. In P. Slavičková (Ed.), Knowledge for Market Use 2016: Our Interconnected and Divided World, pp. 208-212. Olomouc, Societas Scientiarum Olomucensis II.

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ASSESSMENT OF INNOVATION ACTIVITY IN PRINTING INDUSTRY

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Abstract: *Innovations are very important part of enterprise development and competitiveness however this activity should be measured similar as other processes. Printing industry is an important branch in Polish economy because of employment as well as production value. This branch has made many investment projects to improve efficiency and rise their competitiveness but some investments activity seems to be failed if we consider the enterprise outputs.. Therefore the aim of this article is to evaluate the innovation projects introduced in printing industry in Poland in relation to chosen performance results.*

Keywords: *Innovations, printing industry, efficiency analysis.*

JEL classification: O32, Q55

Grant affiliation:

1. Introduction

Publications on innovation activity in printing industry are not very common in the literature. A few papers discuss environmental aspects of innovations in this sector (Rothenberg & Zygildopoulos, 2007; Masurel, 2007), some more papers consider new technology in printing (Berman, 2012; Hung, & Lai, 2016). But there are very few articles treat about innovation results evaluation and efficiency (Ślusarczyk & Kot, 2016; Krause, 2016). Many authors treat innovation as “the icon” that can be described but not analyzed and negatively evaluated. Reading some papers, it seems to be that innovation is a value, in itself.

It should explained that innovative solutions introduction is not only influenced by the requirements/ demands of the community, competitive market, but also by the process of economic globalization (Marcati, Guido & Peluso, 2008), that influences, e. g. dynamic diffusion of technical- scientific development, wide access to information, modern solutions and enforcing modernizing activities contributing to the economic development (Ali Taha, Sirková, Ferencová, 2016). Some innovations

examples are not economically estimated because they are politically proper. Therefore this considerations goal is assessment of innovation activity in printing industry in Poland.

2. Printing industry review

The printing sector in Poland develops very dynamically. In the opinion of European and Polish trade press and very entrepreneurs acting on this market, nowadays printing in Poland is one of the most modern and cheapest in Europe. Printing services on account of a rapid growth of new technologies have great prospects of the development ahead of them. It is one of few industries, in which the investment risk has the lowest indicators. High prices of printing machines and the size of companies can be a barrier for necessary investments.

In 2014, 8796 printing enterprises acted in Poland. Micro companies constituted 91.5% of all subjects in this industry. Polish printing remains the sector of a low level of concentration. In 2014 printing companies employed over 47 thousand employees.

Small enterprises, employing 10-49 employees, constitute 6.9% of all subjects, however medium and large companies (above 50 employees) are 1.5% [9]. Preliminary data of the Polish Statistic Office and results of the examination for the purposes of this report allow to assess, that in 2015 the sold output of the printing entire sector amounted about 3.3 billion Euro (KPMG, 2016).

Export plays an important part in keeping the upturn tendency. It remains one of crucial development factors of the printing industry in Poland. High quality of services and products in combination with relatively low labor costs let Polish printing companies effectively compete on the EU market, as well as outside of it. The printing sector in Poland is on 8. place in terms of the income (3.7% of all income generated by the printing industry in the EU), 6. place in terms of the number of the employed (6.4% of the participation in the EU) and 6. place in terms of the number of companies (7.1% of all printing companies in the EU).

In 2015 sold output of small, medium and large printing enterprises rose actually by 5.0% year to year. The printing stopped being this industry, which in relation to other sectors of the processing industry stands out with the pace of development; in this respect it locates itself precisely in the middle rates of explored sectors. In terms of the work output - that is of sold production value on one employed - the printing industry remains lower than the majority of business branches of the top level of the automation of production processes.

3. Methodology of the study and research results

Taking into account above mentioned considerations the aim of this research is evaluation of innovation activity in printing industry in Poland based on chosen enterprises sample.

The research sample consists of 31 enterprises of small and medium printing enterprises sector. There were chosen 18 small enterprises (10 to 49 employees) 13 enterprises medium (50 to 249 employees). The size of the enterprises determines the developmental potential significantly, especially in terms of implementation of innovative solutions.

A research questionnaire, which served gathering primary data, was a base of conducting research for analysis. The research was conducted with direct method between June and October 2014 and the data concerned innovative projects carried out in years 2008-2013 and received results pointed, what were effects of implementing innovative projects by small and medium printing enterprises.

As the object of the innovation the product innovation was the most often been pointed out (8 readings). Due to the possibility of the realization in examined years of more than one innovation it was observed that simultaneously entities most often implemented innovations about procedural and organizational character (6 readings). Next all simultaneously implemented kinds of the innovation were only twice pointed out. Amongst a few available options of financing investments examined entities most often pointed at the equity, EU funds and loans for innovations. Concentrating later on innovative solutions applied in the printing industry, a kind of the introduced technology was analyzed. As part of implementations of innovative technologies print houses most often concentrated their actions on implementing the offset printing, which at present is one of usually applied printing forms. The half of entities showed also screen printing and digital printing, being an alternative solution of the offset printing allocated for the smaller expenditure. Simultaneously they most rarely invested into the technology of the rotogravure, which enables to achieve the high quality colorful press and into the flexography, which constitutes the most universal printing technique applied in the industry.

For the measurement of the relation between innovations and results of their implementation in studied subjects measures of the connection were used. In the considerable part analyzed replies have categorial character measured on the quality scale. Due to restrictions in their measurement it is possible to use only nonparametric tests, which absolve from fulfilling determined assumptions. For the evaluation of the link between individual data a chi-square test was used, which due to the small size of the examined population was corrected by the quotient of the credibility.

Managing the innovative activity is based on obtained sources and relies on the search, getting used and controlling implemented innovations, which cause that the innovation process becomes more effective in the confrontation with challenges, which the market, the competition and customers put in the way of the organization (Pomykalski, 2001). On the basis of the definition it was assumed that analyzed actions of all kinds, taken in order to implement printing high-tech solutions in enterprises influenced the results of the operational activity of examined enterprises. Therefore, below mentioned factors were been chosen as dependent variables describing the management of innovative activity: innovation scale, innovation kind, print technology, tools, strengths, planned changes, cooperation with the surroundings, expenses for B+R activity, level of the expenses for B+R, obtaining of dedicated research unit.

Table 1 presented below describe cross putting together of exclusively these pairs, between which the linear relation was demonstrated in order to analyze identified relations. Due to the small size of the sample the chi-square test was based on the quotient of the credibility. Additionally in order to examine the power of the relation between studied trademarks the V Cramer statistics was used.

After all three variables were distinguished. They demonstrate the linear relation with the level of funding and concern managing the innovative activity. Than a relation between these variables and variables defined as the effect of taken innovative activity was examined. Table 1 presents p

materiality level of the chi-square test and the quotient of the credibility for chosen pairs of variables referring to the innovative activity and its effects.

Analyzing the value of the chi-square test, it is being showed that in most cases analyzed schedules of pairs of variables indeed differ from themselves.

TAB. 1: Influence of managing the innovative activity on results of activities of printing companies

Changes in the area of the productions, finances and the employment	Innovation kind (materiality level p chi-square test/quotient of the credibility)	Tools of innovation activity support (materiality level p, chi-square test/quotient of the credibility)	Planned changes (materiality level p chi- square test/quotient of the credibility)
Level of incomes elaborated after implementing innovations	No significance	0.049/0.033	No significance
Lowering costs of production factors	No significance	No significance	No significance
Change in process of products/services	No significance	No significance	No significance
Change of profit margin of products/services	0.014/0.012	0.019/0.020	No significance
Period of the workflow	No significance	No significance	No significance
Changes in the employment	0.032/0.055	0.0001/0.000	0.008/0.055

Selected aspects of the innovative activity are generally correlated with changes in the income, the profit margin and the employment level. Findings of cross relations were presented below along with results of characteristics describing putting together these pairs of variables, between which the linear relation was demonstrated (Łodziński, 2016).

Applied tools of supporting in managing the innovative activity and changes in the sales revenue after implementing the innovation. First, a moderate linear relation confirmed with V Cramer statistics between tools of supporting the innovation and the value of incomes generated in the result of the implemented innovation was defined. Definitely the greatest incomes are being showed thanks to purchasing products from other companies, particularly machines and devices. Simultaneously, despite of the acquisition of new equipment this income did not undergo the significant change over time. Applied tools of supporting in managing the innovative activity and changes in net margin after implementing the innovation. The moderate relation was identified between tools of supporting innovative actions and changes in the net margin from the sale of

printing products and services. Also in the case of the increase in the level of the profit margin a purchase of appropriate machines and devices which enabled implementing of innovations was significant. The profit margin did not more rarely changed despite of using additional tools of the support.

Type of the implemented innovation and changes in net margin. A little bit stronger linear relation was demonstrated between the kind of the implemented innovation and changes of the level of the profit margin. It was determined that the frequent rise in the profit margin was been accompanied with implementing the innovation about most often procedural and organizational character. At the same time it was noticed that the decrease in the profit margin took place only in case of the product innovation. Applied tools of supporting in managing the innovative activity and changes in the employment. The last identified relation between the number of the employed and the innovative activity of the company proves mutually essential influence on each other. Purchasing the technological equipment was usually connected with keeping the current employment level or almost most often with its slight increase. Increasing the employment level is in most cases forced through aims of functioning of the EU programs.

4. Conclusion

Identified relations, first between the innovative activity and measurable results of this activity of studied entities, let determine that implementing the innovation had a beneficial effect to results of activities of printing companies. Effects of it are peculiarly noticed in the level of generated incomes and the net margin as well as in increasing the production productivity. The increase in the innovative capacity has a positive effect on a level of the competitiveness of individual companies and the entire industry. The research results are similar to results presented by Cetera (2016) who noticed as well that there are too much attention on the technology innovation, while there are need of organizational and marketing innovation needs. But this aspect should be developed in the future researches.

Literature:

Rothenberg, S., Zyglidopoulos, S.C. (2007). *Determinants of environmental innovation adoption in the printing industry: the importance of task environment*. Business Strategy and the Environment, 16(1), p. 39-49.

Masurel, E. (2007). *Why SMEs invest in environmental measures: sustainability evidence from small and medium-sized printing firms*. Business Strategy and the Environment, 16(3), p. 190-201.

Berman, B. (2012). *3-D printing: The new industrial revolution*. Business Horizons, 55(2), p. 155-162.

Hung, S.-C., Lai, J.-Y. (2016). When innovations meet chaos: Analyzing the technology development of printers in 1976–2012. *Journal of Engineering and Technology Management - JET-M*, 42, p. 31-45

Ślusarczyk, B., Kot, S. (2016). The Impact Evaluation of the Innovation Implementation within the EU Funds on the SMEs Performance Results. *World Academy of Science, Engineering and Technology*,

International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10(2), p. 449-453.

Krause, J. (2016). Evaluation of the impact of innovative activities on productivity – Example from the Czech Republic. *Polish Journal of Management Studies*, 13(2), p. 101-109.

Marcati A., Guido, G., Peluso, A. M. (2008). *The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations*. *Research Policy*, 37(9), p. 1579-1590.

Ali Taha, V., Sirková, M., Ferencová, M. (2016). The impact of organizational culture on creativity and innovation. *Polish Journal of Management Studies*, 14(1), p. 7-17.

KPMG, (2016). *Printing Industry & Printed Packaging Market in Poland*. Six Edition.

Pomykalski, A. (2001). *Zarządzanie innowacjami*, Warsaw-Łódź: Wydawnictwo Naukowe PWN.

Łodziński, J. (2016). *Operational Programme of Silesia and Innovation Management in SMEs Printing Industry*, Ph.D. Thesis, June, unpublished.

Cetera, W. (2016). *The Effectiveness of Innovations in the Polish Printing Industry*. *Ekonomika i Organizacja Przedsiębiorstwa*, 7(798), p. 19-30.

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DEVELOPMENT OF INTERCULTURAL COMPETENCE OF VIRTUAL TEAMS

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Abstract: *The presence of global virtual cooperation in the corporate sphere has become a general fact. The global environment, however, brings to the ICT-mediated collaboration the intercultural dimension. The current research shows that the intercultural competence is one of the important factors of success of global virtual teams. This fact implies that in the management of the global virtual teams, there should be placed a special emphasis on the intercultural competence. The aim of this paper is to provide an overview of the main approaches to the development of intercultural competence of global virtual teams.*

Keywords: *Virtual teams, Intercultural competences, Intercultural training.*

JEL classification: Z1

Grant affiliation:

1. Introduction

Communication revolution of the end of the 20th century brought new instruments which have massively accelerated the global integration and exchange. Three imaginary wave of virtual work, emerging since 1980's (Johns, 2013) resulted in today's truly virtual teams and the intensity the virtual cooperation as well as the global nature of such teams is continuously growing (Trends in Global Virtual Teams, 2016; Trends in Global Virtual Teams, 2014).

Pursuing the optimal efficiency, these teams are crossing the boundaries of the physical world and combine the best workforce available together with the optimization of costs and distance to the key technologies and markets. However, the invisible boundaries of the national cultures remain and the new obstacles originating from the specifics of the communication mediated by information technology arise.

2. Intercultural challenges for virtual teams

The term virtual team is used to describe a group of workers collaborating independently on their geographic location and time. Their mutual interaction is mediated by IT (Kubátová, 2015; Jarvenpaa, 1999; Wildman, 2015; Trends in Global Virtual Teams, 2016)

The nature of particular virtual teams can differ significantly – for example, in the degree of virtualization (Kubátová, 2015; Zakaria, 2017; Wildman, 2015), cultural distance of its members, extent of global engagement (Brewer, 2015), duration of the task and stability of the team composition (Nemiro, 2008). All these facts result from the very essence of the virtual collaboration where the flexibility and diversity of the team composition bring the main advantages.

The benefits of the virtual collaboration are naturally accompanied by obstacles. There have been identified six major challenges of virtual teams, divided into two groups. The first group are the so-called virtual teams' givens, consisting of distance, time, and technology, and the second group, the challenges created by the virtual teams themselves, consists of culture, trust, and leadership (Nemiro, 2008). The Cultural richness of global virtual teams causes that there have to be crossed more boundaries than in the case of collocated teams. In addition, during the process of acculturation in which the team members are both being influenced and also the participants of the process (Lee, 2014), the virtual teams gradually create its own interculture (Nemiro, 2008; Brewer, 2015). When communicating virtually the interaction is filtered twice – by the technical filter, limiting, for example, the extent of nonverbal communication, and by the cultural filter which can reflect in the decision making, expectations related to participation and contribution to the communication and into the leadership (Brewer, 2015).

Since 2010 the organisation RW3 CultureWizard carries out a biannual survey focused on virtual teams. Based on the results of these surveys, there can be identified an increasing tendency in virtual team members' awareness of the presence of cultural issues. However, the expectations to encounter intercultural differences is not followed by the awareness of consequences caused by the intercultural misunderstanding. These surveys also show that there is placed a relatively small emphasis on formal training in the specifics of virtual work and leadership (Trends in Global Virtual Teams, 2016)

3. Intercultural competences

Bennett provides definition of the intercultural competences describing them as “a set of cognitive, affective, and behavioural skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts” (2015, p. 452). In practice, these skills manifest in the “capability to shift one's cultural perspective and appropriately adapt behaviour to cultural differences and commonalities” (2015, p. 483).

There can be found several approaches to the conceptualisation of intercultural competencies where the classification methodology can be based on various perspectives. The richness of the perspectives from which the intercultural competences can be viewed can be demonstrated by the overview of models of intercultural competences provided by Matveev (2017) who identifies at least six groups of models of intercultural competences (compositional, rational, developmental,

behavioural, causal and collaborative models of intercultural competences). Chen and Starosta (1996) describe three dimensions of intercultural competence – Cultural awareness, Cultural sensitivity and Cultural adroitness. This concept has been further developed and modified (Zakaria, 2017; Bennett, 2015) and these dimensions can be paired with three aspects in the respective order: cognitive, affective, and behavioural aspect.

As there are differences in the face-to-face and virtual communication, there are also differences in the culture's effects influencing the face-to-face and virtual teams (Brewer, 2015). This relates in particular to the limitation of non-verbal clues in the virtual environment (Trends in Global Virtual Teams, 2014).

4. Acquiring intercultural competences

In the same way as the culture is a learned and not an innate concept (Hofstede, 2010), the understanding of the values of others is also an acquired skill (Intercultural competences, 2013; Zakaria, 2017). This implies that the virtual teams can be prepared for intercultural issues in a systematic and targeted way. The heterogeneous nature and differences across the virtual teams also suggest that the approach to the development of the competences of virtual teams should be tailored and should respond to the specific needs of the respective virtual team.

When preparing teams for virtual collaboration there can be identified three main areas of professional preparation: technical skills, language skills and intercultural skills. It is suggested to focus on the development of these skills together rather than in a separate manner (Brewer, 2015). The close relation of these three areas can be for example demonstrated on the cultural preference of particular communication tool or by culture-specific expressions which can be transferred into a shared communication.

Although more approaches to the acquisition of intercultural competences have been identified there is a consensus that these competences are typically acquired by a combination of training and empirical experience (Intercultural competences, 2013; Feng et. al, 2009).

4.1. Cognitive approach

The cognitive approach is based on providing an informational content. Acquiring the knowledge about other cultures is usually the first step in gaining intercultural competences (Intercultural competences, 2013). Although the extent of such a training may vary, typically it is a short-term intervention (Feng et al., 2009).

Specific representatives of the cognitive approach are the Massive Open On-line Courses – MOOCs. Within growing range of the topics offered by the MOOC platforms, there also grows the offer of courses fully specialised or containing modules dealing with the issues of intercultural communication. Thanks to their accessibility and virtual nature, these courses may be used as the initial step to develop intercultural competences of virtual teams.

4.2. Experiential approach

The experiential approach uses real situations to develop the skills needed in the virtual team. In comparison to the cognitive approach, the nature of this type of intervention is usually medium-term, focusing on strategic needs of particular teams. This can be done for example by the implementation of a significant but low-stake project under the guidance of a skilled professional (Brewer, 2015). In this approach, a significant role can be played both by a competent team leader or a coach or facilitator.

The importance of the role of leader within the virtual team is generally acknowledged. The leader has to integrate individual cultures into the interculture of the team (Lee, 2014) and acts also as its guardian. The leader also represents the model behaviour for other team members and provides the feedback helping the team members to become aware of their behaviours (Zakaria, 2017). Therefore, there should be placed a special emphasis on cultural fluency of the global virtual leader (Browne, 2016).

5. Conclusion

In this paper, we have introduced the main concepts related to the acquisition of the intercultural competences in the virtual teams. However, this topic is very complex and cross-dimensional and can be approached using different perspectives which were not described in this text. Regardless of the chosen approach, the most important is the awareness of the existence of intercultural specifics itself. Generally applies that the awareness of the intercultural issues in the virtual collaboration grows. However, the surveys show that there is still a big gap between the perception of own capability and the real competence to deal with the intercultural issues (Trends in Global Virtual Teams, 2016). As the ability to adapt to the intercultural challenges may be one of the decisive factors of success on the global scale, paying attention to their manifestation in the virtual environment can be the first measure to respond to them.

Literature:

Bennett, J. M., ed., (2015). *The Sage encyclopedia of intercultural competence*. 1. London: Sage.

Brewer, P. E., (2015). *International virtual teams: engineering global communication*. Hoboken (New Jersey): Wiley.

Browne, W. S., Dreitlein, J., Manzoni, Mere A. (2016). Two Key Success Factors for Global Project Team Leadership: Communications and Human Resource Management. *Journal of Information Technology and Economic Development*. 7(2), 40.

Feng, A., ed., Byram M., ed., Fleming, M., ed., (2009). *Becoming interculturally competent through education and training*. Bristol: Multilingual Matters.

Hofstede, Hofstede, G., Minkov, M. (2010). *Cultures and organizations software of the mind: intercultural cooperation and its importance for survival*. 3rd ed. New York: McGraw-Hill.

Chen, G., Starosta, W., J. (1996). *Intercultural Communication Competence: A Synthesis*. Annals of the International Communication Association. 19(1), p. 353-383.

Intercultural competences: Conceptual and Operational Framework. (2013). Paris: UNESCO.

Jarvenpaa, S. L., Leidner, D., E. (1999). *Communication and Trust in Global Virtual Teams*. Organization Science. 10(6), p. 791-815.

Johns, T., Gratton L. (2013). *The third wave of virtual work*. Harvard Business Review [online]. 12. Retrieved July 30, 2017, from <https://hbr.org/2013/01/the-third-wave-of-virtual-work>.

Kubátová, J., Seitlová K. (2015). *Řízení virtuálních týmů. 1*. Olomouc: Univerzita Palackého v Olomouci.

Lee, M. (2014). *Leading virtual project teams adapting leadership theories and communications techniques to 21st century organizations*. Boca Raton: Auerbach Publications.

Matveev, A. (2017). *Intercultural Competence in Organizations: A Guide for Leaders, Educators and Team Players*. 1. Cham: Springer.

Nemiro, J. E., ed., Beyerlein, M., ed., Bradley, L., ed., Beyerlein, S., ed. (2008). *The handbook of high-performance virtual teams: a toolkit for collaborating across boundaries*. 1st ed. San Francisco: Jossey-Bass.

Trends in Global Virtual Teams: Virtual teams survey report - 2014 [online], (2014). RW3 Culture Wizard. Retrieved from <https://www.rw-3.com>

Trends in Global Virtual Teams: Virtual teams survey report - 2016 [online], (2016). RW3 Culture Wizard. Retrieved from <https://www.rw-3.com>

Wildman, J. L., ed., Griffith R. L., ed. (2015). *Leading global teams: Translating Multidisciplinary Science to Practice*. New York: Springer.

Zakaria, N. (2017). *Culture matters: decision-making in global virtual teams*. Boca Raton: Taylor & Francis Group.

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THE ROLE OF DEPRECIATION IN FINANCING BUSINESS ACTIVITY ON THE EXAMPLE OF AGRICULTURAL ENTERPRISES IN POLAND

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Abstract: *The net financial surplus as a sum of net financial result and depreciation is one of the most important internal sources of finance of any well-functioning company. A higher level of net financial result enables the profitability of both assets and equity to increase. Depreciation as a cost of revenue, affects the amount of taxable profit and thus represents a tax shield. This allows to reduce tax expenditures and allocate the saved money on the increase in fixed assets or inventories in the enterprise.*

The purpose of the article is to answer the question of whether the size of an agricultural enterprise affects the rate of use of depreciation as a source of finance. This is an important question in the context of possible reform of the taxation of agricultural activity in Poland and the way of implementing the principles of tax depreciation in this type of activity.

All the more so, in the above-mentioned tax reform, the method of taxation of agricultural enterprises depends on the size of agricultural enterprises.

Keywords: *Depreciation, agricultural enterprises, income tax, source of finance.*

JEL classification: *G32, H24, Q14*

Grant affiliation:

1. Introduction

The development of an enterprise depends on the way in which it manages the assets and selects the sources of finance. In turn, the choice of source of finance should depend on the economic calculations carried out in advance to optimize the financial result and, above all, to maintain the company's financial liquidity. In agricultural enterprises, due to the long production cycles and the high risks associated with the occurrence of fluctuations in the amount of revenue, the main aim is to finance assets from equity and sources of internal financing.

The financial surplus plays a key role in the internal sources of corporate finance. A higher level of net financial result enables the profitability of both assets and equity to increase. Depreciation, on the other hand, as a cost of revenue, reduces the taxable profit and thus represents a tax shield. The

money saved in this way can be spent on the increase of fixed or current assets in an enterprise. At the same time, the use of depreciation in asset financing can be an alternative to external financing such as credit.

It is worth noting, however, that in Poland, the agricultural activity, including individual farms, is taxed of agricultural tax and it is released from income tax (except for the income from special branches of agricultural production). As far as agricultural companies are concerned, depreciation currently does not affect the size of the tax paid by these companies.

Considering the fact that in most EU countries agriculture is subject to income tax, it can be assumed that in the future also agriculture in Poland will be taxed on that tax. It should also be emphasized that the current tax reform projects of agriculture mostly adopted solutions similar to those applicable in non-agricultural activities to agricultural activity, including the issue of tax depreciation.

The aim of this article is to make an attempt to answer the question, whether there is a relationship (including potential) between the size of the farm and the degree of depreciation use as a source of finance. This is an important question in the context of the possible tax reform of agricultural industry in Poland and the implementation of the principles of tax depreciation in this type of activity.

Firstly, the regulations on tax depreciation in Poland were analyzed. Subsequently, research was conducted on depreciation ratio to total costs and total assets of agricultural enterprises, taking into account their size. Finally, the degree of indebtedness of these companies was analyzed. The article uses the data contained in the Polish FADN (Farm Accountancy Data Network - a European system for collecting farm accountancy data) for 2015.

2. Depreciation as an internal source of finance for an enterprise

Internal sources of finance are generated internally by the business. The most available form of own sources of finance is the financial surplus, which is the sum of the net financial result and depreciation charges.

Depreciation as a cost of revenue can be treated as a source of profit reduction, but unlike other expenses, it does not cause an outflow of company cash. The money saved in this way can be a source of finance both investment expanded (involving the purchase of new fixed assets) as well as a replacement. The financing of replacement investments does not change the true value of fixed assets, but it can increase productivity. It is also worth noting that investment decisions are made in the absence of usefulness of the assets concerned and not at the time of their depreciation.

Entrepreneurs can shape the financial surplus in a given period depending on the adopted tax depreciation methods.

The most common and also the simplest method of depreciation of fixed assets is the straight-line method where the taxpayer assumes the equal charges pro-rata every accounting period. Depreciation charges are determined in accordance with the rates included in the Annex to the Personal Income Tax Act and the Corporate Income Tax Act (The Act, 1991; The Act, 1992).

The taxpayer may also set the rate individually within the limits specified by the tax regulations when the purchased fixed assets are used or improved. However, he has the right to do so only in cases where assets are entered in the register of the company for the first time. In exceptional cases, depreciation rates may be increased accordingly. This applies to fixed assets that are used in a specific way, for example under conditions of deterioration or bad conditions, or undergoing rapid technical progress (Cebrowska, 2013).

The second most popular depreciation method chosen by taxpayers is the declining balance method (it cannot be used for passenger cars). In this case the depreciation charge of the assets for period is determined by applying a constant depreciation rate (up to twice the straight-line rate) each year to the beginning of the book value of the asset. (Kiziukiewicz, 2012).

Small entrepreneurs, whose gross sales did not exceed € 1200,000 in the previous fiscal year, can make a one-off depreciation charge and include fixed assets (excluding passenger cars) to the cost of revenue to a total of € 50,000 in tax year. Taxpayers who started business activity in the tax year may also benefit from a one-off deduction. It is also worth noting that all income tax corporations, irrespective of the amount of revenues earned, can incur one-off expenses on the acquisition of fixed assets and intangible assets, if their value does not exceed PLN 3,500.

3. Research results

The research was conducted for groups of farms classified by economic size classes (ES6 classification). Economic size defined as the sum of the Standard Output (the average of 5 years value of production of a specific agricultural activity obtained from 1 hectare or 1 animal within 1 year, in the average region of production) of all agricultural activities occurring on the farm is used to determine the minimum threshold for the economic size of the FADN of observation. According to this classification farms were divided into: very small - from € 2,000 to 8,000, small - from € 8,000 to 25,000, medium small – from € 25,000 to 50,000, medium large – from € 50,000 to 100,000, large - from € 100,000 to 500,000 and very large - over € 500 000 (Polski Fadn, 2016).

It should be noted that although the economic size class of very small farms was determined in accordance with the rules of the Community Farm Typology within the limits of € 2,000 to 8,000, the farms of an economic size of at least € 4,000 are in the sample of Polish FADN.

The data presented in the tables are average values for a specific group of farms in the sample under study.

TAB. 1: The depreciation ratio to total costs and total assets in agricultural enterprises

Specification	Very small	Small	Medium small	Medium large	Large	Very large
Depreciation/Total costs [%]	29.26	25.29	20.64	18.42	11.10	7.91
Depreciation/Total	2.68	2.77	2.73	2.82	2.98	4.33

assets [%]

Source: author's calculations based on data from Polish Fadn

Based on the calculations it can be concluded that depreciation has the largest share in total costs in very small (29.26%) and small (25.29%) enterprises. As the size of the farm grows, the share of depreciation in total costs decreases. By analyzing the depreciation relation to total assets in different groups of agricultural enterprises, it can be observed that in very small, small, medium small, medium large, and large enterprises, it is relatively stable at between 2.68% and 2.98%. The increase in the share of depreciation in total assets occurs only in very large enterprises (4.33%).

TAB. 2: The indebtedness of agricultural enterprises

Specification	Very small	Small	Medium small	Medium large	Large	Very large
Total liabilities/Total assets [%]	0.60	2.50	5.16	8.34	16.68	16.40

Source: author's calculations based on data from Polish Fadn

The results of research on the indebtedness of various agricultural enterprise groups are interesting. It follows that small businesses are indebted to a much smaller extent than large and very large companies. Given the fact that small enterprises have a higher share of total cost of depreciation, it can be concluded from this that they are financed to a greater degree of financial surplus, and therefore they have no need to use external financing.

4. Conclusion

The research shows that the largest share of depreciation in total costs occurs in very small, small and medium-sized enterprises. At the same time, in the smaller companies, depreciation represents a small percentage of assets, suggesting that its share in asset financing is small. The debt of these companies is also much smaller than for large and very large companies. It can be deduced from this that small enterprises allocate funds from their depreciation for current activities while reducing their debt.

Large companies, on the other hand, allocate more cash from depreciation on investments while increasing debt.

The high share of depreciation in the total cost of small agricultural enterprises shown in the study is also important for the potential tax reform of agriculture in Poland. Assuming that the solutions for farmers would be modeled on non-agricultural activities, they would have the right as so-called "small taxpayers" to make a one-off depreciation of up to € 50,000 in the tax year. In this case, it can

be assumed that the vast majority of small farmers in Poland would not have achieved taxable income or it would have been very small.

Literature:

Cebrowska, T. (Ed.), (2012). *Rachunkowość finansowa i podatkowa*. Warszawa, PWN, pp. 252-253.

Kiziukiewicz, T (Ed), 2013. *Rachunkowość jednostek gospodarczych*. Warszawa, PWE, pp. 67-69.

The Act of 26th July 1991 on the Individual Income Tax (1991). *Journal of Laws 1991* (80), item 350.

The Act of 15th February 1992 on the Corporate Income Tax (1992). *Journal of Laws 1992* (21), item 86.

Polski FADN, (2016), *Wyniki standardowe 2015 uzyskane przez gospodarstwa uczestniczące w Polskim FADN. Część I. Wyniki Standardowe*.

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A SIMPLE JOINT-STOCK COMPANY AS ONE OF THE SUPPORTING TOOLS FOR FORMATING NEW INNOVATIVE COMPANIES IN SLOVAKIA

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Abstract: *The European Union is aware that the main drivers of economic growth in the 21st century will be primarily innovative companies. Therefore, various programs and grants will be launched to support new launched innovative companies known as Start-up. This is all the more important for us to realize small economies with a high degree of openness, such as Slovakia. One of the possibilities of supporting start-up is change of laws. In this article we will briefly describe the possibility of supporting the formatting and operation of new innovative companies through a new type of business company – Simple joint-stock company (j.s.a.).*

Keywords: *Simple joint-stock company, Innovative companies, Start-up ecosystem in Slovakia, The Commercial Code.*

JEL classification: *M13, O30*

Grant affiliation:

1. Introduction

The issue of supporting new innovative companies such as start-ups is a relatively new one. The main difference between regular starting business and the start-up is in its fast growth. (Graham 2012) (Ries, 2011) (Ries, & Euchner, 2013). Regarding this the start-ups may be define also as ‘newly established companies, which are able to create global transformation of whole sectors’ (Senor et al., 2009). The start-ups established upon new technologies have high growth potential (Graham 2012) (Ries, & Euchner, 2013).. The European Union is aware that the main drivers of economic growth in the 21st century will be primarily innovative companies and takes it in consideration while planning the strategy of its economic development (Hadraba, 2005). That is why the European Union makes more and more effort to support the new innovative projects which should lead to the support of employment and economic growth. (Hadraba, 2005). This is even more important to realize for small economies with a high level of economic openness, what also Slovakia or the Czech republic became after their entry into the European Union (Mišota & Sorokáč 2013).

The support of innovation should contribute to effective development and growth of the business. (Davila et al., 2012) . It also should lead to elimination of inefficiency in business processes. (Vlček, 2011). The efficiency of innovation can be measured (Chajdiak et al., 2016) (Vlček, 2011) and evaluated by different indicators. (Žižlavský, 2012) (Janáková, 2016).

The term start-up is usually associated with the idea of starting fast growing business (Graham 2012), that is typically technology oriented. Start-ups dominate especially in the sector of Information and communication technologies (ICT). The main problem about the start-ups is to create a business model that is to survive. The model that would increase the value of investments so that the resulted value would provide the benefit (Janáková & Zatrochová, 2015). The business environment in Slovak Republic is mainly composed of small and medium enterprises. Start-ups are part of them.

2. Startup support and start-up ecosystem development in Slovakia

According to the KPMG survey, 55% of Slovak startups are generated. The findings show that in more than two-thirds of cases, Slovak startups are in the beta stage or in the early revenue stage. In this case, however, three-quarters of investors have expressed their willingness to invest in projects at this stage for KPMG (KPMG, 2016).

Startups are usually entities that do not have the opportunity to enter the market with the initial high capital, which is a frequent reason for their disappearance and bankruptcy (Ďurica, 2010).

Based on the results of Startup Survey 2016 (KPMG, 2016), 77% of investors increased their investment in startups last year. Four out of ten respondents from the ranks of investors have also said that they have already invested more than 1 million euros in Slovak startups. According to KPMG (Resources), it is likely that an additional € 30 million will be invested in the next 12 months in the ecosystem. Investors, when considering a startup investment, prioritize the quality of the team, follow the product / service features and business potential (KPMG, 2016).

Enhanced support for the startup of the ecosystem in the KPMG survey (KPMG, 2016) was shown not only by investors but also by public administrations. So, the interest in startup support and development is growing, as well as from central government authorities.

The Government of the Slovak Republic in 2015, in cooperation with the Ministry of Finance, Economy, Education and Slovak Business Agency, prepared a concept for startup support and the development of a startup ecosystem in Slovakia. The government has discussed a program that should make it easier for the startup to work.

The biggest example was countries such as Great Britain, Estonia, Israel, USA and the Scandinavian countries. There was a need to adopt an official startup support concept and therefore the Government of the Slovak Republic approved by Government Resolution no. 307/2015 an official document entitled "The Startup Support Concept and the Development of the Startup Ecosystem in the Slovak Republic" (Government of the Slovak Republic 2015). The goal of this concept is primarily to improve the position of startups in the business environment. The concept includes legislation, education and funding. These measures are characterized by the fact that they are designed to facilitate entrepreneurship and the emergence of companies with potential for innovation. Overall,

the following can be summarized as follows: exemption from the tax license, granting of start-up visas from non-EU countries, establishment of the National Business Center, changes in the deposit of a guarantee for the voluntary registration of a VAT payer (Kubincová, 2015). It is also very important to provide a student grant with an innovative idea, to support the quality of education in the field of financial literacy, to engage in international programs, to introduce new financial tools for old people within the National Business Center and to create a position for the permanent representative of the Slovak Republic in Silicon Valley. In order to implement support measures, some issues need to be addressed to restrict their implementation and to prepare and / to amend some laws.

3. A simple joint-stock company as a support tools for new innovative companies

One of the possibilities of starting ups is also a change of legality regarding their legal form. In Slovakia, we did not have a type of business that would support startups. Therefore, since January 1, 2017, a new type of legal form of start-up company has emerged. In accordance with the Startup Startup Concept and the Development of the Startup Ecosystem in the Slovak Republic, introduced in the Commercial Code a new legal form of a trading company that will allow me to flexibly set up property relations and also the entry and exit of the investor to / from the company. This type of company is a simple joint-stock company to share. (Kubíček, et al., 2016) (Act 513/1991 Coll., The Commercial Code of the Slovak Republic).

This company may be established by one or more persons. A simple joint-stock company can not be based on a call for share subscription, and before the company itself is formed, the full value of the registered capital must be subscribed and all money and non-monetary contributions paid. The law of such a company lays down the mandatory requirements of the founding documents. These documents are subject to tighter form requirements. If the company intends to issue different kinds of shares, the Articles of Association must contain a precise determination of the content of the rights attaching to the individual types of shares and the manner in which they are exercised.

It is a capital company that represents a hybrid model of a joint stock company and a limited liability company. Here is the principle that if some issues are not explicitly modified in a simple share company, the provisions of a classical joint stock company will apply accordingly. This company will use the " simple joint-stock company " or abbreviation „j. s. a.“.

A simple joint-stock company was created to simplify and facilitate business. The main motive is to support the startup startups they need to find for their investment and investor development because they can not afford to fund their business. Potential investors have the opportunity to hold their share in the company in order to secure their investment, that is, they are the elements of the combination of both types of capital companies (a simple joint-stock company and limited liability companies). The minimum height of the nominal capital, the basic capital is 1 euro.

For breach of its obligations, this company will guarantee all its assets, but the shareholder will not be liable for the company's liabilities at all. A simple joint-stock company on stock is the ideal form for start-up projects offering new or significant innovative products. The creation of such a company

will in no way be limited to a startup project. Any other entrepreneur with any other subject of activity will be able to create it.

A simple joint-stock company has a simple organizational structure and a lack of equity for the limited liability company. From the joint stock company, benefits for investors (shareholders) are taken into the company to enable them to effectively enter, remain and exit from the investment. Shares of a simple company may be shares issued only in the form of a book-entry security and may only be a name. A register of shareholders will also be set up, which will be kept by the CSD and publicly available at its web site.

This company will not be able to be established for any purpose other than business. The fundamental right of a shareholder in this company is the right to participate in the management, profits and liquidation balance.

A simple joint-stock company shares can be issued mainly by ordinary shares. The Company may also issue shares without voting rights, provided that the sum of their nominal values does not exceed 90 per cent of its registered capital. Shares of such a company may be excluded from transferability. In order to protect shareholders holding shares with limited or excluded transferability, the need for a qualified majority is required for the decision of the general meeting on issues that may be affected by these institutes. The conversion of shares with limited or excluded transferability without meeting the terms of transferability is an absolute void in law.

If the transferability of the shares is ruled out, if the statutes do not specify a longer period, after four years of repayment of the issue price, the right to demand the redemption of the shares from the company.

Since it is a new type of capital company, new contract types are introduced, including the right to add to tag-along, the right to demand drag-along, and the right to demand a shootout.

The right to add to the transfer of shares entitles the shareholder to convert his shares together with the shares of another shareholder, corresponding to the obligation of the obligor to allow it on the same terms. When the right to demand the transfer of shares, if the conditions for the creation of this right are met and the fact is certified by a notary, the entitled party may transfer the affected shares to a third person acting in the name and on the debtor's account.

In order to avoid a multi-rights conflict, it was stipulated that only one pre-emption right, one right to join the transfer, one right to demand a transfer, and one right to demand the acquisition of shares be combined with one share.

The bodies of the simple company for shares are the general meeting and the statutory body is the board of directors.

The reasons for the cancellation of this company are part of the Articles of Association. The cancellation of the company may be demanded by the shareholders as well as the members of the board of directors. This company will be able to expire by merger or merger. A simple joint-stock company can only change its legal form to a joint stock company.

A comparison of the different types of companies is given in the following table 1.

TAB. 1: The comparison of individual types of trading companies

	Limited company	Simple joint-stock company	Joint-stock company
Minimal amount of nominal capital	5000eur	1 euro	25000 euros
Minimal investment value of business partner	750 eur	1 cent	Shareholder – no limit for a minimal investment value
Documents required for a company establishment	Partnership agreement	Memorandum of association / deed of incorporation – with the articles of incorporation	Memorandum of association / deed of incorporation
Number of founders	1 natural person or artificial person	1 natural person or artificial person	2 natural persons or 1 artificial person
Capital liability	Shareholders stand surety for the amount of investment not yet paid in	Shareholders don't stand surety for the financial liabilities	Shareholders don't stand surety for the financial liabilities

4. Conclusion

The main goal of introducing a simple joint-stock company into shares is to enable and facilitate the startup to start their own business while attracting new investors and stimulating their business activities in Slovakia.

From the above, it follows that a simple joint-stock company is a hybrid form of a capital company that combines „the elements of „limited company" or abbreviation „ (s.r.o.) and „joint-stock company" or abbreviation „ (a.s.) (Kubíček, et al., 2016). The endeavor of the legislator is to create the benefits of „limited company" or abbreviation „ (s.r.o.) and „joint-stock company" or abbreviation „ (a.s.) (Kubíček, et al., 2016).

The advantage of such a company is that it simplifies and facilitates entrepreneurship. The intention is to provide support for start-ups, where the main goal is to find investment and investor development. Startup has the advantage of choosing an easy-to-share company as its true form of business, in that it is more flexible and has the ability to adapt more quickly to changing market conditions and, in particular, to create prerequisites for continued research and development. It also has the opportunity to determine what rights and obligations will be associated with the individual actions. There is no limit what can be associated with the shares and the founders can identify a group of shares that will have, for example, more voting rights or a greater share of the profit than they would have by value or vice versa. Furthermore, the transferability of the shares may be limited or prohibited. It is at the choice of the founders.

The advantage of a simple company on shares versus „limited company" or abbreviation „ (s.r.o.). Is the fact that the shareholders of the simple company on shares do not rush for the company's obligations. This company, as a capital company, is obliged to create a capital of at least 1 €, which is an advantage over the „limited company" or abbreviation „ (s.r.o.), where the minimum capital is 5,000 € and „joint-stock company" or abbreviation „ (a.s.), where the minimum capital value is 25,000 €. Also, the minimum stake of the shareholder may be 1 cent. The advantage is that such a company can also establish 1 founder of the natural person. The company is based either on a founding covenant or a charter. of subchapters is indicated below.

Literature:

Davila, T., Epstein, M., & Shelton, R. (2012). *Making innovation work: How to manage it, measure it, and profit from it*. FT press.

Chajdiak, J., Ďurechová, Glatz, M. & Mišota, B. (2016). *The selected measures of innovation*. In Innovation Management, Entrepreneurship and Corporate Sustainability (IMECS 2016) (pp. 85-95). Vysoká škola ekonomická v Praze.

Ďurica, M. (2010). *Konkurzné právo na Slovensku a v Európskej únii*. Eurokodex.

Government of the Slovak Republic (2015). *The Startup Support Concept and the Development of the Startup Ecosystem in the Slovak Republic, Government Resolution no. 307/2015*. Retrieved from <http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=24603>, accessed June.

Graham, P. (2012). *Startup = growth. self published online article*. Retrieved from <http://www.paulgraham.com/growth.html>, accessed May.

Hadraba, J. (2005). *K problematice členění a hodnocení inovací*. Inovace: jediná účinná cesta k úspěchu v globální ekonomice, p. 31.

Janáková, H. (2016). *Evaluation of innovative potential of smes using the fuzzy logic*. In Innovation Management, Entrepreneurship and Corporate Sustainability (IMECS 2016), (pp. 271-281). Vysoká škola ekonomická v Praze.

Janáková, H., & Zatrochová, M. (2015). Strategic management for central european start-up companies. In *Strategic Management - IMKSM2015 : 11th international May conference, 11th students symposium on strategic management* (p. 433).

KPMG, (2016). *Slovenský startup ekosystém môže očakávať investície vo výške 30 mil. Eur*. Retrieved from <https://home.kpmg.com/sk/sk/home/media/press-releases/2016/06/slovensky-startup-ekosystem-moze-ocakavat-investicie-vo-vyske-30-mil-eur.html>, accessed June.

Kubíček, P., Škrinár, A., Nevolná, Z., Kolkusová, R., & Ďurica, M. (2016). *Obchodné právo*. Vydavateľstvá a nakladateľstvá Aleš Čeněk.

Kubincová, S. (2015). *Daňový poriadok*. C. H. Beck.

Mišota, B., & Sorokáč, A. (2013). Vývoj stupňa otvorenosti ekonomiky SR a ČR v rokoch 1995 – 2012. *Časopis znalostní společnosti / Journal of Knowledge Society*, 2.

Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Books.

Ries, E., & Euchner, J. (2013). *What large companies can learn from start-ups*. Research-Technology Management, 56(4), 12-16. Senor, D., & Singer, S. (2009). *Start-up nation: The story of Israel's economic miracle*. McClelland & Stewart.

Viček, R. (2011). *Strategie hodnotových inovací: tvorba, rozvoj a měřitelnost inovací*. Professional Publishing.

Žižlavský, O. (2012). *Manuál hodnocení inovační výkonnosti*. Brno. Akademické nakladatelství Cerm.

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HIGHLY SKILLED LABOUR MIGRATION AND THE DIGITAL SKILLS

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Abstract: *Today around 45% of Europeans have no or low digital skills. There may be a lack of up to 500 000 ICT professionals in 2020. ESCO is an important deliverable to support the Europe 2020 strategy and the New Skills Agenda for Europe. The paper deals with the highly skilled labour migration and digital skills. In several EU Member States, the foreign-born population had a higher level of education than the native-born population. Over-qualification denotes situations where workers' levels of formal education are higher than those required by the jobs they fill. The over-qualification rate estimated here is the share of people with tertiary-level qualifications who work in a job that is classified as low- or medium-skilled by the ISCO.*

Keywords: *Labour migration, ESCO, digital skills.*

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1. Introduction

Having a digitally skilled labour force and population, more broadly, is crucial for the creation of a Digital Single Market in Europe and for receiving its benefits, for European competitiveness and for an inclusive digital society. Around 90% of jobs are estimated to need at least some level of digital skills in the EU. Acquiring those skills is thus becoming a precondition for workers to become and remain employable. Currently, however, 44% of European citizens do not have basic digital skills. 19% had none at all, as they did not use the internet. 37% of people in the labour force – farmers, bank employees, and factory workers alike – also lack sufficient digital skills, despite the increasing need for such skills in all jobs (European Commission, 2017a, European Commission, 2017b, European Commission, 2016).

2. Digital skills

New approaches to education, training, re-skilling, skills use throughout the economy, and adjustment assistance to meet the fast-changing demand for new skills, will be key to maximising the benefits of a digital and inclusive economy and society today and in the future. Basic skills will be important, as will digital and science, technology, engineering and mathematics (STEM) skills and variants such as data analytics, programming and network deployment and maintenance, and softer skills associated with content creation, design, organisational change and entrepreneurial creativity (OECD, 2017). The Human Capital dimension of DESI has two sub-dimensions covering 'basic skills and usage' and 'advanced skills and development'. The former includes indicators on internet use by individuals and digital skills - individuals with at least basic skills in the Digital Skills Indicator. The latter includes indicators on ICT specialist employment and graduates in STEM disciplines. According to 2016 data, Finland, the UK and Sweden were the highest scorers under both the basic skills and usage and advanced skills and development sub-dimensions. Romania, Bulgaria, Greece and Cyprus rank lowest overall on the Human Capital dimension of DESI (European Commission, 2017a).

As digitalisation deepens, computer skills become increasingly important. On average, only a quarter of all workers use office software daily. Of these, according to the OECD Survey of Adult Skills (PIAAC), a considerable share of workers may lack the skills to use these tools effectively. This could be worrisome unless better software and artificial intelligence help overcome these problems and reduce barriers to computer use as there is no plausible future in which computer use will decline (indeed, it is more likely that reliance on computers will rather increase (OECD, 2017).

Results from the PwC 2016 Global Industrie 4.0 Survey show that 50% of the companies that are included in the survey see the lack of digital culture and training as a top challenge to making their operations more digital. Therefore, the main issue for most firms today turns out to be the recruitment, tenure and training of people with the appropriate skills rather than the adoption of a particular technology. Lack of skills or competencies in the company's workforce is also the biggest challenge survey respondents see when it comes to making use of data analytics. It's not surprising, then, that over two-thirds (69%) cite increasing in-house data analytics technology and skill levels as the single biggest improvement route to boost data analytics capabilities. Some companies also say external partnerships have a role to play, through the provision of technology or training, and a minority of companies (18%) expect to use M&A to acquire outside companies (PwC, 2016).

The demand for ICT generic skills increased in a large majority of countries between 2011 and 2014. On average, the proportion of workers using communication and information search (CIS) or office productivity software (OPS) daily increased by 0.9 and 0.6 percentage points, respectively. Yet, the proportion of workers using ICTs at work daily differs significantly across countries in the PIAAC sample, ranging between 64% in Norway and 34% in the Slovak Republic for CIS and between 43% in the United Kingdom and 26% in Poland for OPS (OECD, 2016b).

3. Highly skilled labour migration

There is a significant paradox in the labour market: there is a high number of vacancies in the IT sector yet employers state that they face difficulties in finding people to fill these positions. The issue of insufficient skills supply is even bigger at European level: thousands of positions remain unfilled

annually, while the gap between supply and demand for digital skills (or e-skills, as they are often called) is expected to result in over 800,000 vacancies in 2020 (an increase of around 500,000 compared to today). This strong and increasing demand for e-skills may be attributed to the very high penetration of technology into our everyday lives (Alliance For Digital Employability, s. a.).

The ICT workforce, in EU-28 in 2016, comprises 8.2 million workers, or 3.7% of the European workforce (TAB. 1). The majority of ICT specialists in the EU-28 have completed tertiary-level education, with the proportion of workers with this level of education increasing slightly since 2005 to reach 62 % in 2016 (Eurostat, 2016).

As people move up the education ladder towards more specialised skills, evidence shows that all countries produce relatively more tertiary graduates in natural sciences and engineering than they do computer science graduates. Germany leads at 35% of all tertiary graduates in natural sciences and engineering, followed by Korea (31%) and Mexico (28%). With respect to computer sciences, Indonesia leads at almost 10% of all tertiary graduates, followed by the Russian Federation and Germany, both at around 4.5% (OECD, 2017).

TAB. 1: Employees in ICT jobs (2016)

Country	Employees in ICT jobs as a percentage of the overall workforce per EU country (2016)	Enterprises that employ ICT specialists (2016)	Enterprise had hard-to-fill vacancies for jobs requiring ICT specialist skills (2016)	Employed ICT specialists with tertiary-level education (2016)	Future employment growth (in %) in information & communication activities sector across countries in 2015-2025
Finland	6.6%	24%	5%	64.2%	16.63
Sweden	6.3%	18%	4%	56.5%	2.62
Estonia	5.3%	15%	5%	57.6%	8.55
United Kingdom	5.1%	23%	4%	64.9%	5.79
Netherlands	5.0%	26%	5%	61.5%	-4.41
Belgium	4.2%	26%	6%	76.2%	11.53
Denmark	4.2%	25%	6%	56.7%	14.00
Austria	4.2%	25%	5%	61.9%	9.25
Luxembourg	4.1%	24%	8%	77.3%	9.94
Ireland	3.9%	35%	6%	85.2%	24.75
France	3.8%	16%	3%	78.4%	8.10

Germany	3.7%	22%	4%	49.7%	6.60
Malta	3.7%	26%	7%	53.7%	4.21
Hungary	3.6%	26%	5%	65.7%	4.88
Czech Republic	3.5%	19%	4%	56.3%	8.47
Slovenia	3.5%	20%	4%	56.6%	16.44
Croatia	3.3%	17%	3%	52.5%	27.46
Spain	3.0%	25%	2%	79.1%	13.15
Slovakia	2.9%	20%	4%	59.3%	15.86
Bulgaria	2.7%	20%	3%	64.6%	3.23
Poland	2.7%	12%	2%	69.8%	18.21
Italy	2.6%	17%	2%	32.8%	6.50
Lithuania	2.5%	15%	2%	80.7%	21.26
Portugal	2.4%	19%	2%	51.2%	8.25
Cyprus	2.2%	25%	2%	72.9%	12.28
Latvia	2.2%	17%	4%	67.7%	8.29
Romania	2.0%	11%	1%	70.0%	5.73
Greece	1.4%	30%	2%	59.4%	3.50
EU-28 Average	3.7%	20%	4%	62%	7.79

Source: Compiled by the author on the sources Eurostat (2016) and European Commission, Cedefop (s. a.)

Employment in information & communication activities sector in EU by education level (2011-2015 comparison) is from 6.36% to 4.99% (low education level), from 37.06% to 32.55% (medium education level) and from 56.01% to 62.24% (high education level) (European Commission, Cedefop, s. a.). ICT professionals have a high level of formal education but not always in ICT: 66% of those who participated stated that ICT was the main focus of their education, highlighting that one third of the ICT professionals in the sample come from a non ICT-focused background. The lowest rate of ICT professionals with an IT-focused education are found in Norway (57%) and in Ireland (58%). On the opposite end there are Spain and Hungary, with a respective rate of IT-focused education of 85% and 75% (CEPIS, 2014).

The age distribution of ICT specialists is assessed using two age groups: 15-34 years and over 35 years. The majority of ICT specialists in the EU-28 (64 %) belong to the latter group. Moreover, the proportion of ICT specialists in the older age group increased by 6.2 percentage points between 2007 and 2016, suggesting a further ageing of this segment of the European labour market. The countries that had the highest proportion of ICT specialists in the older age group in 2016 are Italy (75.5 %), Finland (71.4 %) and Sweden (70.0 %). The highest proportion of younger workers (15-34 years) was found in Malta, Latvia and Poland, where they accounted for 63.1 %, 54.1% and 53.6 % respectively of ICT specialists (Eurostat, 2016).

The occupations with the largest numbers of people employed in information & communication activities in 2015 in EU were: ICT professionals (1,910,192), ICT technicians (781,812), legal, social & cultural professionals (656,172), business & administration professionals (486,804) and business & administration associate professionals (414,811) (European Commission, Cedefop, s. a.).

The excess demand or shortage (calculated as the number of open posts)¹² amounts to 365,000 in 2015 and 756,000 in 2020. This figure can best be described as ‘demand potential’ or ‘job potential’ for ICT jobs. It should be seen as a (theoretical) figure describing the demand potential for new ICT jobs which – under the above assumptions – could theoretically and additionally be created in Europe due to an e-skills demand likely to occur especially in the years closer to 2020. Recalling the definition of demand potential, by 2020 the labour market would be able to absorb 756,000 additional workers, if demand is not hampered by supply bottlenecks. Of these 756,000 there are 530,000 potential additional jobs in ICT practitioner occupations and around 226,000 at ICT management level.

While currently a relative majority of vacancies exists in Germany, the comparably lower graduate figures in the United Kingdom and in Italy suggest that the problem of skills shortages will severely aggravate in these countries. While in absolute figures increasing from 73,000 (2015) to 150,000, the share of German vacancies in the European will remain at 20%. By contrast, the number of vacancies grows immensely in the UK from 50,000 to 161,000 (13% to 21%). In Italy, the number of vacancies is expected to rise from 33,000 to 135,000 (9% to 18%) (Hüsing, T., Korte, W. B., Dashja, E., 2015).

Ten industries with the largest changes in foreign-born employment is in the Table 2. The proportion of computer programming, consultancy and related activities increased by 48 percentage points between 2011 and 2015 (OECD, 2016a).

TAB. 2: Ten industries with the largest changes in foreign-born employment by duration of stay, in selected european OECD countries, 2011 - 2015

	Recent migrants			Settled migrants		
	Change			Change		
	(000)	%		(000)	%	
Education	56	+32	↑	248	+18	Food and beverage service activities
Services to buildings and landscape activities	44	+27		192	+18	Education
Computer programming, consultancy and related activities	38	+48		190	+12	Retail trade, except of motor vehicles and motorcycles
Warehousing and support activities for transportation	37	+72		159	+20	Services to buildings and landscape activities
Specialised construction activities	20	+13		139	+29	Social work activities without accommodation
Other professional, scientific and technical activities	20	+80		134	+11	Human health activities
Manufacture of motor vehicles, trailers and semi-trailers	20	+58		116	+12	Activities of households as employers of domestic personnel
Wholesale trade, except of motor vehicles and motorcycles	17	+14		104	+17	Residential care activities
Wholesale and retail trade and repair of motor vehicles and motorcycles	16	+44		97	+28	Crop and animal production, hunting and related service activities
Postal and courier activities	14	+59		91	+14	Wholesale trade, except of motor vehicles and motorcycles
Other personal service activities	-3	-5	↓	3	+2	Activities of membership organisations
Office administrative, office support and other business support activities	-3	-11		2	+3	Advertising and market research
Public administration and defence; compulsory social security	-7	-11		-2	-3	Activities of extraterritorial organisations and bodies
Financial service activities, except insurance and pension funding	-8	-11		-4	-1	Manufacture of motor vehicles, trailers and semi-trailers
Security and investigation activities	-10	-41		-10	-3	Manufacture of fabricated metal products, except machinery and equipment
Activities of extraterritorial organisations and bodies	-11	-32		-13	-9	Civil engineering
Residential care activities	-11	-11		-16	-6	Financial service activities, except insurance and pension funding
Crop and animal production, hunting and related service activities	-23	-23		-41	-7	Construction of buildings
Construction of buildings	-30	-21		-52	-30	Employment activities
Activities of households as employers of domestic personnel	-171	-57		-52	-5	Specialised construction activities

Source: OECD (2016a)

4. Conclusion

To address the digital skills deficit the Commission launched in March 2013 the Grand Coalition for Digital Jobs, i.e. a large collaborative effort aimed at offering more ICT training, implementing job placement programmes, providing more aligned degrees and curricula at vocational schools and universities, and motivating young people to study ICT and pursue related careers (European Commission, 2016). With the right approach to migration policy and the management of immigration, it is possible to some extent to minimize losses and maximize the benefits of immigration workforce. Filling of vacant posts that cannot be filled by the domestic workforce is to sustain economic development necessary (Tupá, 2017).

Literature:

Alliance For Digital Employability. (s. a.). *Creating 500.000 new jobs in ICT*, retrieved from <http://www.afdemp.org/wp-content/uploads/2016/06/RESEARCH-EN-final-for-web.pdf>.

CEPIS. (2014). *E-Competence in Europe - Analysing Gaps and Mismatches for a Stronger ICT Profession*, retrieved from http://www.cepis.org/media/CEB_European_Report1.pdf.

European Commission. (2016). *DIGITAL SINGLE MARKET: DIGITAL SKILLS AND JOBS*, retrieved from http://ec.europa.eu/europe2020/pdf/themes/2016/digital_single_market_skills_jobs_26105.pdf.

European Commission. (2017a). *Human Capital: Digital Inclusion and Skills*, retrieved from <file:///C:/Users/skolenie/Downloads/EuropesDigitalProgressReportHumanCapitalChapter.pdf>

European Commission. (2017b). *The Digital Skills and Jobs Coalition*, retrieved from <https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition>.

European Commission, Cedefop, Skills Panorama. (s. a.). *Skills Panorama*, retrieved from <http://skillspanorama.cedefop.europa.eu/en>.

Eurostat. (2016). *ICTZ spacialists in employment*, retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/ICT_specialists_in_employment.

Hüsing, T., Korte, W. B., Dashja, E. (2015). *e-Skills in Europe*, retrieved from http://eskills-lead.eu/fileadmin/lead/working_paper_-_supply_demand_forecast_2015_a.pdf.

OECD. (2016a). *International Migration Outlook 2016*, retrieved from http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/international-migration-outlook-2016_migr_outlook-2016-en#page75.

OECD. (2016b). *New Skills for the Digital Economy*, retrieved from <http://www.oecd-ilibrary.org/docserver/download/5jlwnkm2fc9x-en.pdf?expires=1500529448&id=id&accname=guest&checksum=225389D655B34E1E12FEDD1938AB B18A>.

OECD. (2017). *Key Issues for Digital Transformation in the G20*, retrieved from <https://www.oecd.org/g20/key-issues-for-digital-transformation-in-the-g20.pdf>.

PwC. (2016). *Global Industry 4.0 Survey: Building the digital enterprise*, retrieved from <https://www.pwc.com/gx/en/industries/industries-4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016.pdf>.

Tupá, M. (2017). CONSEQUENCES OF LABOUR IMIGRATION AND MIGRATION MANAGEMENT. *Sociálno-ekonomická revue*, 15(2), p. 79-85.

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KNOWLEDGE MANAGEMENT IN THE POLICE PRACTICE IN THE LINK TO THE HUMAN RESOURCE MANAGEMENT

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Abstract: *The paper presents knowledge management in the police practice in the link to the human resource management and describes the results of the pilot research, which was carried out at the Police Academy of the Czech Republic in Prague in the years 2014-2016. It focuses on facts that are reasons for implementing knowledge management in the practice of the organization. It identifies the specifics of knowledge management in police practice and highlights the need to a different approach in the area of human resource management in the case of the use of various knowledge-based strategies. The contribution responds to the current challenges faced by the Police of the Czech Republic, since in front of it's management there is not only a realisation of the system measures with an impact on the functioning of the police force as a whole, but also effective and ethical management of human resources.*

Keywords: *Human resource management, knowledge, knowledge management, police.*

JEL classification: *M12, M19*

Grant affiliation: *Cyber security and the protection of critical information infrastructure.*

1. Introduction

The current development of safety situation in the world and in Europe puts new challenges on guarantors of the internal and external security of the state. The Police of the Czech Republic aims to be a guarantor of internal security in times when the security risks are rising and when there is for individual elements of the security system and connections among them a higher degree of instability, uncertainty, complexity, and ambiguity. The criminal activity is much more sophisticated. At the same time, there are new kinds of criminal activities that lay greater demands on the policemen.

Not only in the field of human resource management, the last decade in the Police of the Czech Republic was negatively affected by: approving only short-term goals; transferring competencies from the level of international agreements and governmental strategies without adequate allocation

of human and financial resources, respectively often also in terms of reducing the organization's budget and the salaries of members; absence of a long-term framework of human resources management; the effect of the Act on Service Relationship, which triggered a wave of exits at the beginning of 2007; the thwarted investment in human resources which were in eight years according to the Concept of Development of the Police of the Czech Republic till 2020 (2016) more than 934 million CZK.

2. Knowledge management in policing in the link to the human resource management

Effective and ethical management of human resources is an important key to fulfilling the mission and fulfilling all the tasks of the Police of the Czech Republic. The members of the Police of the Czech Republic, as well as other public and private sector employees, bring success to the organization if they have knowledge, skills, and abilities, have a positive attitude to work, and see the opportunity of their professional and personal development (Dvořáková et al., 2007, p. 4). Knowledge management has considerable potential for police practice (Dean, Gottschalk, 2009, p. 10). Police officers are considered to be knowledge workers (Seba, Rowley, 2010; Hu, 2010) and police work is recognized as "knowledge work". The „value” of „police knowledge” and its effective „management” is the cores business of policing (Dean, Gottschalk, 2009, p. 17). Police knowledge, according to previous research (Holgersson, Gottschalk, 2008) appears to be primarily implicit, tacit and based on experience. It is tied to its holder and is often lost as he leaves the police force.

The threat of knowledge loss is a risk for organizations not yet fully recognized. Knowledge management and knowledge continuity help to mitigate the risk (Šubrt, Zuzák et al., 2010, p. 33). The loss of knowledge can be prevented with a good management of human resources that respects different knowledge strategies - personalization and codification (Hislop, 2013) - and does not make a mistake which is pointed out by Prusak (2001) who says: „We have seen a tendency – especially among vendors of software – to reductively define knowledge management as moving data and documents around; knowledge management grew out of an understanding of the critical value of these other, less digitized factors, and the clear need to devise ways to support and benefit from them”. Bock (Bock et al. in Gottschalk, 2008, p. 151) found, that extensive knowledge sharing within organizations still appears to be the exception rather than the rule.

3. Goal and methods

The aim of the pilot survey, which took place among the top managers of the Police of the Czech Republic during the years 2014-2016, was to verify whether the situation in the Police of the Czech Republic in terms of the efficiency of the transfer of knowledge has changed and whether there are certain problems - respectively the reasons for implementing knowledge management in an organization - especially in the area of human resources management and ICT. For the questions of questionnaire survey were selected frequent reasons for implementing knowledge management in the organization according to Tiwana (2002).

During the three roundtable meetings that took place during the training of top management of the Police of the Czech Republic, in Novembers 2014-2016, top managers were presented with the

results of research in the field of knowledge management in 2013 (Junková, 2013). In particular, the field research investigated whether selected conditions for effective transfer of knowledge in the Police of the Czech Republic were met. The hypotheses (H1 - H4) have been formulated and scientifically verified: H1 Police officers of the Czech Republic are aware of the loss of knowledge caused by the leaving of their colleagues; H2 The social climate in the workplaces of the Police of the Czech Republic supports the horizontal transfer of knowledge; H3 In the Police of the Czech Republic, the environment of trust is created; H4 The current organizational structure of the Police of the Czech Republic creates conditions for transfer of knowledge. H1 was confirmed, H2 - H4 was not confirmed. Then it was followed by discussion and questionnaire survey. The survey was attended by 33 top managers of the Police of the Czech Republic. The respondents were regional directors or their deputies, and the directors of special national units of the Police of the Czech Republic.

4. Outcomes

The answer to the question "How can the situation of the Police of the Czech Republic be perceived in terms of knowledge management today compared to the above-mentioned field research findings of 2013" was answered by: 45% of the respondents: without changes, 40% of respondents: there were positive changes, 15% of respondents: there were negative changes.

The table below provides respondents' answers in percentages.

TAB. 1: Potential reasons for implementing knowledge management - relative frequency of responses

Potential reasons - the questions (Responses in %)	Definitely yes	Rather yes	Do not know	Rather no	Definitely no
The organization does not know what knowledge it already has.	3	33	21	40	3
The employees do not have important knowledge in time.	0	27	15	58	0
The expert's opinions are not shared.	6	21	12	55	6
The leaving of employees causes loss of knowledge.	55	36	0	6	3
The leaving of some employees reduces the competencies of certain departments.	46	39	3	9	3
In some cases, the cooperation is pretended.	6	43	6	27	18

Employees are guarding their knowledge because of concerns about their position or job.	24	21	6	49	0
Organizations' prerequisites, processes, or rules are unreliable or obsolete.	3	27	12	52	6
Examples of good practice are appropriately and adequately shared.	3	55	6	33	3
Examples of practice errors are appropriately and adequately shared.	3	64	0	30	3

The questionnaire survey has shown that in the absence of a knowledge-based strategy, there are practical problems in the organization and risks: 91% of the respondents positively answered the question "the leaving of employees causes loss of knowledge", 9% negative; 85% of the respondents positively answered the question "the leaving of some employees reduces the competencies of certain departments", 3% neutral, 11% negative; 49% of the respondents positively answered the question "in some cases, the cooperation is pretended", 6% neutral, 35% negative; 45% of the respondents answered positively the question "employees are guarding their knowledge because of concerns about their position/job", 6% neutral, 49% negative; 36% of the respondents positively answered the question "the organization does not know what knowledge it already has", 21% neutral, 43% negative; 30% of the respondents positively answered the question "organizations' prerequisites, processes, or rules are unreliable or obsolete", 12% neutral, 58 % negative; 27% of the respondents positively answered the question "the employees do not have important knowledge in time", 15% neutral, 58% negative; 27% of the respondents positively answered the question "the expert's opinions are not shared", 12% neutral, 58% negative; 58% of the respondents positively answered the question "examples of good practice are appropriately and adequately shared", 6% neutral, 36% negative; 67% of respondents positively answered the question "examples of practice errors are appropriately and adequately shared", 33% negative.

The above respondents' answers are ranked from the point of view of the knowledge management from the most potentially problematic to the findings, which can be evaluated relatively positively. In the next period, these and other research issues will be verified by a larger quantitative survey among police officers, besides other things, to verify whether there is a statistically significant difference in the responses of police officers and top managers, eventually in other organizations of the Integrated Rescue System.

5. Conclusion

It is clear from the research that if the knowledge management strategy is not adopted in the organization, it is possible to recognize at the top management level certain problems in the area of knowledge management, which may negatively affect organization's results. According to the

researches made (2013 among police officers of the Police of the Czech Republic, 2014-2016 at the level of top management of the Police of the Czech Republic), it can be stated that the organization unambiguously and in the long term records the problems and risks associated with the loss of knowledge which is caused by leavings of police officers.

Knowledge management and human resource management strategies must be aligned. Appropriate knowledge strategies and adequate human resource management can prevent knowledge loss, which is caused by leavings of police officers, and reduce the risks associated with their leavings. At the same time, it can help to improve the social climate in the organization, to create an environment of mutual trust, which is a basic condition of the willingness to share knowledge, improve cooperation so that it is often not "pretended", motivate knowledge sharing to make horizontal and vertical knowledge transfer more effective.

It can be stated that application of knowledge management, respecting the specifics of the environment in connection with strategic management and human resource management, is for the Police of the Czech Republic one of the ways to fulfil the stated goals: be an effective, purposeful, efficient, modern working, communicative and helpful organization which is the guarantor of internal security.

Literature:

Dvořáková, Z. a kol. (2007). *Management lidských zdrojů*. Praha: C. H. Beck.

Dean, G., Gottschalk, P. (2009). *Knowledge Management in Policing and Law Enforcement*. Oxford University Press.

Gottschalk, P. (2008). *Knowledge Management in Policing. Enforcing Law on Criminal Business Enterprises*. Hindawi Publishing Corporation, USA.

Hislop, D. (2013). *Knowledge Management in Organizations a critical introduction*. Oxford University Press.

Holgersson, S., Gottschalk, P. (2008). Police Officers' Professional Knowledge. *Police Practice & Research*. Vol. 9, Issue 5, p. 365–377.

Hu, Lung-Teng. (2010). Same Bed but Different Dreams? Comparing Retired and Incumbent Police Officers' Perceptions of Lost Knowledge and Transfer Mechanisms. *Crime, Law and Social Change*. Vol. 53. Issue 4, pp. 413–435.

Junková, D. (2013). *Možnosti uplatnění znalostního managementu v bezpečnostním managementu. Possibilities for the application of knowledge management in security management*. Praha, Policejní akademie České republiky v Praze. Doctoral thesis + CD ROM. Defended 28.3.2014.

Koncepce rozvoje Policie České republiky do roku 2020. (2016). Retrieved October 26, 2016, from <http://www.gabal.cz/userfiles/File/Koncepce.pdf>.

Prusak, I. (2001). "Where did knowledge management come from?". *IBM Systems Journal*. 40 (4): 1-5.

Seba, I., Rowley, J. (2010). Knowledge Management in UK Police Forces. *Journal of Knowledge management*. Vol. 14. No 4, pp. 611-626.

Šubrt, T., Zuzák, R. (2010). *Mastering Knowledge*. Praha: Alfa Nakladatelství.

Tiwana, A. (2002). *The Knowledge Management Toolkit*. Pearson Education.

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CULTURAL AND SOCIAL INFLUENCE ON WINE PERCEPTION

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Abstract: *The aim of this article is to describe how social and cultural predispositions affect the status of a product entering a new foreign market. The focus of the research is on wines and the introduction of brands to a new market where the product has no tradition and is not part of the culture. A status based theory is used to analyse Moravian wine producers' observation on Chinese wine market.*

Keywords: *Wine, status, consumer behaviour, quality.*

JEL classification: L66, M31, Q13

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1. Introduction

The influence of society on an individual is indisputable and no internal motivation can be exempted from the effects of society. The social internal mechanisms take place within its cultural framework, which in this case also defines consumer behaviour and market specifics. In individual cultures, selected items have their symbolic meaning and value that is handed down from generation to generation. This symbolic value is transformed into an abstractly expressed quality defining product value.

2. Indicators of product quality

It is characteristic of the wine quality that it has highly abstract attributes and can not be applied objectively. The consumer compares the quality of the evoked set based on information available and their experience. (Belonax & Javalgi, 1989) Regarding an evoked set based on information available to a consumer, it is necessary to mention that the source of this information is based on internal and external attributes of wine.

We distinguish two approaches to quality: (1) mechanical and personal (2). A mechanical approach compares measurable attributes of the product with respect to a defined standard, while personal examines subjective reactions to the product. (Charters & Pettigrew, 2015).

In the case of wine, a 100-point rating scale defined by OIV (International Wine Organization based in Paris) is a standard but only auxiliary tool. Any wine without a defect should reach fifty to hundred points. The only objective mechanical evaluation criterion is the unwanted manifestations of wine such as diseases (1) or defects (2) (Stávek, 2011).

Another important factor besides a sensory evaluation is a set of external signals that symbolize the place of origin, history, way of processing and promotion. Every wine is unique due to its external characteristics called wine identity. The identity of the wine is also based on the personality of a winemaker, the philosophy of winemaking and its story. (Gosch, 2005).

3. Wine as a product of status, interaction and self-definition

The motivation to acquire wine is not necessarily based on the practical interest in the primary function of the product, i.e. the satisfaction of individual needs, but may be driven socially, as the acquisition of the product with some distinctive features enhances consumer's social status. We distinguish three main sociological approaches to consumer behaviour.

The first one is the Theory of the Forbearing Class by Thorstein Veblen (1999) who focused on the materialistic criterion of success in society. His work draws on the concept of luxury goods consumption as status confirmation. In this model, an individual with ostensible consumption does not satisfy his needs but demonstrates his social status and prestige. This provokes so-called Veblen effect when a consumer who chooses from a set of products of similar quality is willing to pay higher price for a product (e.g. wine) with a higher status. From this perspective, wine is a product of ostentatious consumption.

Bourdieu (2010), on the other hand, holds position that not only economic but also cultural capital play an important role in consuming particular goods. Total capital, economic and cultural capital form a three-dimensional model of social positions. A value attributed to works of arts is given by Bourdieu as an example of behaviour typical for the consumers of luxurious goods: although all artists use the same paints and techniques, their works are different value. Ownership of a certain element, which is not available to all groups, is distinctive and will be noticed throughout the society. The main attribute of such an element is the removal of a practical function. Cultural capital is gained by individuals in family or via education, which together with acquisition costs require adequate economic capital. Conscious deviation is a style that can not be identified without historically recognized rules.

The set of dispositions created during the socialization process is defined by Bourdieu as a habitus. Bourdieu himself does not advocate either conscious or unconscious behaviour theory. Social subjects themselves determine what is attractive and what is not. In the case of wine, it is the taste that can be defined as an aesthetic choice belonging to the chosen social group, which determines and at the same time guides it. By means of taste, the higher societal layer consolidates its position in the social hierarchy.

Holt (1995) further defines consumption as the source of interaction of an individual with others, and this influences the mode of interaction among consumers. The act of consumption itself is not only consumer's individual entertainment, but it is assumed that consumers will enjoy one another's company. Consumption of selected products with a symbolic nature also makes it possible for an individual to identify with a social group of a certain status. These connections are always inclusive and exclusive (Holt 1995).

The above-mentioned consumption patterns can be classified as homologous, the assumption being that higher cultures are associated to higher classes and, on the contrary, lower cultures, sometimes referred to as "mass cultures", to lower classes. In the post-industrial age sociology abandoned the social stratification into classes. (Šafr, 2008)

Concepts of individualized consumption are promoted, for example, by sociologists Beck or Giddens (1994), who do not entirely deny the existence of social inequalities within society, but point to their gradual elimination along with the reduction of the role of status as a major factor in social behaviour, its contribution to lifestyle formation and the relationship to consumer behaviour. Individuals, thanks to mobility and better economic conditions, are trying to break through social structures and create a unique identity, depending on personal preferences. (Chang & Goldthorpe, 2016)

Richard Peterson (1996) has formulated a theory in which high culture as a character of high status replaces cosmopolitan omnivores. The society is thus divided into so-called omnivores and univores. Peterson refers to cultural all-encompassing individuals whose influence and aesthetic appreciation exceed the conventional boundaries of taste. The status is thus gained through social interaction that requires participation in as many forms as possible. The symbol of success is the ability to adapt to different social environments and the respond to different cultural symbols.

The above-mentioned theories of consumer behaviour have been defined by the cultural framework which is necessary to understand the social structure. For example, Hofstede's value system can be used to define national cultural characteristics. Although Hofstede's multidimensional model (1980) was primarily designed to manage multicultural teams, it is well-suited to consumer behavioural surveys. In connection with the conclusion of the status, the primary index of the social hierarchy and the division of power are the key indicators of how important the status of the state is within the chosen society.

4. Internal and external indicators evaluated by Chinese consumers

The evaluation based on the internal characteristics of the wines presupposes knowledge of the product and the production technology. A typical Chinese consumer is primarily interested in red wines and, as far as taste is concerned, he prefers wines with a higher sugar residue (Hrabáľková, Fialová, and Lukáš 2017). On the other hand, a Czech consumer prefers white, semi-dry wine with a balanced ratio of acids and residual sugar. In the scent he searches for simpler fruity, floral and spicy tones (Hrabáľková 2017). Very popular are ice and straw wines that are naturally sweet. Nevertheless, Hrabáľková (2017) discusses a low popularity of pink wines showing that consumers'

ignorance of wine production technology might be one of the major obstacles to the product reputation in the market.

Lukáš (2017) notes that a group of consumers from China actively interested in wine and well equipped with knowledge, is popular among Chinese wine associations whose popularity and number is growing. This group can also enjoy aromatic Moravian varieties of white wines (Luke 2017). Hrabálková (2017) observes that it is mainly the eastern part of China that shows greater interest and faster adaptation to new products. A very important role in this fact is played by the fact that China is slowly gaining the first place in the number of vineyard area. Lukáš (2017) supposes that due to low prices and increasing consumer's familiarity with the domestic production Chinese wines will soon defeat the European brands. While large cities in other parts of China have been still discovering wine, the countryside is still dominated by the production of homemade alcoholic beverages. Analogies with the Czech market cannot be observed currently. (Hrabálková 2017)

If we evaluate external quality indicators, wine is perceived as a western product associated with exclusivity and above all with France (Fialová 2017). The interest of consumers in Moravian wines shows that a Chinese consumer does not seek primarily for the highest price, but at the same time is not satisfied with the cheapest brands; most probably, he will choose so called prime quality wines (Lukáš 2017). The colour, the type of a bottle or the label are the external attributes of the product that will be of interest to the Chinese consumer (Hrabálková 2017). The Ludwig winery even successfully adapted their labels for the Chinese market and made a proposal for one line in the "French style" for the needs of the local market.

5. Conclusion

To determine the quality of wine we distinguish personal and materialistic approach. Wine is a specific product excluding 100% objective evaluation. Consumer evaluation is based on an evoked set of criteria which comprises information, experience and expectations in terms of social credit. There are different sociological approaches to customer behaviour assessment studying social distinction, interaction or individual motivation to retain some product. Nevertheless, these models cannot be applied out of a cultural frame which defines the structure of society.

The observation of the Chinese market indicates that new markets tend to accept the image of the product tied to country of origin and its lifestyle first. The external cues are deployed rather than intrinsic ones, and simple tastes and aromas are better accepted. However, it is necessary to mention that the Chinese market appears to be composed of more markets with different stages of progress in terms of wine experience and education. To sum up, it is especially the education that moves consumers to select the products for its primary function and explore more of the intrinsic cues.

Literature:

- Agnoli, L., Capitello R., & Begalli, D. (2014). Geographical brand and country-of-origin effects in the Chinese wine import market. *Journal of Brand Management*, 21(7), (pp 541-558).
- Beck, U, Scott L. & Giddens A. (1994). *Reflexive modernization: politics, tradition and aesthetics in the modern social order*. Stanford: Stanford University Press.
- Belonax, J. J. & Javalgi R. G. (1989). The Influence of Involvement and Product Class Quality on Consumer Choice Sets. (pp. 209-216) *Journal of the Academy of Marketing Science*.
- Bourdieu, P. (2010). *Distinction: a social critique of the judgement of taste*. Rev ed. London: Routledge.
- Chan, W. & Goldtrophe J.H. (2016) *Class and Status: The Conceptual Distinction and its Empirical Relevance*. American Sociological Review.
- Charters, S. & Pettigrew, S. (2007). *The dimensions of wine quality. Food Quality and Preference*. (pp 997-1007).
- Fialová, D. (2017). *Personal Interview with Marketing Manager for SONBERK Winery*, 15th April, (2017).
- Gosch, F. (2005). *Vinařský marketing*. Valtice: Národní salon vín, 2005.
- Hofstede G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills CA: Sage Publications.
- Holt, D. (1995). How Consumers Consume: A Typology of Consumption Practices. *Journal of Consumer Research*.
- Hrabálková, L. (2017). *Personal Interview with Marketing Manager for Ludwig Winery*. 11th April 2017.
- Lukáš, L. (2017). *Personal Interview with Marketing Manager for Templářské skepy Čejkovice Winery*. 19th April 2017.
- Peterson, R., & Kern, R. (1996). Changing Highbrow Taste: From Snob to Omnivore. *American Sociological Review*, 61(5), (pp 900-907).
- Stávek, J. (2011). *Degustační příručka, aneb, Jak přijít vínu na jméno*. 2., aktualiz. a přeprac. vyd. Ilustroval Alena ŠMÍDOVÁ. Praha: Radix.
- Šafr, J. (2008). *Co je to kulturní všežroutství?* [What is cultural omnivorousness?] Socioweb. Roč. 6, č. 6 (pp 3-5).
- Veblen, T. (1999). *Teorie zahálčivé třídy*. Praha: Sociologické nakladatelství. Klas (Sociologické nakladatelství).

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MULTICRITERIA DECISION MAKING IN ASSESSING THE REGION'S POTENTIAL FOR CLUSTER FORMATION

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Abstract: *The article deals with one of the possible approaches to quantitative evaluation of the potential of the region for mutual comparison of the regions in the Slovak Republic. This alternative approach represents methods of multicriteria assessment of variants. Comparison is used to assess the possibilities of the region for the development of the cluster. The potential of the region is evaluated on the basis of several indicators. Indicators are from the social, economic and territorial spheres. They are used in the assessment of regional disparities. The aim of the paper is to evaluate and compare the development of the regional disparities in the regions of the Slovak Republic at NUTS 3, using some of the methods of multicriteria analysis. The order of the regions is constructed using the TOPSIS method. The ranking is based on the shortest distance of the region from the ideal solution and the farthest from the negative ideal solution.*

Keywords: *Cluster, region, TOPSIS.*

JEL classification: *C02, O18, R11*

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1. Introduction

Industrial clusters are a tool to improve the performance and competitiveness of the regions. Regions have different sources of and conditions for the development of an industrial sector. Their breakdown creates an environment that brings together businesses of a similar nature. Creating such a network of companies and organisations linked to specific networks, cluster. The proper functioning of the cluster is beneficial for regional development. It is therefore an important theoretical knowledge of the strengths of potential and existing clusters. According to the Skokan (2007), as a group of clusters of companies and other industry-specific-dependent affiliated institutions are usually located in one or several adjacent regions. The OECD defines clusters as a

network of interdependent firms, knowledge-producing institutions, customers connected to the production chain, which creates added value.

Slovak republic consists of eight self-governing regions with significant regional territorial disparities. These disparities reflect rapid socio-economic and structural changes that the country has experiences over the course of the last two decades as well as long-term historical and geographical conditions for particular regions. Different research works indicate that the mapping of differentiation in individual regions focused on sectorial structure is required condition for cluster creation (Havierníková, Strunz, 2014).

The aim of the paper is to evaluate and compare the potential of of cluster creation regions in Slovakia by utilizing the selected multi-criteria decision making methods. The criteria consists of sectoral indicators for employment in industrial production in the year 2016.

2. The impact of cluster development

Regional development is a process that is directed towards the creation of a viable and productive region. One of his goals is to start the process of shaping the competitiveness of the region, assisted by making full use of local potential. Competitiveness of the regions is in addition to the production of indicators the overall structure and the concentration of production and innovation capacities of the regions, the quality of human resources, the quality and density of infrastructure. It is also influenced by the effect of the use of information and communication technologies, the demographic curve, the quality of the institutional environment.

Clusters are an essential tool of regional development, and an essential factor in competitiveness. According to Habánik (2014) regional development represents a set of economic, cultural and environmental processes. These processes are taking place in the region and contribute to its competitiveness. At the same time contribute to the economic, social and territorial development. The clusters represent a tool for the restructuring of the regional economy, enhance the economic performance of the region and improve its competitiveness. The result of the development of clusters is an effort to export the products, services, and intellectual capital and technology. The companies in the cluster cooperate in the area of the markets division, which has an impact and to improve their access to regional and national markets. Economic policy focused on clusters is successful, if it is successful and dynamic industry in which clusters are formed.

2.1. Cluster organization in Slovakia

The European Union through the Lisbon strategy should ensure long-term economic growth. The economic growth has to ensure that the most dynamic and competitive economy in the world. Clusters are an effective instrument to ensure this goal (Krajňáková, Krajčo, 2016).

In the Slovak Republic were established 25 clusters. From a detailed analysis of the different types of clusters in Slovakia (Havierníková, Kordoš, Vojtovič, 2016), it follows that in the region of Trenčín there is no industrial cluster. There are two clusters: Slovak IT cluster (information and communication technologies cluster) and Cluster VÁH (Service industries cluster). For example, the neighbouring region of Trnava has four clusters, of which three are from industry may offer. It is therefore natural to identify the potential for the development of industrial cluster of the Trenčín

region. There are several methods to identify suitable industry for the creation and development of the cluster. At sectoral level, attention has been focused on a comprehensive analysis of the regional economy. You can meet up with two basic approaches, top-down and bottom-up. These methods are based primarily on (Stejskal, 2009) employment data, based on NACE Rev. 2. Vojtovič (2016) made an interesting study on the issue. This study looks into the state of economic potential of companies active within the field of creative industry in a region, further into structure of its productive activities, economic results; trends in its development and aptly it evaluate its significance for economic development of region.

3. Methodology

Methods of evaluation of the multi-criteria's analysis can generally be used when comparing any objects on the basis of several indicators. Often we want to arrange objects (regions) on a property that is one indicator. Such properties are multi-criterial each criterion represents a different variable. Using these methods you can synthesize several different indicators expressed in the form of quantitative integral indicator.

In these roles, it is defined by a set of variant (regions) $X = \{X_1, X_2, \dots, X_n\}$, they are evaluated according to the criteria (indicators) Y_1, Y_2, \dots, Y_k . Each variant $X_i, i = 1, 2, \dots, n$ according to the criteria described by the vector multi-criterial of values $(y_{i1}, y_{i2}, \dots, y_{ik})$. Criteria may be the type of maximised or minimalised. The objective is to organize a variant from "worst" to "best". It is necessary to determine the preferences of the different criteria using the scales. The more important criterion is, the higher its weight.

3.1. Methods of estimation of the weights of the criteria

One of the problems of the practical application of methods of assessment is the question of weighting the different indicators. There are two approaches. The first approach is based on the expert estimates. There may be a point of comparison, the method of least squares method, pair comparison's method, Fuller's method, Saaty's method, a gradual schedule of scales, the method to the criteria tree (Černý, M., Gluckaufová, D., 1987) In this case, the order of importance of monitoring indicators. The second approach is a statistical method for determining weights. These statistical methods are based on an analysis of variability, correlation matrix, PCA structures: indicators, analysis of the structure of the matrix of distances.

3.1.1. Saaty's method

Saaty's method is the most widely used method of estimating weights. In this case, it compares all possible pairs of criteria (indicators). Degree of importance is rated with numbers from 1 to 9. If one criterion is less important than the other, it will be used for the expression of such a reciprocal preferences. Information from pairs comparisons are drawn in the Saaty's matrix $S = (s_{ij}, i, j = 1, 2, \dots, k)$, where k is number of indicators. Verbal expression is in the following table.

TAB. 3: Saaty's fundamental scale

Intensity of importance		Definition (Verbal evaluation)
s_{ij}	s_{ji}	
1	1	Indicators Y_i and Y_j are equally important
3	1/3	Indicator Y_i is less important as an indicator Y_j
5	1/5	Indicator Y_i is strongly more important as an indicator Y_j
7	1/7	Indicator Y_i is very strongly more important as an indicator Y_j
9	1/9	Indicator Y_i is absolutely more important as an indicator Y_j

Source: Saaty, Vargas (2012), own processing

A preference contained in the Saaty's matrix is used to estimate the weights of indicators. Weighting of criteria are derived as a custom vector ν of matrix S . Estimation of the vector can be accessed by using the standardized geometric rows of a matrix S :

$$\nu_i = \frac{\left[\prod_{j=1}^n s_{ij}\right]^{\frac{1}{n}}}{\sum_{k=1}^n \left[\prod_{j=1}^n s_{kj}\right]^{\frac{1}{n}}}, \quad i = 1, 2, \dots, n.$$

3.2. Methods for the determination of sequence variation (regions)

The aim of the analysis is the determination of the order of the regions from the point of view of selected indicators. Methods we split according to the type of information required. In the empirical part are applied methods for WSA and TOPSIS.

3.2.1. The WSA method (Weighted Sum Approach)

The method is based on the design of linear utility function WSA on a scale from 0 to 1. The best option has benefits 1. In the matrix elements are y'_{ij} . For the criterion type max:

$$y'_{ij} = \frac{y_{ij} - D_j}{H_j - D_j}.$$

where D_j is the worst and H_j best value criteria Y_j . The total benefit options X_i can then be expressed as a weighted sum of the individual criteria $u(X_i) = \sum_{j=1}^k \nu_j y'_{ij}$. Variants (regions) can be arranged in order of decreasing the value of the benefit $u(X_i)$.

3.2.2. The TOPSIS method (Technique for Order Preference by Similarity to Ideal Solution)

TOPSIS method is based on the determination of the best alternative that comes from the concept of the compromise solution. Choosing the best alternative nearest to the ideal solution (with shorts distance) and farthest from the negative ideal solution. TOPSIS is always used for multi-attribute decision making, by ranking the alternatives according to the closeness between the alternative and ideal alternative (Dai, Zhang, 2011). The TOPSIS method consists of the following steps:

1. The original criterial value of indicators y_{ij} is transformed into value r_{ij} according to the relationship:

$$r_{ij} = \frac{y_{ij}}{[\sum_{i=1}^n y_{ij}^2]^{\frac{1}{2}}}.$$

2. Calculate the weighted matrix elements $\mathbf{W} = (w_{ij})$, while $w_{ij} = v_j r_{ij}$, where v_j is wight of j - th indicator.

3. Of the elements of a matrix \mathbf{W} to determine the ideal variant (region) with the values of the variables (H_1, H_2, \dots, H_k) and the basal variant with values (D_1, D_2, \dots, D_k) , $H_j = \max_i(w_{ij})$ a $D_j = \min_i(w_{ij})$.

4. Calculate the distance from the ideal variant and basal variants according to the relationship:

$$d_i^+ = \left[\sum_{j=1}^k (w_{ij} - H_j)^2 \right]^{\frac{1}{2}}, \quad d_i^- = \left[\sum_{j=1}^k (w_{ij} - D_j)^2 \right]^{\frac{1}{2}}.$$

5. The indicator is calculated c_i as a relative distance variation of basal variants according:

$$c_i = \frac{d_i^-}{d_i^- - d_i^+}.$$

for $i = 1, 2, \dots, n$, $j = 1, 2, \dots, k$, $c_i \in \langle 0, 1 \rangle$. A zero value will enter into the basal variant and the value of one perfect option. According to the values of the indicator c_i we can organize the (regions) (Jablonský, 2004).

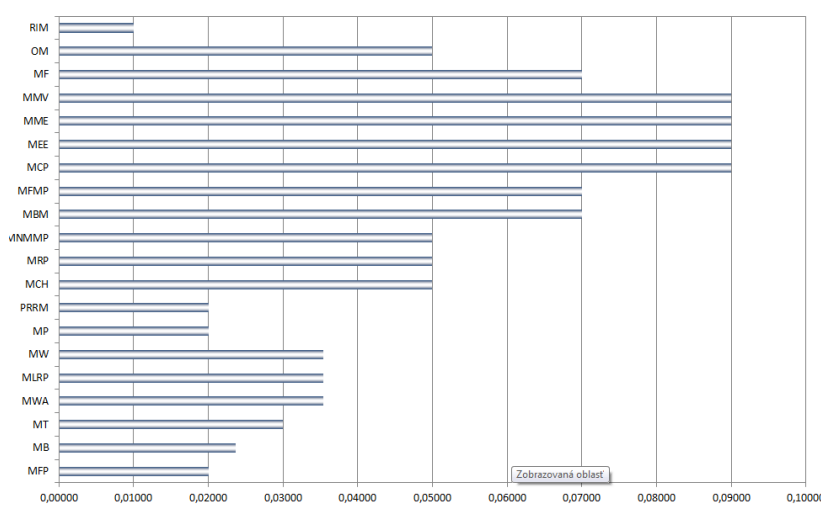
3.3. Criteria of the region's potential

For a comparison of the potential of the different regions were analysed 20 indicators listed in the classification NACE Rev. 2 in 2016. Its value consists of the share of economic activities in the region of the SR. They are all of type max. A list of them with the keys is the following:

MFP – Manufacture of food products, MB – Manufacture of beverages, MT – Manufacture of textiles, MWA – Manufacture of wearing apparel, MLRP – Manufacture of leather and related products, MW – Manufacture of wood, MP – Manufacture of paper and paper products, PRRM – Printing and reproduction of recorded media, MCH – Manufacture of chemicals, MRP – Manufacture of rubber products, MNMP – Manufacture of other non-metallic mineral products, MBM – Manufacture of basic metals, MFMP – Manufacture of fabricated metal products, MCP – Manufacture of computer products, MEE – Manufacture of electrical equipment, MME – Manufacture of machinery and equipment n. e. c., MMV – Manufacture of motor vehicles, MF – Manufacture of furniture, OM – Other manufacturing, RIM – Repair and installation of machinery.

The data have been analysed in SANNA (freely available on the <http://nb.vse.cz/~jablon/sanna.htm>). Missing data were replaced by using the method of interpolation of adjacent pixels. Indicators have been assigned weights. The values of the weights are shown in the chart weighting vector.

FIG. 3: Graph of the weight vector



Source: Own processing

The analysis was in three ways. In the first case using TOPSIS method, and have all the same indicators of the importance ($w = 1$). In the second case, the method TOPSIS with weights determined by the method Saaty's. In the end it was applied the method of WSA with weights.

4. Results

Next tables presents and compare the score of relative closeness to ideal solution (c_i) and ranks of regions in the year 2016. There are calculated distances from the ideal and basal variants method TOPSIS with weights.

TAB. 2: Results of the TOPSIS method

Region		d_i^+	d_i^-	c_i
1	Bratislava	0,13236	0,06257	0,32100
2	Trnava	0,11047	0,07551	0,40602
3	Trenčín	0,09295	0,10260	0,52467
4	Nitra	0,10937	0,07907	0,41959
5	Žilina	0,12825	0,07511	0,41958
6	Banská Bystrica	0,12825	0,05719	0,30840
7	Prešov	0,13051	0,04296	0,24765
8	Košice	0,12534	0,06638	0,34624

Source: Own computation

The following table shows the results of all completed three of the methods used. The following table shows the results of all completed three of the methods used.

TAB. 3: The resulting ranking of regions

Region		Method		
		TOPSIS	TOPSIS	WSA
		w =calculated by Saaty's	w = 1	w =calculated by Saaty's
1	Bratislava	6	4	6
2	Trnava	4	5	4
3	Trenčín	1	1	1
4	Nitra	2	2	3
5	Žilina	3	3	2
6	Banská Bystrica	7	7	5
7	Prešov	8	8	8
8	Košice	5	6	7

Source: own computation

From the data in table 3, it is clear the best positioning of the region Trenčín. It follows from this that the region has sufficient potential to work for the development of industrial clusters. In all three analyses are placed in the first place. The worst potential is in region Prešov. It is obvious that they are not significantly different results for three of the methods used.

5. Conclusion

By applying TOPSIS and WSA methods we get the final regions ranking based on the shortest distance to the ideal solution and farthest from negative ideal solution. These methods also take into account the relative importance of the criteria. The results of TOPSIS and WSA analysis confirm that NUTS 3 regions have had different clustering potential. The advantage of TOPSIS and WSA methods is that they are simple, easy to use and understand. The resulting order of the regions are indicated a significant potential for the development of a cluster of Trenčín. To a more comprehensive analysis of the potential of the Trenčín would be appropriate yet use any of DEA models. It should be noted that the application of the methods of multi-criteria analysis only in some way illustrates the anticipated development potential of the region of Trenčín and the formation of industrial cluster.

Literature:

Černý, M., Glůckaufová, D.(1987). *Vícekritériální vyhodnocování v praxi*. Praha: Academia.

Dai, X., Zhang, J. (2011). The TOPSIS Analysis on Regional Disparity of Economic Development in Zhejiang Province. *Canadian Social Science*, vol. 7, iss. 5, pp. 135-139. ISSN 1712-8056.

Habánik, J. a kol. (2014). *Regionálna ekonomika a regionálny rozvoj*. Trenčín: FSEV TnUAD.

Havierniková, K., Kordoš, M., Vojtovič, S. (2016). *Cluster policy in the Slovak Republic*. Trenčín: FSEV TnUAD.

Havierníková, K., Strunz, H. (2014). The comparison of selected methods used for identification of cluster potential in the regions of the Slovak Republic. *Political sciences, law, finance, economics and tourism conference proceedings*. SGEM, vol. IV, p. 693-700.

Jablonský, J., Dlouhý, M.: Modely hodnocení efektivity produkčních jednotek. Praha: Professional publishing, 2004.

Krajňáková, E., Krajčo, K. (2016). The risk and clusters in the V4 countries and in the EU 27. In: 3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016 : *Political sciences, law, finance, economics and tourism*. Book 2, Volume III. - Sofia : STEP92 Technology Ltd., p.1135-1142.

Saaty, T., Vargas, G., L. (2012). *Models, Methods, Concepts and Applications of the analytic Hierarchy Process*. New York: Springer Science + Business Media.

Stejskal, J. (2009). Competitiveness advantage analysis as one method for cluster identification in regions. In: *3rd Central European Conference in Regional Science - International Conference Proceeding*. Košice, p. 1337-1346.

Vojtovič, S. (2016). Creative clusters and their importance for regional development. *Political sciences, law, finance, economics and tourism conference proceedings*. SGEM, vol. III, p. 799-806.

Ročenka priemyslu SR 2016. Štatistický úrad Slovenskej republiky. [online] https://193.87.31.4/arl-eu/sk/detail-eu_un_cat.1-0227321-Rocenka-priemyslu-SR-2016/.

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FINANCIAL LITERACY OF STUDENTS AT SLOVAK TECHNICAL UNIVERSITIES

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Abstract: *Currently, not even the average citizens can not to live at least without basic knowledge relating to financial instruments and financial transactions that are part of financial literacy. It is generally known that the financial literacy of the Slovakian population is below average. For the first time on this fact had pointed the Slovak Banking Association and paid attention to this problem resulting based on a survey in 2007. Subsequently greater attention has been paid not only from financial institutions sides but also the Ministry of Education of the Slovak Republic had elaborated the National Standard of Financial Literacy and gradually have begun to implement financial education at different levels. The Slovak Banking Association has been running for nearly 10 years. The main aim of the paper is to find out how the level of financial literacy of technical focused students has changed during the years.*

Keywords: *Financial literacy, personal finance, financial products, financial services, financial education.*

JEL classification: A20, A22, A23

Grant affiliation:

1. Introduction

In recent years the financial institutions have been characterized by a rapid tense of development that is reflected in the introduction of many technological innovations and in expanding the supply of increasingly complex financial services and products. In order for citizens-the clients could use benefits of a bank's product and service is necessary to know and to understand it and that requires a certain level of financial literacy. The problem is the lack of financial literacy (is possible to say the financial illiteracy) of many individuals respectively of population groups that are moving in a more complicated conditions of financial environment. One of the evidence that the financial literacy of the Slovakian population is low can be also a number of deceived citizens who in the past had believed the unrealistic promises of non-bank entities and often entrusted them with their life savings that they had lost. Others had signed bad loan contracts with a high interest rate and even higher penalties for delaying repayments from similar institutions and in the case of unable to repay such a loan disproportionately increasing sanctions often came with the roof overhead that guaranty

for such a credit and which was mostly the scammer's creditor. Some of financial institution often offers massive advertising "very profitable financial products" to which population do not understand very much but when they are such "profitable" people agree with them. And so people with low financial literacy are over-indebted because they chose a loan or even a number of loans that are inconsistent with their earnings or they trust financial advisors who had convinced them about the benefits of the insurance or investment products.

2. Financial literacy and research of financial literacy

Under the term of "financial literacy" is simplified means the ability of a person to deal with finance, respectively to care of money. However, in the case of financial literacy it is necessary to differentiate between its various degrees depending on the funding or better to say the level at which the human can handle with money. A different degree of financial literacy is required from an expert that can administer government finance or a stock broker, another from a businessman that is responsible for corporate finance. However, every single citizen is currently confronted with many financial products that can more or less affect our life and the functioning of a family so would be important to understand and know how to use the financial products and to know how to use them for own benefit. Therefore, the paper is focused on the basic level of financial literacy which is possible to understand the basic financial knowledge needed to successfully manage the personal and family finances of an ordinary person.

The national standard of the financial literacy in Slovak Republic, defines financial literacy as an "ability to use knowledge, skills and experience to effectively manage a financial resources to ensure life-long financial security for themselves and their households." It also draws attention that the "financial literacy is not an absolute state but it is a continuum of abilities that are conditioned by variables such as age, family, culture, or place of residence. It is a sign for the state of constant development that enables each individual to respond effectively to new personal events and a constantly changing economic environment. In the context of increasing knowledge in the field of financial literacy the focus is on the external environment of the labour market where application is possible in form of employment or self-employment." (MŠVŠ SR, 2017, p. 3) The level of financial literacy can be determined by testing a group of citizens who respond to appropriately selected questions and the number of correct answers can be scored by points or expressed in percentage. The Slovak Banking Association (SBA) conducted the first survey of the financial literacy of the Slovak Republic in 2007. The aim of the survey was to determine the level of financial literacy and therefore the opinion of respondents on financial education and their opinion on the current level of awareness financial products. Respondents of the survey were clients of a banks aged 18 to 75 years. The knowledge level of respondents of their personal finance have been measured by the Financial Literacy Index (I-FiG) which measures the ability of a clients to make effective decisions in the area of personal finance management that is based on the analysis of available information. Respondents answered to 10 questions of current accounts issues or loans, deposits and investment. The correct answers were rated as 0.1 points and the index could be ranged from 0 to 1. The financial literacy index in the SBA survey reached on average value of 0,56 points and it means that respondents from the 10 questions had answered correctly to the less than 6 questions respectively that the correct answers is 56% . The reached index value was affected mainly by education and income

(proportionally) less age (inversely) and also work/job orientation. The highest levels of I-FiG were achieved by academically educated consumers (0.66), entrepreneurs, self-employed (0.65) and respondents aged 26 to 45 (0.60). On the contrary the lowest I-FiG was reached by retirees (0.48), the unemployed (0.47), the 66 to 75 age group (0.44) and the primary school consumers with basic education (0.43). The survey showed that information about the financial products and services is enough but the clients of banks do not understand the basic financial terms and therefore are not able to analyse and evaluate them properly. Most of respondents (63%) believe that the financial education is necessary and should be available for all age groups (72%) and should be included in the teaching curriculum (71%). The level of financial literacy in the survey was lower than the SBA has expected. For the optimal result a limit of two-thirds of the correct answers was set but it was not achieved. (SBA, 2007)

3. Financial education

The reason for the lack of financial literacy of the population of a particular country is their insufficient education, respectively no education, in this area with the most vulnerable groups belong to young people entering life especially children from children's homes and the elderly as well as educated adults with non-economic education.

For financial education of citizens also paid attention European Union. The European Commission in December 2007 stressed the need for such an education and encouraged the member states to support the provision of financial education through national and regional authorities, non-governmental agencies and the financial services sector. Financial education in the European Union is understood „a procedure that enables consumers to better understand financial products and gain insight into the financial risks and opportunities that the market provides thereby becoming able to make financial decisions on the basis of relevant information. Affordable financial education benefits to whole society because reduces the risks of financial exclusion and teaches consumers to plan and save money that helps to reduce debt." (EU - EHSV, 2011; GLATZ – MIŠOTA , 2016) The government of Slovakia on the invitation of the European Commission in July 2008 reacted with the approval of the documents proposed by the Minister of Education "Proposal for a strategy of financial education and personal finance management". Subsequently was developed the "National Standard of Financial Literacy" defining the breadth of knowledge, skills and experience in financial education and personal finance management. This document is intended for school founders, teachers and developers of educational programs and author of methodical materials. Its aim is to teach pupils and students how to operate the family budget, manage their personal finances and better focus on the financial market. It has been incorporated into state education programs at elementary and secondary schools and is continuously supplemented and updated. In 2017 the third version was approved. Except for a schools is to the financial education involved also Methodological and Pedagogical centre, non- profit organization the Junior Achievement Slovakia with educational program "More than Money" and also the Children's Foundation of Slovakia with the project "Know Your Money". Educational events are organized by the National Bank of Slovakia, the Slovak Banking Association and some other financial institutions for pupils of primary and secondary schools. A number of methodological and professional publications on financial education have been published that are available to both groups -teachers and also pupils online. (MŠVVŠ SR, 2013) Based on the above mentioned facts is

possible to believe that financial education at Slovak primary and secondary schools is secured at a sufficient level. However, the question is if this has been reflected in the level of financial literacy of pupils and students of those schools.

In 2012 the OECD conducted the first comprehensive international measurement of the financial literacy of 15-year-old pupils (OECD, 2012) to which also been involved the Slovak Republic. For testing revealed that the availability of our pupils' financial education is one of the highest and is able to compare it to the availability of such education in the Czech Republic respectively Belgium. But the achievements of our pupils-respondents in the survey cannot be said the same. Slovak pupils achieved an average of 470 points in financial literacy in PISA 2012, while the average performance of OECD pupils was 500 points. (OECD 2012) Even worse results were achieved in the test PISA 2015 with score of 445 points so about 25 points less than 2012 and 44 points less than the OECD average (489 points). (OECD, 2017) The test results suggest that financial education at primary schools is not very effective as financial literacy of our pupils is below average in OECD countries and even is decreasing. Worse results can also be related to the fact that test students aged 15 years still do not have much practical experience with the use of financial products which would help them validate the theoretical knowledge gained during financial education.

Therefore, the research of financial literacy have been conducted at one of the faculties at technical university in Bratislava and the respondents – students already had completed financial education at least in secondary schools and have some practical experience with the use of some financial products. The representative sample of students at faculty measure the long-term effects of financial and compare the financial literacy responses to ten basic questions about their financial behaviours, financial knowledge and confidence levels in managing financial matters before and after participating in the course. According to the survey, up to 80% of university students with a technical focus, think and believe they are confident in finances. In comparison with the study a quite good level of financial literacy was demonstrated by only 10% of respondents, 40% of respondents had poor knowledge and the basic 50%. The biggest problems have been asked about saving. Only 25% of students were able to correctly calculate interest or return on the deposit. Results of the survey are not positive almost 60% of the students reported that they have not started saving yet. After participating the course 17% indicate began to save more and more than 12% of the students stated that they had better skills for tracking spending. These figures confirm the negative results also in the context of the handling of financial assets. The second most widespread asset is the savings accounts held by a tenth of the respondents, thanks to family members (parents). Nobody owned mutual funds and did not have such information before the course. Ownership of debt securities or shares was confirmed by only 1% of respondents. Non-use of other investment products can also lead to low financial literacy which the survey also directly proves. Respondents - students have not even been thinking about the loan yet or are not even willing to borrow. Nearly 50% percent believed that they were more knowledgeable about the cost of credit and 22% indicated that they were both better informed about investments and more confident about managing money after participating in the course.

4. Conclusion

While the survey results indicate that general financial literacy training can be useful for students at least for a short period after the training, scores on a test administered to high school present a less clear view of the relationship between training, knowledge and confidence. The results of the research like other surveys on this subject are not favourable. Financial literacy is lower than expected despite the fact that information is enough. A positive attitude towards financial education is not very widespread among young people as a prevention of problems. The survey was focused on knowledge and the average score of the respondents was 0,56 points in the index. This means that 56% of the questions were answered on average. According to the association, there is enough information available on the market, but many of the clients have a problem with their understanding and analysis due to their lack of knowledge of the financial dictionaries. "It would be ideal for us to have at least two-thirds of the right answers, so the current state is not satisfactory for us".

Experts say the situation in Slovakia is nothing unusual. Financial literacy affects not only the theoretical knowledge but also the practical experience with the use of specific financial products. Similarly financial literacy issues are experienced by people in advanced countries. Experience from other countries has shown that increasing financial literacy reduces the number of clients with risky behaviour on the market. The survey recommends relevant organizations in the financial sector to engage in systematic education of the population as financial literacy clients can better identify their needs and consider the financial possibilities.

Literature:

EU, EHSV (2011). *Stanovisko Európskeho hospodárskeho a sociálneho výboru na tému „Finančné vzdelávanie a zodpovedná spotreba finančných prostriedkov“*. Retrieved June 12, 2017, from <http://eur-lex.europa.eu/legal-content/SK/TXT/?uri=CELEX:52011IE1170>.

GLATZ, M. - MIŠOTA. B. (2016). Active education of the employees of the small and medium-sized enterprises. *International Scientific Conference Proceedings*, Olomouc: Societas Scientiarum Olomucensis II, s. 104-114, 2016. ISBN 978-80- 87533-14- 7.

Infostat (2010). *Fungovanie jednotlivcov a rodín vo sfére peňazí*. Retrieved June 15, 2017, from [http://www.finance.gov.sk/Documents/1_Adresar_redaktorov/Gera/Sfera_penazi\(prieskum_infostat\).pdf](http://www.finance.gov.sk/Documents/1_Adresar_redaktorov/Gera/Sfera_penazi(prieskum_infostat).pdf).

Ja Slovensko (2017). *JA VIAC AKO PENIAZE*. Vzdelávací program pre základné a stredné školy, zameraný na finančnú gramotnosť. Retrieved June 15, 2017, from <http://www.viacakopeniaze.sk/showdoc.do?docid=973>.

Ministerstvo financí ČR (2010). *Národní strategie finančního vzdělávání*. Retrieved June 6, 2017, from http://www.vzdelavani2020.cz/images_obsah/dokumenty/knihovna-koncepci/financni-vzdelavani/narodni_strategie_financniho_vzdelavani_mf2010.pdf.

MŠVVŠ SR (2013). *Výučba finančnej gramotnosti na základných a stredných školách*. Retrieved June 12, 2017, from <https://www.minedu.sk/vyucba-financnej-gramotnosti-na-zakladnych-a-strednych-skolach/>.

MŠVVŠ (2014). *Národný štandard finančnej gramotnosti verzia 1.1*. Retrieved June 8, 2017, from <https://www.minedu.sk/data/att/6152.pdf>.

MŠVVŠ SR (2016). *Aktualizovaná správa o stave vzdelávania zameraného na podporu rozvoja finančnej gramotnosti*. Retrieved June 12, 2017, from http://www.rokovania.sk/File.aspx/ViewDocumentHtml/Mater-Dokum-205240?prefixFile=m_.

MŠVVŠ SR (2017). *Národný štandard finančnej gramotnosti verzia 1.2*. Retrieved June 6, 2017, from <https://www.minedu.sk/data/att/11359.pdf>.

Nadácia pre deti Slovenska (2017). *Poznaj svoje peniaze*. Retrieved June 15, 2017, from <http://www.poznaj.sk/>.

OECD (2005). *Improving Financial Literacy. Analysis of Issues and Policies*. Retrieved June 8, 2017, from http://www.oecd-ilibrary.org/finance-and-investment/improving-financial-literacy_9789264012578-en.

OECD – INFE (2005). *Recommendation on Principles and Good Practices for Financial Education and Awareness*. Retrieved June 12, 2017, from <http://www.financial-education.org/standards.html>.

OECD (2012). *PISA 2012 Financial literacy assessment framework*. Retrieved June 6, 2017, from <http://www.oecd.org/pisa/pisaproducts/46962580.pdf>

OECD (2017). *PISA 2015 Results. (Volume IV) Students' Financial Literacy*. Retrieved June 12, 2017, from http://www.oecd-ilibrary.org/education/pisa-2015-results-volume-iv_9789264270282-en.

SBA (2007). *Finančná gramotnosť slovenského spotrebiteľa*. SBA, Bratislava, October 2007. Retrieved June 7, 2017, from <http://www.sbaonline.sk/files/subory/analyzy/verejne/fingram-IFIG.pdf>.

Úrad vlády SR (2010). *Návrh stratégie vzdelávania vo finančnej oblasti a manažmentu osobných financií*. Rokovanie vlády SR, Bratislava 2010. Retrieved June 8, 2017, from <http://www.rokovania.sk/File.aspx/ViewDocumentHtml/Mater-Dokum-22405?prefixFile=m>.

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COMPARISON OF SELECTED INDICATORS OF COMPETITIVENESS OF V4 COUNTRIES

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Abstract: *Transforming economies including the V4 countries enter an economic competition in which they compare their competitive ability. The aim of this paper is to analyse and evaluate the competitiveness of V4 countries based on selected factors with an emphasis on innovation performance. The complexity of the topic and the fact that the multicriterial evaluation of the Global Competitiveness Report in addition to the hard statistical data also uses soft data, it is necessary to set partial goals. The first partial objective is to analyse the economic performance of converging V4 countries based on Eurostat statistics. The second partial objective is to assess the competitiveness of the V4 countries on the basis of the Global Competitiveness Index and the World Competitiveness Index of the Swiss Institute for Development. In the third partial objective, the Competitiveness will be evaluated in terms of innovation performance based on an evaluation tool of the EU Innovation Union Scoreboard.*

Keywords: *V4 countries, competitiveness, economic performance, innovation performance.*

JEL classification: *F62, F63, O11, O31*

Grant affiliation: *VEGA No. 1/0233/16 "Dimensions and factors of social and economic development of regions in Visegrad Four countries".*

1. Introduction

In today's globalized world, there is an ongoing process of division of labor and its changes, creating an even wider scope for exchange processes and the competitiveness of subjects on domestic market, but especially on foreign markets. From the point of view of competitiveness, it is important to monitor the conditions under which products and services have been created, whether the production process is being carried out efficiently, because it affects the labor productivity. At corporate level, significant factors how to increase competitiveness are as follows: the increasing of labor productivity by applying modern management and marketing methods, applying the latest science and technology achievements in manufacturing and service delivery, the ability to implement innovation in a proper time, and better work organization. The degree of application and the use of

competitiveness factors depend on business conditions being created by governments through various forms of economic policy.

Under economic development, the forms and tools of competitive struggle are changing, in the early stages the competitive advantage based on production factors has been the basis for the competitive struggle, nowadays companies are dealing with the creation of competitive advantages based on efficiency and sophistication of production processes, factor productivity and innovation.

2. Bibliographic exposition and theoretical background

The concept of competitiveness has emerged in economic literature since the second half of the 20th century, which is related to the internationalization of economic life and the intensification of competitive relations. National competitiveness is mostly explained as the ability of national economy to achieve an economic growth or to raise the living standard of population.

The core of competitiveness theory is a Michael Porter's theoretical approach. According to Porter (1990), national competitiveness examines the ability of national economy to grow by using a set of factors, policies and institutions that determine the state's productivity levels.

The core debate about the term competitiveness has not changed very much since the early 1990s; it continues to follow the path outlined above. However, in two dimensions there has been movement that is important to track: First, the concept that was initially applied only to national economies has been increasingly used also at other levels of geography, in particular subnational regions (Ketels, 2013). And second, there has been increasing debate on whether GDP per capita is an appropriate measure for capturing a location's standard of living, the key objective underpinning the productivity-based view of competitiveness (Aiginger, 2015).

Innovation and finding resources for the development of innovation is an important theme in the theory of competitiveness. (Bos, Kolari & Van Lamoen, 2013). At present, innovation and knowledge are increasingly important than a competitive advantage based on natural resources, capital or cheap labor, this is also enshrined in the Europe 2020 strategy. (Priede & Pereira, 2013; Kordoš, 2016).

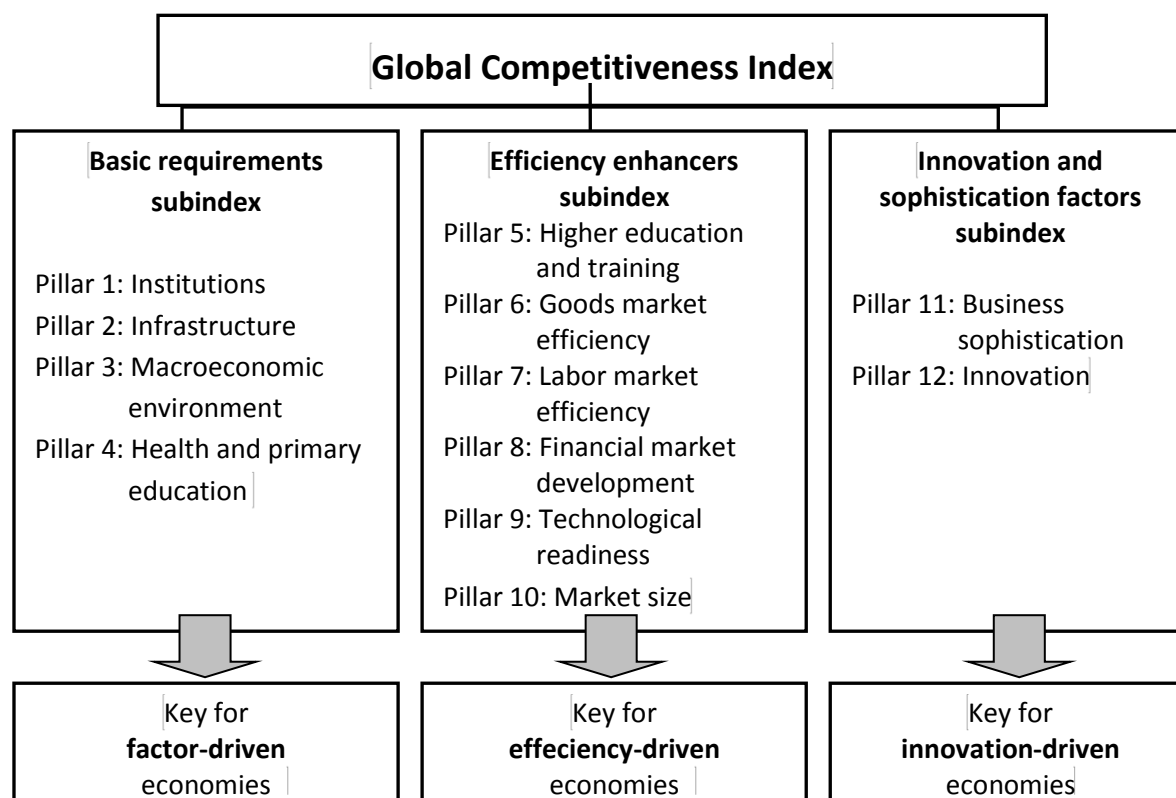
According to Tidd et al. (2007) innovation contributes to achieving a competitive advantage in several aspects. The most important characteristics of innovations include: A strong relationship between market performance and new products. New products help maintain market shares and improve profitability. Growth also by means of non-price factors (design, quality, individualisation, etc.). Ability to substitute outdated products (shortening product lifecycles). Innovation of processes that lead to production time shortening and speed up new product development in comparison to competitors. Martín-de Castro et al. (2013) say that developing successful technological innovation is essential for creating and sustaining an organisation's competitive advantage.

For the development of innovation activities and competitiveness of the companies are important industrial clusters. Unlike traditional industrial innovation clusters represent a system of close relationships not only between companies, their suppliers and customers, but also to institutions of knowledge, including research centers, universities, scientific research institutes and so on. (Belás et al., 2015)

As a generator of new knowledge and innovation, they provide a high level of competitiveness. The innovation process includes suppliers and consumers, as well as companies from other industries, and as a result of inter-firm cooperation on R&D costs are reduced. (Vojtovič & Krajňáková, 2014)

Global institutions and organizations dealing with competitiveness, evaluate it and compile competitiveness rankings of economies or businesses, they define this category for their needs and compile criteria and methods for competitiveness measuring. The World Economic Forum (WEF) evaluates and publishes the information on global competitiveness: Global Competitiveness Index (GCI). The GCI combines 114 indicators that capture concepts that matter for productivity. These indicators are grouped into 12 pillars (Figure 1). These are in turn organized into three subindexes, in line with three main stages of development: basic requirements, efficiency enhancers, and innovation and sophistication factors. The three subindexes are given different weights in the calculation of the overall Index, depending on each economy's stage of development, as proxied by its GDP per capita and the share of exports represented by raw materials.

FIG. 1: The Global Competitiveness Index structure



Source: Authors' elaboration by the Schwab, 2016

In research part of the study we evaluate the results of countries in the 11th and 12th pillars of global competitiveness.

3. Objective, methodology and data

The goal of this paper is to compare the competitiveness of V4 countries being assessed on the basis of their innovative performance and business processes sophistication. Innovation and sophisticated business processes are two sub-indicators that support competitiveness based on qualitative factors; their assessment is based on hard statistical data. The objective of our research is to find out the impact of V4 countries' innovation performance on their ranking within the international competitiveness assessed by the Global Competitiveness Index of World Economic Forum.

The basic method is a comparative analysis to compare the overall competitiveness of V4 countries and the results of these countries in innovative performance and business processes sophistication. By means of statistical methods (correlation analysis), we will assess the impact of GCI indexes (Innovation and sophistication factors subindex) to assess the V4 countries in terms of Global Competitiveness ranking. The baseline data to assess the issue is retrieved from the World Economic Forum database, the Eurostat database and the European Innovation Scoreboard, EIS (European Commission).

Setting and verification of hypotheses

Hypothesis 1: We assume that in observed time series there is a statistically significant functionality between the V4 countries ranking compiled by the Innovation and sophistication factors subindex and the overall V4 countries ranking in GCI.

Since changes in the ranking of non-V4 countries can also have the influence on correlation in ranking of countries by the Innovation and sophistication factors subindex and overall ranking in the GCI chart, we have decided to set a second hypothesis that verifies the correlation between the absolute values of the Innovation and sophistication factors subindex and the overall Competitiveness Index of V4 countries in GCI ranking.

Hypothesis 2: We assume that during the observed time series there is statistically significant functionality between the Innovation and sophistication factors subindex values and the overall Competitiveness Index values in GCI of V4 countries.

4. Results and discussion

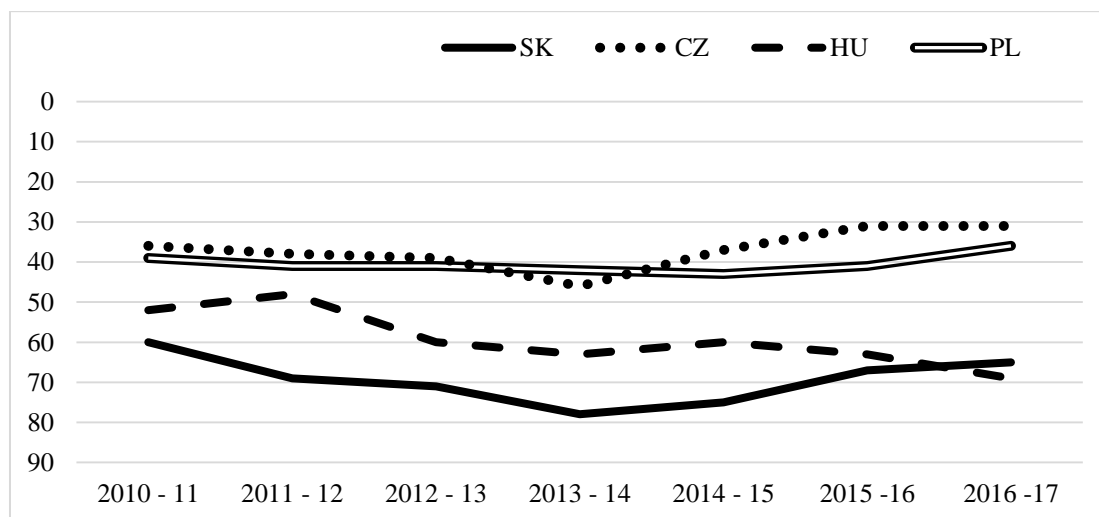
4.1. The V4 countries' Competitiveness Comparison

By assessing the competitiveness of V4 countries, we will focus on the overall GCI competitiveness ranking and the scores being achieved by these countries in individual pillars, also on the sub-indexes evaluation within the WEF evaluation and on some successful but also problematic areas within the V4 countries, in particular, infrastructure, institutions, innovation and business processes sophistication.

In the following Figure 2 we show the evolution of V4 countries in the GCI since 2010. As it can be seen from the graph, Poland was keeping the most stable level of its position in the period under review. Since 2010, Slovak Republic has continued to decline in ranking until 2013-2014 and in the next two years we can observe the increasing tendency and the shift in ranking to the level being closed to the position in 2010-2011, in the last year of ranking it was at the 65th place in the GCI. In the figure we see that Czech Republic is a leader among the countries of Visegrad group, it has a

balanced trend in positions in 2016 and 2017 occupying the 31st notch in the total ranking of countries. Poland's trend is similar to the one of Czech Republic; Poland has lagged behind in the last two years, ranking at 36th (2016) and 41st (2015) notches. In this assessment Hungary shows a negative development, its ranking in the period under review, was tumbling down 17 notches from 52 to 69.

FIG. 2: The V4 countries ranking development in in the GCR (2010-2017)

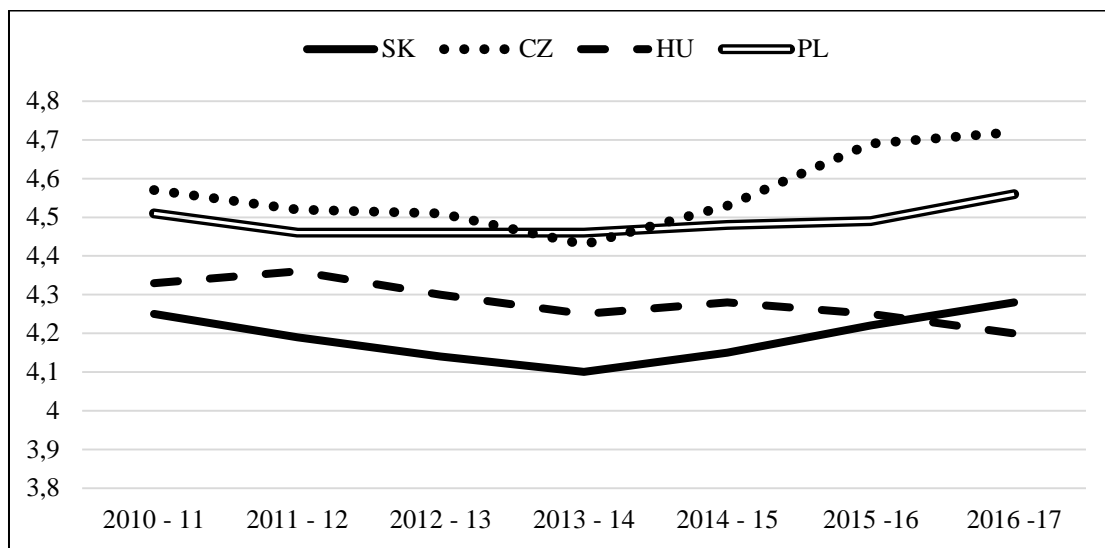


SK - Slovak Republic, CZ - Czech Republic, HU - Hungary, PL - Poland

Source: own processing by Schwab, 2016

The Figure 3 shows the score development values of V4 countries in the observed period. Compared to the previous figure, we can see that the change in the Slovak Republic's score was not as dramatic as the fall in ranking, being affected by the change in the ranking of other countries; based on the obtained score value SR got before Hungary. If we compare the score values in the periods of 2010-2011 and 2016-2017, Czech Republic as the only country has increased its score value by the 0.18 percentage point. Of the other 3 countries being under review, Hungary tumbled down by 0.8 percentage point to the 69th place in GCI. The very balanced development has Poland, its score in the last reviewed period has been slightly improved, within the rated countries is located behind Czech Republic, but before Slovakia and Hungary.

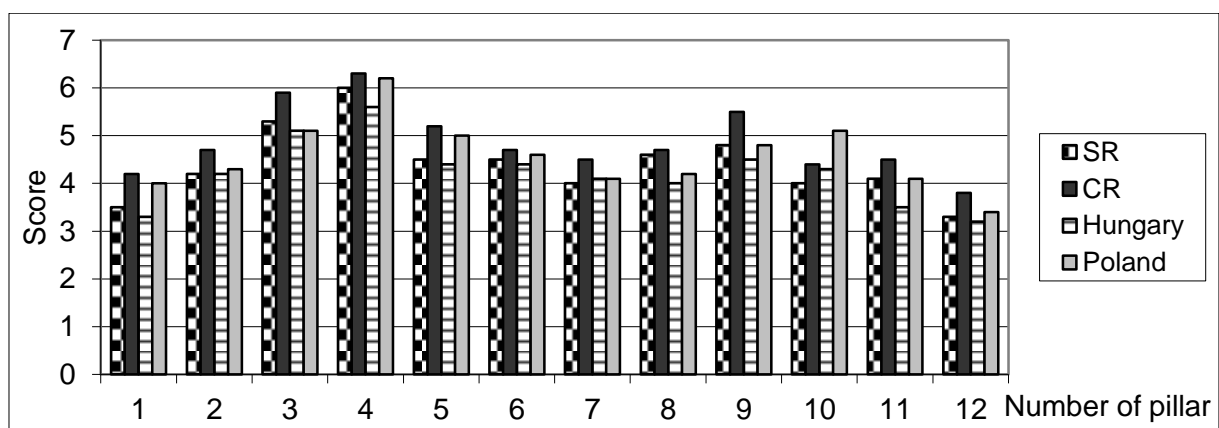
FIG. 3: The V4 countries GCI Score development (2010-2017)



Source: own processing by Schwab, 2016

It is important to remember that the twelve rated pillars do not affect the competitiveness independently but are mutually complementary. Bad results in one pillar often have a negative impact on other areas. So the result in the score or in the competitiveness ranking list is a complex result. For example, educated and trained workforce and sufficient funding are a prerequisite for the use of new technologies. New technologies contribute to creating new innovation on the product and services market. Although all pillars are aggregated into one index, each pillar is measured separately (Schwab, 2011). We see the V4 countries ranking by individual pillars in the following Figure 4.

FIG. 4: The comparison of V4 Countries' success in GCI Pillars in 2016



Source: own processing by Schwab, 2016

In general, the best results were achieved by V4 states in pillar no. 4 Health and primary education. Czech Republic is also very successful in pillars no. 3 and 9. Poland also has good results in pillar 10, as it has the largest market among the V4 countries. On the other hand, the worst results are achieved by the V4 countries in the pillars of Innovation (pillar 12) and Institutions (pillar 1), while Hungary and Slovakia are falling behind the other V4 countries in this pillar.

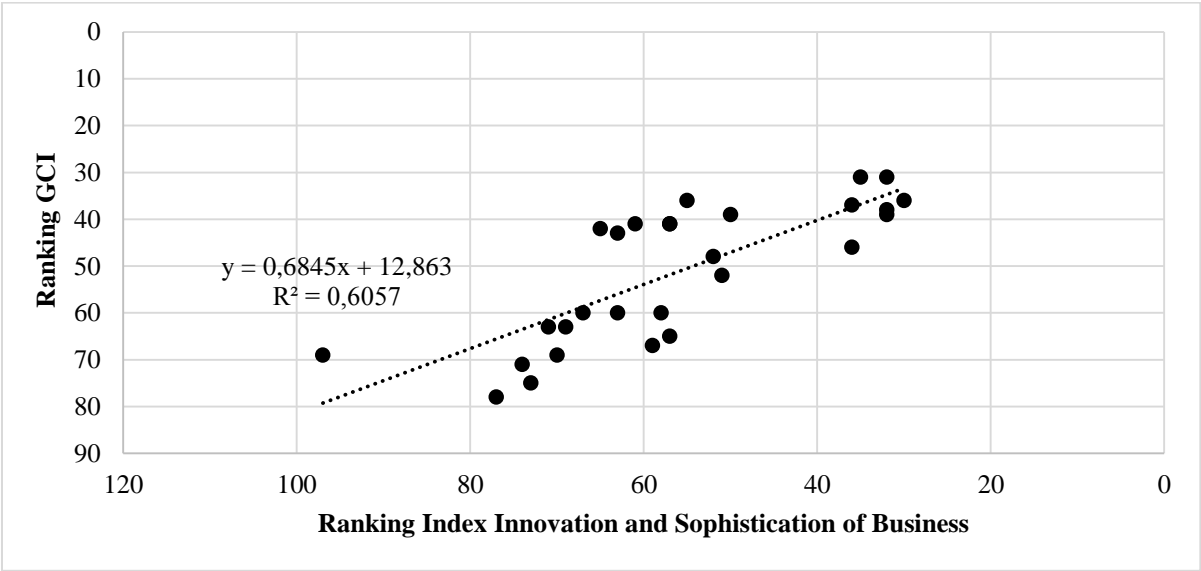
4.2. Examining the impact of V4 Countries’results in the Innovation and sophistication factors subindex on their competitiveness assessment

In the next part, we are examining how the V4 countries’ rating in the 11th and 12th pillars affects their overall competitiveness within the GCI.

Verifying the H1 hypothesis, we wanted to find out the dependence between the formal quality features, namely the Innovation and sophistication factors subindex, and the overall GCI ranking of V4 countries in the monitored period (from 2010 to 2017). The selection consisted of 7 ranges in each of four countries, i.e. n = 28. The files had approximately normal distribution.

In the first step, we assessed functionality, a degree of matching between the Innovation and sophistication factors subindex rankings and the overall ranking in GCI. Since the value of sequence correlation coefficient $R = 0.84$, we note that there is a high linkage degree between the Innovation and sophistication factors subindex rankings and the overall score ranking. This positive functionality can be seen in the following chart, where along with the one ranking it is also increasing the second ranking, axis x - V4 countries ranking in Innovation and sophistication factors subindex, axis y - V4 countries ranking in the overall GCI index.

FIG. 5: Overall ranking and innovation ranking correlation for V4 countries



Source: own processing

For the H1 exact verification, there is still a not answered question if the observed linkage degree could be generalized to the whole basic set, i.e. if there is a statistically significant functionality between these rankings. At the significance level $\alpha = 0.05$ we tested, by means of the sequence

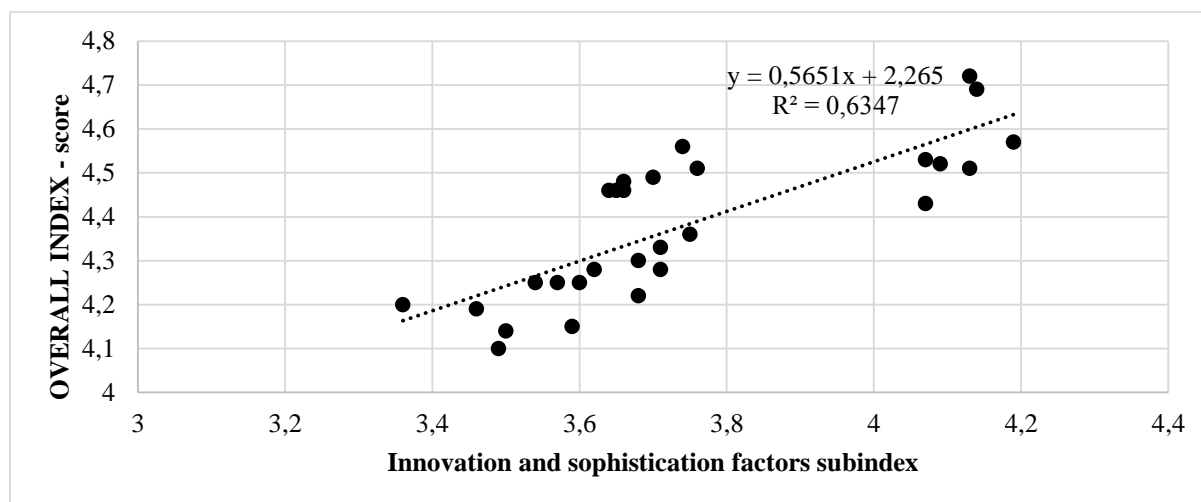
correlation coefficient significance test, the H0 hypothesis on the observed characteristics independence, compared to the alternative hypothesis H1, that there is a statistically significant functionality between the X and Y rankings, where X means the Innovation and sophistication factors subindex ranking, and the Y means the Overall GCI ranking.

Since the value $p(2,26 \cdot 10^{-8}) < \alpha(0,05)$ the hypothesis H0 has been rejected in favor of the alternative hypothesis H1 and we note that the correlation is statistically significant. The hypothesis H1 has been confirmed.

In H2, we wanted to find out the functionality between the values of Innovation and sophistication factors subindex of V4 countries in the period of 2010-2017 and the values of the GCI total score index. The selection consisted of a total of 7 values (seven years) of each V4 country, i.e. $n = 28$. Since the files had approximately normal distribution and a relatively large range, to make a comparison the Pearson's correlation coefficient has been used.

In the first step, we were assessing the functionality, a degree of matching between the Innovation and sophistication factors subindex and the overall GCI index for the particular country and year. Since the value of correlation coefficient $r = 0.797$, we note that there is a high degree of linkage between the value of the Innovation and sophistication factors subindex Score and the overall score of the country in GCI. We also observe this positive functionality in the following graph, where along with the Innovation and sophistication factors subindex – axis x, the overall GCI index is also increasing – the axis y.

FIG. 6: Correlation of the GCI overall score and the Innovation and sophistication factors subindex Score of V4 countries



Source: own processing

For the exact verification of H2 it is still necessary to answer the question whether the observed linkage degree can be generalized to the whole basic set, i.e. if there is a statistically significant functionality between the indexes being compared. At the significance level $\alpha = 0.05$ by means of correlation coefficient significance test we tested the H0 hypothesis on observed characteristics independency, compared to the alternative H2 hypothesis that there is a statistically significant

functionality between the Innovation and sophistication factors subindex - axis x and the overall GCI index score – axis y.

Since $p(3,94.10^{-7}) < \alpha(0,05)$ the H_0 hypothesis is rejected in favor of the alternative hypothesis H_2 and we state that the correlation is statistically significant. The H_2 hypothesis has been confirmed. Generally speaking, in V4 countries the Innovation and sophistication factors subindex value is increasing along with the overall GCI index value of these countries. This, however, does not exclude the option that there is a significant linear functionality among the other indexes being observed and the overall score.

5. Conclusion

V4 countries belong to a group of transitive economies, they have very similar economic and social development, but almost in three decades of development after the break-up of the "Eastern Bloc", each of these countries has gained some specificities in their development, so it was interesting to compare the results of their competitive ability over the last period. As being proved both in GCI's position as well as in score values Czech Republic appears to be the most successful of these countries. Lower rating, but relatively balanced development is reported by Poland, followed by Hungary, and the worst results in both indicators has been shown by Slovak Republic, but in the last period under review Slovakia's rating has been improved to reach Hungary. To assess the countries' competitiveness results the 11th and 12th pillars of competitiveness have a considerable impact. By means of hypotheses, we have assessed the extent of this impact. Since both hypotheses showed statistically significant functionality, we note that the increased ranking in the overall GCI chart is affected by the ranking of V4 countries compiled according to the values within the Innovation and sophistication factors subindex. Also, the value of Innovation and sophistication factors subindex is significantly affected by the value of the overall GCI index of V4 countries.

Literature:

Aiginger, K. (2015). *Competitiveness: from a misleading concept to a strategy supporting Beyond GDP goals*. Competitiveness Review, Special Issue "25 Years after the Competitiveness Advantage of Nations, December 2015.

Belás, J., Demjan, V., Habánik, J., Hudáková, M. & Sipko, J. (2015). The business environment of small and medium-sized enterprises in selected regions of the Czech Republic and Slovakia. *E & M ekonomie a management*, 18(1), p. 95-110.

Bos, J. W., Kolari, J. W., & Van Lamoen, R. C. (2013). Competition and innovation: Evidence from financial services. *Journal of Banking & Finance*, 37(5), 1590-1601.

Ketels, Ch. (2013). Recent research on competitiveness and clusters: what are the implications for regional policy? *Cambridge Journal of Regions, Economy and Society*, 6(2), p. 269-284.

Kordoš, M. (2016). Knowledge Economy Development in Global Economy Environment. *2nd International Conference on Education and Management Science (ICEMS 2016)*, p. 142-146.

Martín-de Castro, G., Delgado-Verde, M. Navas-López, J. E. & Cruz-González, J. (2013). The moderating role of innovation culture in the relationship between knowledge assets and product innovation. *Technological Forecasting and Social Change*, 80(2), p. 351-363.

Porter, M. E. (1990). *The Competitive Advantage of Nations*. New York: Free Press.

Priede, J., & Pereira, E. T. (2013). Innovation as a key factor in the international competitiveness of the European Union. *European Integration Studies*, 2(7), p. 212–221.

Schwab, K. (2011). *The Global Competitiveness Report 2010-2011*. retrieved from <https://www.weforum.org/reports/global-competitiveness-report-2010-2011.pdf>.

Schwab, K. (2016). *The Global Competitiveness Report 2016-2017*. retrieved from http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf.

Tidd, J. et al. (2007). *Řízení inovací. Zavádění technologických, tržních a organizačních změn*. Brno: Computer press.

Vojtovič, S., Krajňáková, E. (2013). Trends in Economic Growth and Unemployment in Slovakia. *International Conference on Education, Management (ICEMSS-13), Tianjin, China*. Paris: Atlantis Press, p. 188-191.

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GENERATION Z'S PERCEPTION OF TRUST IN RELATION TO KNOWLEDGE

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Abstract: *The paper aims to reflect the generation Z's perception of trust in relation to knowledge. Based on previous studies, the general approach of western cultures to knowledge is that they prefer explicit knowledge, and internalization for knowledge sharing. We raise the question of how trust is related to the phases of SECI circle (particularly internalization). This question has been broadly studied in business; however, it was not applied to the limited school experience of the youngest generation. Yet, we can assume that Generation Z would likely convey their approach adopted at school to their work environment. The paper presents selected results of a pilot small-scale survey, which was conducted in order to obtain answers on students' perception of trust in both knowledge sharing and assessing trustworthiness of resources.*

Keywords: *Knowledge, SECI, generation Z, trust, internet resources.*

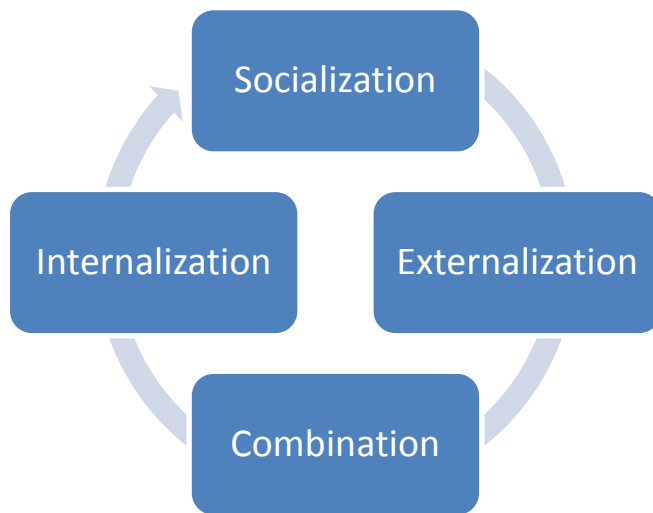
JEL classification: *I2, M540*

Grant affiliation:

1. Introduction

The way how knowledge is shared and developed is described by the recognized SECI circle, which uses both tacit and explicit knowledge and describes four different ways of sharing knowledge - socialization, externalization, combination and internalization. This model builds on a presumption that participants trust the resources and that the resources are correct. Nonaka, Toyama and Konno (2000) enriched the model with Ba, which can be in a nutshell described as a shared context where i.a. trust can be developed. However, in today's world it might not always be that easy; some recent research has been done in order to find out whether there are some personality traits or organizational factors that would considerably ease knowledge sharing, what prevents people from donating useful knowledge to organizational knowledge management systems or to use the systems even if they are rewarded (and even if they are rewarded in non-monetary but motivational terms, such as sense of belonging, competence, usefulness and recognition by colleagues or bosses), and the answer is usually trust (e.g. Cabrera et al., 2006; Wang and Noe, 2010; Sajeve, 2014; Un Jan and Contreras, 2016).

FIG. 1: The SECI model, simplified



Source: Nonaka, Toyama, Konno, 2000, 9

Western cultures prefer explicit knowledge and externalization for knowledge creation but tacit knowledge and internalization for knowledge sharing, but no differences were found concerning gender, as Mládková (2014) suggested; this may be the result of educational system that traditionally prefers explicit knowledge for knowledge acquisition but does not train students to share knowledge, therefore they do it naturally, in tacit form.

This finding together with the known characteristics of Generation Z as being reliant on social networks (e.g. study materials shared via Facebook; see Mládková, 2015) advises us to focus on trust in the SECI circle, particularly how students perceive written materials (explicit knowledge) and their trustworthiness.

1.1. Generation Z

The youngest generation, which is now trendily and generally called the Generation Z (or Net generation or Digital natives or Google generation etc.), and usually encompasses people born approximately between the years 1995 till 2009, has been researched so far mainly concerning their qualities, characteristics, or demands on employers. It is described as being addicted to technologies on one hand and, yet, having strong need of personal contacts on the other hand. Hejnová (2015) puts a list of features that are common to the Generation Z, which are above all genuineness, enthusiasm, fast life pace, individualism, self-assurance, freedom, collaboration, curiosity, speed, innovation, and entertainment. They have the longest formal education ever and they are the best-off generation ever. They need change, personal development, experience and challenging work. They demand an understanding, patient, polite and self-confident boss with a strong and motivating vision; a boss who would be their mentor or coach. Moreover, they are usually self-confident (or conceited?) enough to believe that they would be great bosses themselves.

Kubátová (2015) also mentioned the preference of challenging job and thus the tendency to work part-time (or as freelancer) for more employers at a time but for shorter time period. She predicts that companies will have to prepare for overcoming all the disadvantages connected to Generation Z

workers. From the perspective of HR, it would mean in particular the investment in education of freelancers, the law regulations of work from home, the need to replace workers under less predictable conditions, etc.

However, the two above mentioned surveys were conducted from the viewpoint of the Generation Z and their expectations, so that employers can react to their demands - because employers believe that the Generation Z members would be able to use information and communication technologies and to be (or become) knowledge workers in new knowledge economy (including Industry 4.0). However, it is not always the case. Students frequently use computers only as better typewriters with hardly any value added. Access to data online does not automatically mean relevant understanding of the data. Therefore, this paper focuses on how students use explicit information.

2. Survey Objective and Methodology

This paper presents selected data from a pilot small-scale survey among students. Since we can presume that students' habits in assessing trustworthiness of resources are likely to be conveyed from school to work environment, this survey aims to understand students' perception of trustworthiness of some selected sources of information, which they use not only at school but also in their personal life. The questionnaire survey took place at the Czech Technical University in May 2017 during seminars of Human Resources Management. It involved full-time students in their second year of undergraduate studies; hence, all participants belong to the Generation Z, which has just started to enter the labour market. There were 61 participants altogether, 27 were men and 34 women.

3. Results

The survey revealed several important findings. One of the most important outcomes is that students are not sure what is a resource, or a source of information. Students were asked to name three resources of knowledge (information) they use most often. This question did not offer any list of answers, respondents had to recall the resources themselves. And surprisingly, students named Google, Wikipedia, social networks (Facebook). Particularly, 7 men had identical answers: Google, Wikipedia, Seznam.cz, and other 7 men answered Wikipedia, social networks, Google. Eleven women mentioned Wikipedia on the first place, five Google, Wikipedia, and something else, and five Google plus something else. Answers such as bbc.com, study materials on intranet, e-books etc. were only unique. Apparently it is extremely hard for students to recall the webpages they follow and we can speculate they are not sure about what is a source of information.

However, 59 respondents (97%) stated that they do believe to expert books and magazines, usually recommended by their teachers or lecturers. Even though they do not perceive neither their parents nor their teachers as trustworthy professionals, they do trust the same resources as their parents and teachers use. This shows a clear preference of explicit knowledge to tacit knowledge. However, printed professional books are not the resource of first choice, because some effort is needed to reach them.

Respondents were also asked how they verify information. Mostly they do not, or they use "the second link on Google".

Further we asked students by an open question to say how they assess trustworthiness of a resource. Astonishingly, we got many answers such as: "there is similar content on another webpage" or "by my own intuition or experience". Quite frequent answers were also "by good grammar" or "by the owner of the newspaper" or "by an opinion of a person whom I trust". The answer "foreign resources are more trustworthy" was also mentioned several times. And last but not least, "by the disgust of the text - the harder to read it, the more likely the author is a professional or academic".

There was no correlation between mentioning or not mentioning Wikipedia as a resource and perceived trustworthiness of Wikipedia in the answers, see table 1 below.

TAB. 1: Perceived trustworthiness of resource

Resource		Trustworthy	Rather trustworthy	Less trustworthy	Not trustworthy at all
Wikipedia	Men	1	17	8	1
	Women	0	18	14	2
	Total	1 (2%)	35 (57%)	22 (36%)	3 (5%)
Social networks	Men	1	4	14	8
	Women	0	4	19	11
	Total	1 (2%)	8 (13%)	33 (54%)	19 (31%)
Other (aktuálně.cz; novinky.cz; seznam.cz etc.)	Men	2	13	9	3
	Women	0	11	23	0
	Total	2 (3%)	24 (39%)	32 (53%)	3 (5%)

Source: author

Table 1 presents students' responses to a closed question, which was to be answered on a Likert scale. There are several startling outcomes. First, it is surprising that students believe more to anonymous authors of Wikipedia than to information posted on social networks by their "friends". Second, women on average doubt more about these particular resources. It is questionable why students count Wikipedia among rather trustworthy resources, when academic staff in general does not count Wikipedia among resources advised for learning to students. Moreover, Facebook is not a source of information at all; every post has to have its author and the students do not recognize this difference.

4. Discussion and conclusions

The survey revealed that students have trouble with assessing the trustworthiness of resources which they use in their everyday life. However, as the survey was done among second-year students, we can speculate that, perhaps, students will acquire the knowledge necessary to manage this in the third year of their curricula, when they are supposed to write their bachelor theses. Wikipedia, although anonymous, is perceived as better source of information than friends or classmates, and this fact again raises questions about the future working habits. The more webpages bear similar information, the more likely students are to internalize the knowledge, no matter whether the information is accurate. Our following research will address assessing trustworthiness in the whole SECI circle and in knowledge sharing among members of Generation Z. We can conclude that Generation Z's habit is not to search for relevant information, but to use the information that is easily available online and for free.

Literature:

Cabrera, A., Collins, W. C., Salgado, J. F. (2006) Determinants of individual engagement in knowledge sharing. *International Journal of Human Resource Management*, 17(2), p. 245-264.

Hejnová, V. (2015). Vstup generace Z na trh práce. In P. Slavičková, J. Tomčík (Eds.), *Znalosti pro tržní praxi 2015. Ženy - podnikatelky v minulosti a současnosti*. (pp. 199-208). Olomouc: Societas Scientiarum Olomucensis II.

Kubátová, J. (2015). Predikce pracovního chování generace Z. In P. Slavičková, J. Tomčík (Eds.), *Znalosti pro tržní praxi 2015. Ženy - podnikatelky v minulosti a současnosti*. (pp. 490-503). Olomouc: Societas Scientiarum Olomucensis II.

Mládková, L. (2014). Impact of Gender on Work With Knowledge. In P. Slavičková (Ed.), *Znalosti pro tržní praxi 2014. Média a komunikace ve 21. století* (pp. 239-244). Olomouc: Societas Scientiarum Olomucensis II.

Mládková, L. (2015) Studenti generace Z, studie z Vysoké školy ekonomické v Praze. In P. Slavičková, J. Tomčík (Eds.), *Znalosti pro tržní praxi 2015. Ženy - podnikatelky v minulosti a současnosti*. (pp. 619-625). Olomouc: Societas Scientiarum Olomucensis II.

Nonaka, I., Toyama, R., Konno, N. (2000) SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation. *Long Range Planning*, 33(2000), pp. 5-34.

Šajeva, S. (2014). Encouraging knowledge sharing among employees: how reward matters. *Procedia - Social and Behavioral Sciences*, 156(2014), 130-134.

Un Jan, A., Contreras, V. (2016) Success model for knowledge management systems used by doctoral researchers. *Computers in Human Behavior*, 59(2016), pp. 258-264.

Wang, S., Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20(2010), 115-131.

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THE DILEMMAS OF ESTABLISHING CLUSTERS BASED THROUGH THE EXAMPLE OF AVIATION VALLEY IN POLAND

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Abstract: *The purpose of the article is to show the functioning of the Aviation Valley cluster as a significant factor for development and competitive position. Functioning of an enterprise in the circumstances of market economy creates necessity for constant refinement of mechanisms, processes and instruments of management which are oriented at improvement of its economic effectiveness. Cooperation, mutual trust and common goal of action are important factors. Involvement of foreign investors allowed the Aviation Valley, active since 2003, to become an important association in Podkarpackie region, Poland and the world. Substantial funds spent on infrastructure and creation of a special economic zone offering tax exemptions resulted in the development.*

Keywords: *Cluster, development, innovation.*

JEL classification: *F36, G30*

Grant affiliation:

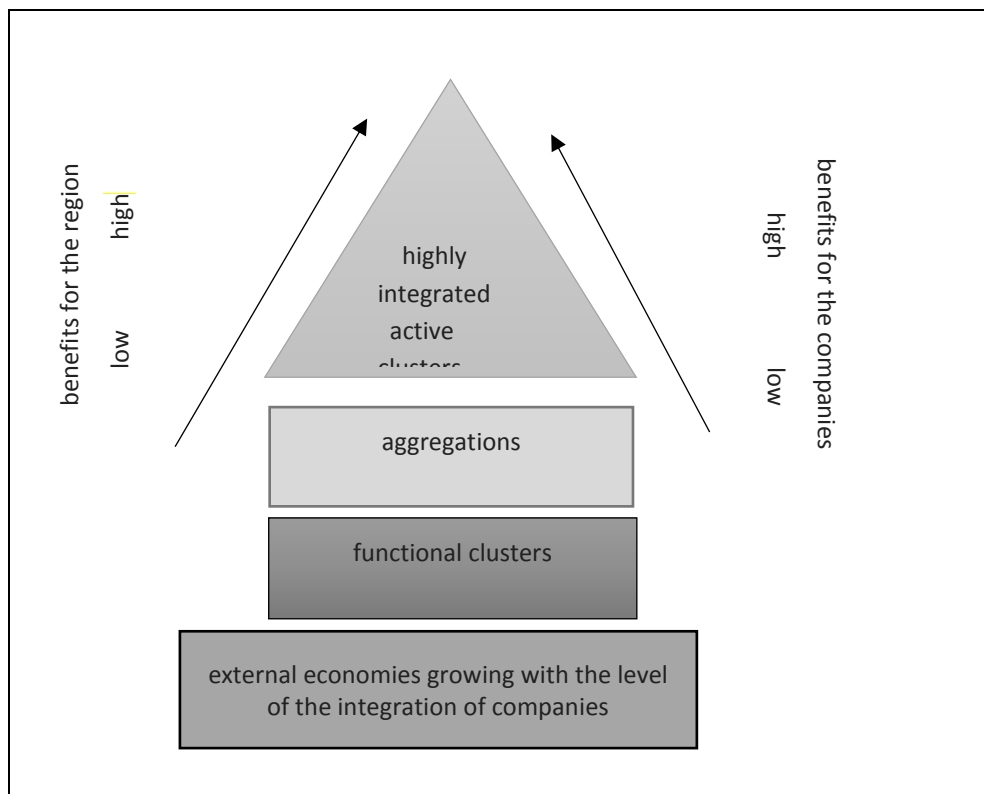
1. The essence of the functioning in clusters

The beginning of a new era in the "global world", stigmatized by the technical and economic competition, the ever-increasing importance of global companies and the interference of the state create an increase in competition in many industries (Jarosiński 2000 p. 157). The real opportunity to increase the competitive ability is cooperation with other entities, creating purchasing groups, trade purchasing groups, or establishing clusters. In case purchasing group, it is important to divide into the branch and multi-branch groups. (Zimon 2017 pp. 531-537)

The widespread interest in clusters results from the acceptance of the view that a cluster is a form of production organization of high innovative potential, and thus plays a key role in shaping competitiveness and socio-economic development. The concept of the cluster is at the same time the starting point for a new way of thinking about creating the international competitiveness of the national and regional economies.

In his breakthrough study of the early 1990s, Michael Porter (Porter 2000, pp. 15-34) considered the cluster phenomenon a direct source of the competitive potential of individual nations. According to Porter, a cluster is a geographic aggregation of interrelated companies, specialized suppliers, service providers, companies acting in related sectors and the institutions related to them (e.g. universities, standardization bodies and industry associations) in each of the fields, both competing and collaborating with each other. The concept combining cluster development with a positive impact on regional development is proven in a number of papers on the clustering theory, as reflected in fig.1.

FIG. 1: Benefits for the region on different levels of cluster development



Source: own elaboration based on: [Bochniarz, Andreoli, 2008]

Highly integrated, efficient clusters make it possible for the companies and organizations acting within them to achieve additional benefits thanks to the synergy effect of collaboration. It consists in, among other things, the possibility of reducing costs thanks to the use of group purchases, or the use of consortia submitting joint tenders, etc. (Sieńko-Kuśakowska, Pisarczyk 2015 p. 329).

An industrial cluster is a spatially centred group of companies, institutions and organizations linked by vertical and horizontal networks, often informal, which by concentrating specific resources allows these companies to achieve a lasting competitive advantage. The characteristic feature of industrial clusters is that the companies in in them compete with each other, but at the same time cooperate in the areas where it is possible to liberate the effects of joint actions (e.g. joint research and development). By achieving a high level of integration as an effective cluster it should also vastly

contribute to the regional economy, characterizing the maturity of the cluster, the primary source of which is the high synergy of the collaboration of all cluster members. Doesn't the concept of combining the development of clusters with their positive influence on regional development raise any doubts? Are they perhaps artificial entities which still raise questions – whether to create them or not? These dilemmas may be answered by the analysis of the functioning of a given cluster, i.e. the Aviation Valley in Rzeszow.

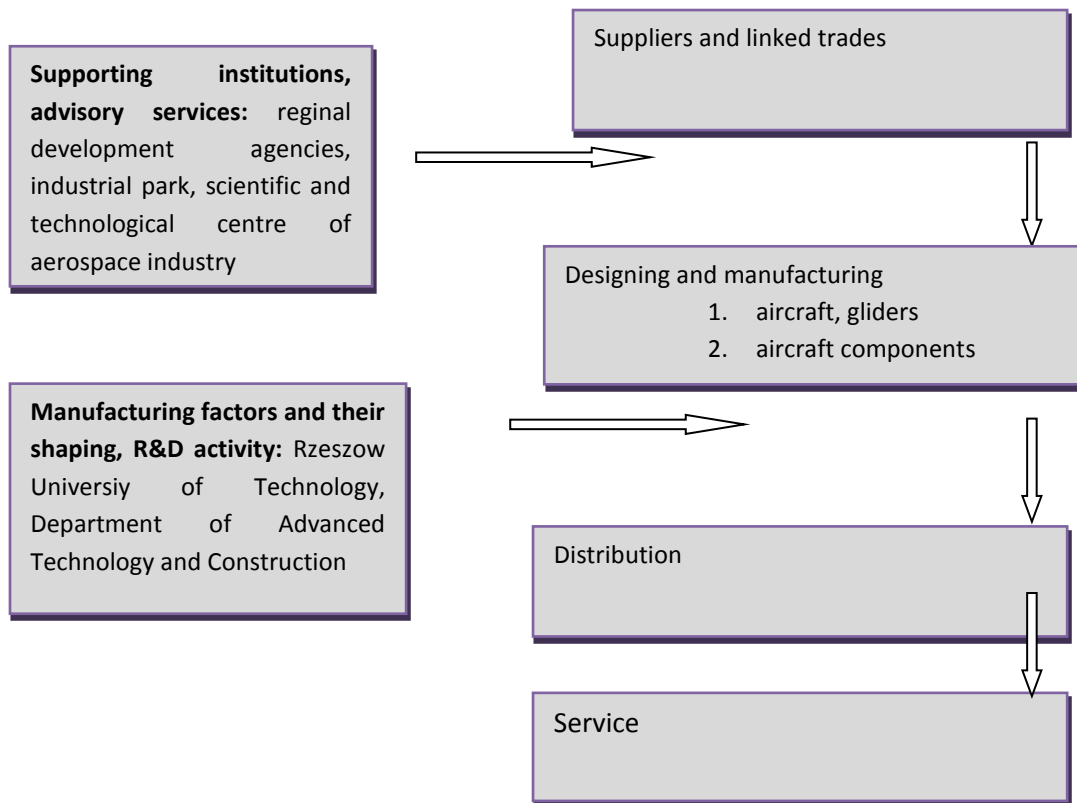
2. The Management of the Aviation Valley Cluster

The development of cooperative relations in Poland depends primarily on the will of enterprises, their mutual trust, the qualifications of coordinators coming from business environment institutions and administration. Podkarpackie Province is one of the regions in Poland that differs in its economic structure from the situation in the country. The region of Podkarpackie is a typically agricultural one. In 2010, every third resident of the region was employed in agriculture, forestry, hunting and fishing (33.2%, Poland - 17.3%). There are several key sectors in Podkarpackie region, such as aerospace, chemical (including pharmaceutical), and ICT. Podkarpackie Province is a region with a rich tradition of aviation, with 90% of the country's aviation production. Such conditions favoured the establishment of the Aviation Valley as a cluster. The Aviation Valley, the largest industrial and technological cluster in Poland, was established in April 2003. It currently unites 150 companies and employs more than 25 thousand employees in the aerospace industry located in southeastern Poland. The cluster is constantly under development. It is a model cluster primarily because it has attempted to establish strong local identity and engage all the stakeholders from the region (research institutions, the institutions of business environment and public bodies) since the very beginning. Its main centre is Rzeszow as the vast majority of the Valley is located in Podkarpackie Province and many enterprises operate around its capital city. Others are located in the regions of Lubelskie and Lesser Poland.

The key enterprises of the Valley are WSK "PZL-Rzeszów" (Pratt&Whitney Rzeszów), Polish Aircraft Factory PZL-Mielec and PZL-Świdnik. It has to be admitted that the members of the American UTC, which supply companies such as Boeing and Embraer, have a strong position here. Hamilton Sundstrand Poland is another company that invested in the cluster by purchasing PZL Wrocław. In general, the UTC companies (including Pratt & Whitney Kalisz) employ more than 7.000 people. The cluster takes various initiatives and responds to the needs of the market. In the Podkarpackie Cooperative Association the collaboration between companies and R&D bodies is essential so that all the projects could make their way to R&D departments of companies. The only doubt is the foreign capital investment, which is inevitable nowadays.

Designing, manufacturing, service, aviation-related services, R & D in the aerospace industry, support of the development of the industry is the competence of the Aviation Valley cluster (fig. 2).

FIG. 2: Chain of values and the competence of the cluster



Source: Clusters in Podkarpackie Province – the catalogue p. 13

The primary role of the Valley is to create the facilities that would favour further investment in the aerospace industry and make it easier for existing entities to function. One of the main areas of activity is also the development of education. This is done on three levels. Demonstration classes called "Awesome Physics" are conducted in primary schools to encourage children to choose the faculty of engineering in their further education. In 13 vocational secondary schools and vocational education centres there are Operators Training Centres CEKSO. Within their framework, modern laboratories have been set up in schools where future aerospace workers can deepen their skills. On the other hand, on the level of higher education institutions, apart from strengthening cooperation between individual universities there have been investments made in the Materials Research for the Aerospace Industry Laboratory in Rzeszow University of Technology. It is one of the most modern units of its kind in the world. Technological innovation poses a very important pillar of cluster activity.

Building trust between partners, building social capital, triggering active attitudes and involvement are one of the most important elements in the process of the establishment of cluster initiatives (Koszarek 2011, p. 35). The region is characterized by high concentration of aerospace companies,

pilot training centres, research and development institutions and developed education and training facilities [Chłodnicka 2013]. In legal terms, the cluster operates as the Association of the Group of Aviation Industry Entrepreneurs.

3. Conclusion

The Aviation Valley cluster's characteristic is constant strong dynamics of establishing new, innovative companies in the region. The widespread interest in clusters results from the acceptance of the view that a cluster is a form of production organization of high innovative potential, and thus plays a key role in shaping competitiveness and socio-economic development. The concept of the cluster is at the same time the starting point for a new way of thinking about creating the international competitiveness of the national and regional economies. By realising such a policy in Podkarpackie Region, one of the largest groups which is the Aviation Valley, the largest one in Europe, uniting 150 entities, was established. The cluster is constantly developing and seeking for new ways of improvement. What is now recognized is the essence of people's functioning for the sake of common cluster activity. And that is crucial. A lot of research and analyzes concerning the importance of human capital for the development of clusters is conducted.

-In the process of the analysis of the given cluster the following conclusions have been made:

-The trust between the members of the Aviation Valley cluster is growing.

-The cluster is constantly developing and expanding its business areas with new enterprises.

-Podkarpackie Region, according to surveys, is a region where people's trust is low, that is why there are doubts whether the cluster is needed and if it brings any benefits.

-The biggest advantage is that the cluster acts as a magnet for investors and this sometimes raises dissatisfaction among employees and the community.

-The people from the environment have an opportunity to meet which helps to establish business contacts and creating the space for research and development.

The main aim of the Aviation Valley is to transform southeastern Poland into one of Europe's leading aerospace regions. In September 2015, the Valley gained the status of the Key National Cluster, ranking first among the seven winning clusters with the greatest competitive potential and importance for the Polish economy, at the same time having a long-term development strategy. Podkarpackie Province is benefitting from the Aviation Valley. High level of financial investment in infrastructure and the establishment of a special economic zone offering tax exemptions have resulted in development.

Literature:

Bochniarz, Z., Andreoli, D. et al. (2008). *Clustering and Social Capital: Past and Current Research at the University of Washington and Unanswered Questions*. Annual MOC Faculty Workshop of the Harvard Business School, December 7th.

Chłodnicka H.,(2013), *The Influence of Clusters on the Development of Regional Economy*. Technical University of Rzeszow Quarterly, Dept. Of Management, Modern Management Review, Publishing House of Rzeszow University of Technology, Rzeszow.

Jarosiński M. (2000), *Globalization of Economy and Society*, „Studia i Prace Kolegium SGH” 2000/10, p. 157.

Koszarek M. (2011) red., *Cluster Initiatives: effective acting and strategic development*. Warszawa.

Porter M. E., (2000) *Location, Competition and Economic Development: Local cluster in a Global Economy*, „Economic Development Quarterly”, Feb 14.1; p. 15-34.

Sieńko-Kuśakowska E. B., Pisarczyk G. (2016). *Transformafion of the aviation industry in Poland*,[w:] The Global Commercial Aviation Industry, edited by S. Eriksson, H-J. Steenhuis, Routledge Studies in the Modern World Economy, Routledge Taylor&Francis Group, London and New York 2016, p. 329.

Zimon G., (2017), *An analysis of level net working capital In companies operating In purchasing groups*. [In:] Economic and Social Development 20th International Scientific Conference on Economic and Social Development (ESD) Location: Prague, CZECH REPUBLIC Date: APRIL 27-28, 2017: Economic and Social Development - Book of proceedings p. 531-537.

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POSSIBILITIES OF USING CONTEXTUAL MONITORING OF THE QUALITY OF MARKETING SUPPORT FOR SOCIAL ENTREPRENEURSHIP PROJECTS

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Abstract: *As part of this study, we identified the main tools available for the social entrepreneur, but rarely used to improve the effectiveness of projects, tools for contextual monitoring of the quality of the project's marketing support.*

Keywords: *Marketing, contextual monitoring of the project, social entrepreneurship.*

JEL classification: *L31 , M31*

Grant affiliation: *The reported study was funded by RFBR and Omsk region Government according to the research project № 16-12-55010.*

1. Introduction

In modern conditions of development of design technologies, the issue of project quality management is getting more and more acute. One of the tools to ensure the quality of the project is monitoring. It can be done for the whole project and for its individual functional areas.

With the help of social entrepreneurship, states can actively solve serious social problems. However, social entrepreneurship brings very little income to the owners.

Promotion of commercial and social performance is facilitated by competent marketing support of social entrepreneurship projects.

Social entrepreneurs are constantly in search of tools that can improve the quality of low-budget marketing support for projects. Context monitoring is an example of such tool.

The purpose of this study is to demonstrate the practical possibilities of using context monitoring to improve the quality of marketing support for social entrepreneurship projects.

As part of this study, we deliberately do not stop at the systemic notion of the quality of marketing support. We consider only the possibilities of contextual monitoring to reveal the unobvious conditions for the implementation of the social entrepreneurship project. The revealed conditions allows us to use the marketing budget more optimally; to develop more effective tools of marketing support.

2. Context Monitoring: New Entities and Marketing Budget Optimization

So, in the process of implementation of context monitoring activities, a new form of state and other assistance to social entrepreneurship, available for use in the current project, but not available at the time of launch, can be identified.

Additional groups of subjects interested in the results of the project may be identified, the involvement of which will increase the effectiveness of the project. For example, the identified opportunity to interact with prominent individuals who have started active companies, to create their own image of a socially responsible citizen. This may be a new round of political activity of a well-known representative of a party that shares the interests of social entrepreneurship. It can be a popular athlete, continuing or completing a career and "ripe" for the manifestation of his civic position.

When creating a clear procedure for monitoring the quality of marketing support for a project of social entrepreneurship, the result may be the identification of new budgeting conditions.

Thus, carriage of contextual monitoring of the marketing support of social entrepreneurship projects in August 2016 made it possible to reveal updated forecasts of the development of advertising markets for 2016-2018. In particular, GroupM analysts revised downward the forecast of growth rates of the advertising market in the world for 2016 - from 4.5% to 4% (Forecast GroupM, 2016). This could lead to a reduction for social entrepreneurs of "preferential" placements against the background of the channels of advertising channels not reached by the owners, which were planned for the beginning of 2016 by the forecasts. But the same contextual monitoring of the advertising market in Russia allowed to reverse the increase in expectations of preferential placement due to the growth of the national advertising market. According to the adjusted forecast in 2016, advertising spending in Russia will increase by 7.8% to 331.4 billion rubles (Forecast GroupM, 2016). Data from the same agency allow social entrepreneurs to reduce expectations of assistance from owners of most print publications. Their advertising revenues will decrease by almost 15% per cent only in 2016, which is 19.91 billion rubles. But in 2017, the drop in spending on advertising in the press will slow down, and participation in various forms in projects of social entrepreneurship can resume.

Social entrepreneurs to determine the direction of redistribution of marketing efforts as well as project budgets can use context monitoring of marketing support for projects. Thus, all the same forecasts of changes in the advertising market allow more and more funds to use "digital-promotion" tools accompanied by projects. After all, according to forecasts in the current 2016, the dynamics of digital segments will be 15%, in the next 2017 - 13.6%. Carat expects an increase in the Digital share to 27% in 2016 and 29.3% in 2017, or \$ 161 billion (Carat, 2016). The further structuring of subchapters is indicated below.

3. Context monitoring of marketing support of projects in social networks

Evaluation of the current efficiency of the use digital marketing tools, along with the results of context monitoring of changes in the marketing environment of the project, will allow us to make changes in the structure of the instruments.

For example, contextual monitoring of marketing support of projects in social networks allowed to reveal new tendencies of development of this sphere that did not exist at the time of the formation of the concepts of social projects in the period preceding 2016.

Thus, the results of contextual monitoring of this sphere made it possible to identify the following prospects for the marketing of social entrepreneurship projects:

1. Online broadcasts on social networks through such platforms as Snapchat, Facebook Live and Periscope, implemented to increase the importance of solving social problems, attract investors and project sponsors, to promote social entrepreneurship through the process of achieving meaningful results of this form of business organization. In social entrepreneurship, this is a more effective marketing tool than placing finished video.
2. Using "Dark Social". According to Lee Odden, executive director of TopRank Marketing and editor of Online Marketing Blog (BYRD, 2016), there is no longer any activity of social network users on reposts on the pages of their profiles that can be metrically analyzed. Today, 84% of the activity is due to the transmission of information in a "dark" (not available to most marketing analysts) way - by sending personal messages.
3. Participation in the creation of social content. Involving project participants in the creation of content increases the sense of involvement. This is a cheap and most effective tool.

Using only the results of context monitoring of the social Internet project implementation environment mentioned above allows you to adjust the current marketing toolkit, providing a given level of project quality.

Do not forget that the context monitoring considered, which is directly targeted by numerous social networks, is the most reliable source of information about the attitude to various social problems, to the activities of companies, to the forms of implementing projects today. These are direct and simple results of context monitoring of the quality of the project's marketing support available for use already at the stage of the project concept formation. We must not forget that quality-monitoring activities can be implemented at all stages of the project life cycle and its management stages.

4. Contextual monitoring and media

Another way to implement contextual monitoring of marketing support for social entrepreneurship projects, which makes it possible to identify the discrepancy between the planned marketing results and the current one, is mass Media monitoring.

Monitoring the media allows you to monitor the change in the attitude of the public towards a particular project, organization or person of a social entrepreneur or another person with whom the project is identified. This also determines the project's environment.

The most frequent example can be a scorching corruption scandal surrounding a politician expressing public support for the project or declaring a direct participation in its implementation. Monitoring the media will help us identify the beginning of the scandal, determine the direction of its development and develop an appropriate marketing behavior strategy.

Monitoring media allows you to monitor the actions of competitors. Accounting of the specified in the context monitoring of marketing strategies of competitors will increase the effectiveness of marketing tools.

During the monitoring of the media today, various methods of collecting information can be used. The most accessible is the physical end-to-end tracking of the information sources. With apparent simplicity, this method is excessively expensive - it is time-consuming and requires the participation of a large number of performers of different qualifications collecting and processing information.

In today's conditions, there are no less simple, but there are less expensive methods of collecting information.

For example, it is the analysis of existing media databases. Traditionally, there are three Russian-language databases. The first is Medialogy. This is a chargeable database, but with access to a test mode, within which it is possible to carry out a convenient search in 35,000 media for objects, industries and context; Ensure the preparation of daily media monitoring; Determine the most effective information guides for the company and its projects; Analyze the information positive / negative; Evaluate the information field on the basis of MediaIndex and, what is especially important, carry out an express analysis of competitors in the media.

The second largest in the number of analyzed sources is the Russian-language media database is Integrum, which provides services similar to Medialogy. The global media database is Factiva, which has specialized reports on the activities of more than 36.5 million companies. Factiva is a global news database of 33,000 sources, including licensed publications, influential websites, blogs, images and videos. Allows for a global overview in almost every country and region. Factiva is the only provider that offers direct access to paid content, including Dow Jones Newswires, The Wall Street Journal and Barron.

In the market of databases of Internet media and the media that have an Internet version, it is customary to call "Yandex-News". But there is only a possibility of contextual search, as well as other similar search engines. This is the third Russian-language database, the main advantage of which is the free access.

5. Conclusion

We have considered only a few possibilities of using contextual monitoring of the quality of marketing support for social entrepreneurship projects. Two directions of using the data obtained

during the monitoring were identified. The first, correlating the terms of the project implementation with the start and current ones, revealing their inconsistencies, allows to adjust the implemented marketing support tools of the project, ensuring the achievement of a given level of quality. The second allows us to identify new opportunities provided by the marketing environment of the project, which were not available at the time of launch, to ensure the quality of not only the marketing support of the project, but also the overall effectiveness of the project.

Realization of contextual monitoring of various factors forming a complex environment of social entrepreneurship projects allows to improve not only the marketing tool base of the project, but also the management system of marketing support. The revealed possibilities of using contextual monitoring of marketing support for social entrepreneurship projects allow us to talk about the need to set the following research tasks related to the formation of an integrated technology for organizing context monitoring of these projects. The further structuring of subchapters is indicated below.

Literature:

Mediaprofi. (2016). *Forecast GroupM: the cost of advertising and marketing in 2017 will exceed \$ 1 trillion*. [Overview of GroupM reports]. Retrieved August 3, 2016, from <http://mediaprofi.org/media-info/analytics/item/5915-prognoz>.

AppTractor. (2016). *Forecast of the development of the global advertising market in 2017*. [Review of data on the website of AppTractor]. Retrieved March 31, 2016, from <http://apptractor.ru/marketing-monetization/prognoz-razvitiya-globalnogo-reklamnogo-ryinka-v-2017-godu.html>.

BYDD. (2016). *Social Media in 2017. What is there to wait for?* [BYDD Blog news]. Retrieved July 7, 2016, from <https://habrahabr.ru/company/bydd/blog/305172/>.

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HIGH DECENTRALIZATION OF MANAGEMENT IN STRATEGIC BUDGET CRATION - CASE STUDY BASED ON MANUFACTURING COMPANY

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Abstract: *In Poland it is often assumed that modern strategic budgeting systems are used mainly by large international companies. Small businesses do not use these tools. If smaller companies use strategic planning tools they do not meet today's standards of good practices and they often has a descriptive form. Strategic planning systems include general guidelines for future activities. Strategic budgets present data in long-term perspective. They are presented only in accordance with synthetic form of obligatory financial statements. Therefore there is no precise set of objectives, actions and budgetary means. Another disadvantage of strategic planning is high centralization of operations. Strategic planning is carried out by employees from higher levels of management. Other employees are responsible for the implementation of operating budgets only. To sum up, it is worth considering whether modern rules for creating strategic budgets are applicable to smaller companies.*

Keywords: *Strategic budgeting, good practices of budgeting, high decentralization.*

JEL classification: G30, M21

Grant affiliation:

1. Good practices for creating strategic budgets - selected elements

There are many good principles for creating strategic budget. Among them task budgeting method is worth mentioning. It includes budgeting consequences of individual tasks of strategic importance. It is a strategic task to realise projects characterized by following features:

1. significant costs of implementation,
2. significant impact on important areas of the company's functioning,
3. scope of task should be related to strategy identified in company.

For this type of tasks, elements such as revenue, costs, and results are identified. Tasks that are strategically important often also need to indicate influence that they have on balance sheet. Due to

task-based budgeting, it is possible to indicate which effects after implementation will occur in long-term budget. It is also possible to determine whether the results achieved from enterprise activities would allow to finance those tasks. Each of such tasks could be analyzed separately. This allows also to determine financial performance which could be evaluated by economic parameters.

TAB. 1: Task structure of strategic budget

Strategic Planning Period			1	2	3..
Current activity budget	Sales revenues				
	Costs				
	Margin on current activity				
Strategic budget	task	Task 1	Revenues		
			Costs		
			Margin		
		Task 2	...		
		Total margin on strategic tasks			
Total margin					

Source: own work.

Another important area of good budgeting practice is management decentralization at strategic level. It involves setting level of positions in the corporate governance structure of people involved in strategic planning process. Good budgeting practices suggest a relatively far-reaching decentralization of management at both strategic and operational levels. Ideal solution would be if all employees would be involved in strategic development of their company. This situation may seem to be too much decentralized. There may occur concerns that too many people would be involved in strategic budgeting process. The negative consequence of such situation would increase in administrative costs of budgeting. The second disadvantage may be long time of preparation. On the other hand, there could be observed an increased involvement of many employees from lower management levels in the company's development. That positive effect states for the thesis that all employees should generate added value of its company. In addition, it would enable to use practical knowledge of all employees to improve the company. This situation is not unknown in management. According to similar principles works Kaizen optimization system. The disadvantage of such solution can be large amount of information reported by many employees from lower levels. Much of this information is insignificant from a strategic point of view. It is therefore important to develop an appropriate procedure. This procedure is to determine according to which rules strategic projects will be submitted and verified.

Another good practice of budgeting is rule of rolling planning. It consists of constantly monitoring degree of budget implementation. In addition, current external information on raw material prices are analyzed as they affect the budget. If there are noticed important factors not included in original plan, one should update the budget. At the level of the strategic budget, in case of any changes in level of financial surplus, one should actively manage strategic tasks. This involves temporary suspension, complete resignation or establishing new projects. Thanks to this principle there is no negative situation that budget is set in annual cycles. During its implementation, however, it should not be changed. This explains thesis that once budget is approved it can not be modified. However, in today's economic realities this statement is wrong. This is due to high dynamics of changes in conditions in which enterprises are functioning. At planning stage of budget, it is impossible to predict all the significant conditions affecting the budget. For this reason it is useful to periodically analyze the level of budget implementation and economic forecasts. On this basis, the budget should be updated to current conditions. In this way of management, it is crucial to safeguard budgeting system from being overly volatile. This threatens to reach achievement of strategic objectives. Therefore, it is very important to establish:

1. people responsible for changing the budget,
2. terms of budget changing,
3. budget updating periods.

Only selected elements of good budgeting practices were presented in this part of the article. Their selection is due to the fact that in presented case these elements played a key role in process of creating a strategic budget system.

2. Proces of strategic tasks planning in examined enterprise

In the surveyed enterprise, strategic planning system specifies specific strategic areas. Strategic domain should be recognized as a significant and homogeneous topic of the company's functioning for which strategies would be developed. In general, organizational structure of company at the level of the divisions is dedicated to strategic areas. Each division therefore has designated and individual strategic area. Within one domain, several specific strategies can be identified. The scope of a single domain is very extensive.

TAB. 2: Examples of specific strategies and strategies

Organizational Division	Strategic domain	Samples of detailed strategies
Personal	Staff management	Payroll
		Training
		Social
Production	Production management	Repair

	Investment
Marketing and Marketing sales	Central marketing
	Local Marketing

Source: own work.

Some of detailed strategies are internal. Tasks for this kind of strategies are performed only within one vertical department. This regards for example central marketing strategy. Other strategies are unique for the whole company. They are implemented by one department within entire company. Examples of such strategies are personal strategies. Personnel department is responsible for personal policy in entire company.

Within such projected strategic planning systems strategic tasks are defined. Each strategic task should be assigned to relevant domain and specific strategy. This would allow to select people responsible for supervision of planning process.

Strategic tasks are initiated both top-down and bottom-up. Top-down approach involves submitting projects of strategic importance to the board and directors of divisions. Whereas hand the bottom-up approach it is possible to submit such applications to every employee. Downstream applications may be submitted during managerial meetings with employees. This situation makes it possible to distinguish two groups of applicants for strategic projects. The first one are employees from higher organizational levels. Due to their managerial positions, tasks related to the creation of a strategic budget are mandatory for them and they are related to their responsibilities. Another group of people who can and develop strategic projects are volunteers. These are people employed in executive positions. For this reason, their responsibilities are not required. Performing such a task for them is possible but not mandatory.

TAB. 3: Ways of involving employees in creating strategic task-based budget based on their position in management structure

Level of position in management structure	Ways to engage in creating strategic budget
High	Mandatory
Low	Optional

Source: own work.

Time which takes to submit applications for strategic projects is period when strategic plan is prepared. This allows to verify and insert into strategic budget and then operational. If application will be submitted later, it will also be assessed essentially. If it is justified, it will be put into budget during its implementation. This is in accordance with principles of rolling planning. Urgent project should not expect the whole year.

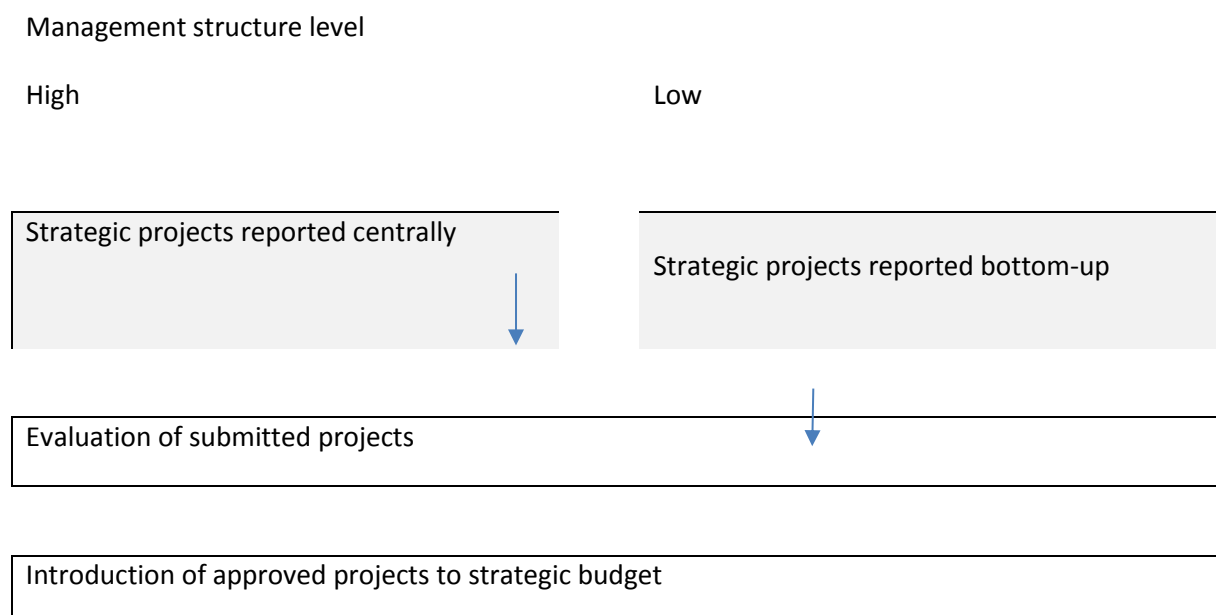
Permissions of many people to submit strategic projects may require to analyse a large number of applications. In this phase of planning, role of the controlling department is important. Tasks of financial controllers is to assist workers in correcting their requests for strategic projects. There are standards in creating and evaluating such projects. Employees submitting applications have little knowledge about this area. These are people from non-economic faculties and other levels of organizational structure. It is therefore necessary to provide them with substantive support. This solution encourages many people to actively engage in this process. Employees are not afraid that they will not be able to properly prepare the right application.

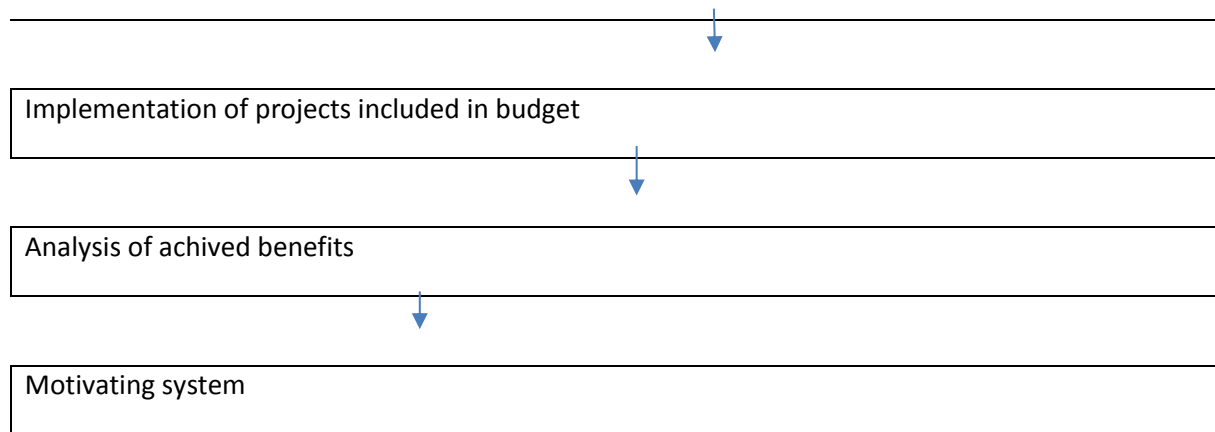
Next step of strategic budget planning process is evaluation of all proposals. This is done taking into account financial parameters such as revenue, costs and results of each submitted task. However, this revision also takes into account issues that are not measurable with financial parameters. They concern issues related to quality improvement or environmental protection. Main purpose of verifying submitted applications is to designate most necessary tasks for implementation and most effective ones. This rule complies with the principle of relevance. There is no need to carry out costly tasks. In the next phase submitted strategic projects are prepared. This task is carried out by controlling department in cooperation with employees responsible for selected areas of company. Once the budget of the strategic project is finalized, its final approval takes place. This is due to the fact that at this point all parameters of implementation are known. Final approval of a strategic project is made with the consideration of:

1. efficiency
2. principles of sustainable development.

Efficiency criterion is aimed at economizing operations. With limited budget resources to realize, it is worth undertaking the most beneficial ones. The second criterion is aimed at the comprehensive development of the company. This protects enterprise from performing effective but one-sided tasks. In that case, the situation may occur that the project is less profitable than the suspended one.

FIG. 1: Strategic budget planning process





Source: own work.

3. Benefits of strategic budgeting high decentralization

First benefit of presented way of planning is the commitment to creating a strategic budget for a wide range of employees. Every employee can feel involved in creating strategic plan. This increases number of employees engaged and their involvement into the business.

Due to such great decentralization, there is also a detailed and unique expertise how to improve company's functioning. Employees who perform specific tasks on daily basis have immense knowledge about problems which can occur in company. These problems are often not perceived by high-level employees. They can therefore indicate the areas and specific tasks which need to be done to eliminate them.

Another advantage of described way of creating strategic budget is to include in the plan particular tasks. This plan has specified tasks for which goals, responsible persons, financial budgets and timetables are settled down. It is therefore possible to observe changes in its implementation on the basis of measurable budgetary parameters. All these parameters are determined by the employees in their day-to-day work. They are both managers and employees. Thanks to this budgets are based on the knowledge and skills of many people.

Another advantage is opportunity to use this planning in motivation process. There are two types of motivational actions. The first one is to determine benefits of project implementation. Some of these benefits may be given as bonuses for authors and developers of individual projects. It is however not always possible to generate profits for all tasks. In this case, simple incentives can not be used where bonuses are determined on the basis of the results achieved. In such cases, it is also possible to reward active employees. They may be motivated by discretionary bonuses. However, it is possible to use more advanced ways of motivating. In such cases, tools such as individual educational plans or career paths for the employees involved are used.

Due to initiation of development projects many employees retain principle of sustainable development. These projects are reported by employees from different divisions and also various levels of management. They reflect the needs of many people.

4. Conclusion

Strategic planning process is extremely important in management of every business. In Poland it is often believed that strategic management is reserved exclusively for large corporations. Tasks of strategic planning should be performed by employees of highest levels in management structure. Both statements are however not correct. The purpose of this article is to present the strategic planning process that has been implemented and is still developed in one of the Polish manufacturing companies. The company from a small local producer has developed into an important player in national market. At present, the company is one of the market leaders in its industry. One of success factors was profitable implementation of strategic planning system. This system includes many elements such as strategic analyzes, goals, strategies and specific activities of strategic importance. They are fundament for strategic financial budget creation. This budget is presentation of impact of introduced financial measures. Tasks of strategy development are performed by employees from all levels of management structure. Among them there are employees of production departments or other departments as well. Decentralization of strategic planning is in Poland so far quite a rare case. For this reason, it is worth to present positive effects of such method.

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SIGNIFICANT MARKET POWER – AN ECONOMIC CONCEPT WITH LEGAL CONTENT SPECIFIC TO THE CZECH REPUBLIC

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Abstract: *The aim of the paper is to illustrate the current trends in the legal regulation of an economic problem - (ab)use of market power to promote business goals (maximizing profit, maximizing EVA, etc.) and defining the economic substance of so-called significant market power in relations between suppliers and customers in the food and agrarian sphere of the market.*

Keywords: *Market power; Agricultural products; Legal definition.*

JEL classification: *K 21*

Grant affiliation: *This article has been supported by the Czech Science Foundation – GACR through its project 17-07252S “Analysis of the legal regulation of the competition in the Czech Republic in the legal-historical context and international theoretical comparison”.*

1. Introduction

Act No. 395/2009 Coll., on Significant Market Power in the Sale of Agricultural and Food Products and Abuse thereof, as amended (“the Significant Market Power Act”), which has regulated part of the Czech market since 1st February, 2010, defines significant market power as a position enabling a purchaser to force a supplier to give an advantage, without a just reason, to the purchaser in relation to the purchase of food or to the acceptance or provision of services related to the purchase or sale of food. This paper discusses current trends in the legal regulation of an issue that is essentially economic: the (ab)use of market power to accomplish business objectives (maximising profit, maximising EVA, etc.), and defines the economic essence substance of the so-called significant market power in relations between suppliers and purchasers in the sphere of food and agricultural products.

2. Testing the hypothesis of a purchaser's significant position

An essential economic and legal issue is measuring market power to determine if it is significant, or in other words, testing the hypothesis of significance. Czech law considers significant market power to be a situation in which the purchaser has turnover from the sale of food and related services in the Czech Republic exceeding CZK 5 billion (for the latest closed accounting period of 12 month).

Czech law also states that a holding structure has significant market power if the purchaser is a controlled person and its turnover from the sale of food and related services in the Czech Republic does not exceed CZK 5 billion, however it does exceed this limit (of CZK 5 billion) if combined with the turnover of the controlling person from the sale of food and related services in the Czech Republic. The legal definition also covers the situation of a so-called purchasing alliance where the total turnover of its members from the sale of food and related services in the Czech Republic exceeds CZK 5 billion (Office 2017).

In the above legal definition, however, significant market power is assessed primarily with respect to “market structure, barriers to entry, and the financial power of the purchaser.” The Significant Market Power Act defines its own manner of assessing whether significant market power exists and of preventing its abuse only “in relation to the purchase of food for further sale in the Czech Republic or to services related to such purchase or sale of food.” This regulation therefore targets what is called in economic terms market failures limited to the food market and products and services on the food market, and is restricted to the Czech Republic.

It is a sector-specific legal regulation. The law itself defines the sector according to the object of trading. This object is food – considered by lawmakers as any substance or product defined as food by a directly applicable regulation of the European Union. This is Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

EU law (in Article 2 of the above Regulation) defines “food” as any substance or product, whether processed, partially processed, or unprocessed, intended to be, or reasonably expected to be, ingested by humans.

The market is therefore not defined based on the products that are traded or their properties, but rather as a market with a commodity defined as food. At the same time, the Commission Notice (on the definition of relevant market for the purposes of Community competition law, No. 97/C 372/0) for example uses in paragraph 7 the following definition: “A relevant product market comprises all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products’ characteristics, their prices, and their intended use.” As opposed to the Czech regulation of competition, European law clearly contains a requirement that the products be perceived by the consumers as interchangeable or substitutable (the so-called principle of subjectively perceived equivalence).

In Czech law the relevant market is defined in section 2 (2) of Act No. 143/2001 Coll., on the Protection of Competition as a market of goods, which are identical, comparable, or mutually substitutable from the perspective of their characteristics, price, and intended use, which exists in an

area where the conditions of competition are sufficiently homogenous and can be clearly distinguished from those of neighbouring areas.

These two definitions of relevant market clearly differ. Whereas the relevant food market is a market where the products traded are those that are intended to be, or reasonably expected to be, ingested by humans, the object of protection of competition is a relevant market with a product defined by its properties and in the case of EU regulations also by the subjective perception of the consumer. The first definition is based on the perspective of the producer and the second is based on that of the consumer.

The consumer perspective, and the definition of a relevant market for substitutable products or services, is closer to the economic view of the market and its properties. The quality of the product or service properties measured by the consumer, rather than the intended purpose of the product, is essential for the definition of a relevant market and its parameters in terms of concentration and other indicators (Bažantová & Hřaba 2017).

3. Market power calculation

Economics uses for the determination of a relevant market and market power the so-called Lerner index which states that $P=MC \Rightarrow L=0$, where this index shows the relative deviation between the price and marginal costs (Polouček, S. a kol. 2006). As opposed to the theory, determining the marginal cost in practice is far from easy, which is why this process cannot be applied in practice even though it is theoretically correct.

Another solution is the so-called Herfindahl index – HI – which is a sum of the squares of the market shares of the undertakings active on the examined market. This index also describes the degree of concentration on such market. The values range between 0 and 10,000. The lower the HI, the less concentrated is the market.

Nevertheless, market concentration does not always correspond to market power as such (Bažantová, 2015). Market power is based on an economic definition, the power with which an entity on the market (on its own or as part of a group) is able to influence the price and amount of output in a specific industry (Nejezchleb & Hajná & Bejček, 2014). In addition to the above indices, market power is sometimes described using profitability indicators in the form of EBIT and its derivatives. Market power derived from the level of profitability in absolute values (in order to indicate the level of influence on the market), however, approaches a tautology, because market power in the form of high profit (EBIT, EVA, etc.) is in itself a way to achieve high profit (in the subsequent period).

Nonetheless, we must remember that whether such market power is used or abused, whether it is or is not significant, and mainly what is the essence of such abuse, are issues that are difficult to resolve in economics. In order to be able to apply the prohibition on abuse of significant market power it is necessary to resort to legal fiction and assumptions.

4. Legal definition of significant market power

The Czech legal regulation on market power deviates from economic definitions and constructions, as it has its own definition of what constitutes the abuse of significant market power. The definition is demonstrative, and thus the list below is not exhaustive. According to the Significant Market Power Act, the definition includes in particular the following:

1. “negotiating or applying contractual terms that create a significant imbalance in the rights and obligations of the contracting parties,” thanks to significantly higher bargaining power which, however, does not constitute market dominance;
2. “negotiating or obtaining any payment or other performance, in exchange for which no service or other performance was provided, or the provided service or other performance was inadequate in value,” which applies to the cases involving enforced agreements of the ‘marketing consulting’ type;
3. “claiming or obtaining any payments or discounts where the amount, subject, and scope of performance provided in exchange for this payment or discount were not agreed in writing before the food was supplied or services provided,” which prevents the tying of new terms to the actual purchase of goods;
4. negotiating or applying price terms so that the actual invoice (tax document) does not contain information on the actual price (i.e., on all the agreed discounts) with the exception of volume discounts agreed upon in advance is another penalised conduct of the purchaser having market power;
5. negotiating any kind of payment (or other performance) in exchange for the purchaser’s acceptance of food for sale;
6. negotiating or applying a payment due period for the price of food longer than 30 days;
7. negotiation or exercising the right to return purchased food with the exception of a material breach of contract;
8. claiming or negotiating compensation for sanctions imposed on the purchaser by an audit body from the supplier when the sanction imposed was no fault of the supplier;
9. creating/negotiating different conditions for similar entities and therefore unreasonable discrimination against suppliers;
10. requiring the supplier to pay for a review, analysis, or audit carried out by the purchaser (directly or indirectly);
11. failing to respect the results of an official audit of food by the purchaser.

In the last amendment to the Significant Market Power Act which entered into effect on 1st July 2017, lawmakers enabled the Office for the Protection of Competition to carry out so-called sector investigations. If the Office discovers any facts indicating the breach of this Act it may investigate the market and purchaser-supplier relations and then issue a report on the results of the investigation that contains in particular recommendations on good practice.

If a purchaser is determined to have significant market power, under the current provisions of the Significant Market Power Act the contracts entered into by such a purchaser must contain specific clauses concerning the following:

- a. “the manner of payment of the price and the period for the payment of the price, the amount of discount on the price, and the manner to determine whether the discount will be granted, where the payment due period of the price may not exceed thirty days from the date of invoice delivery; the value of all payments to be made by the supplier, the total amount of which must not exceed 3% of the annual sales of the supplier for the last complete accounting period of 12 months for food supplied to an individual purchaser in the year in which the payment was made;” this requirement therefore focuses primarily on creating comparable conditions for larger and smaller suppliers also in terms of payment due periods;
- b. manner and delivery period of the object of sale and determination of volume limits for a stipulated period or determination of volume of an individual delivery of the object of sale;
- c. if services related to the purchase or sale of food are accepted or provided, then the contract must contain exact details on the manner of cooperation when such services are accepted and provided in terms of the subject matter, scope, manner and time of performance, price, or manner of determining the price;
- d. agreement on the guaranteed validity of purchase price; however, it must not exceed 3 months from the date of first delivery for which this purchase price was negotiated;
- e. manner of assignment of debt.

5. Conclusion

Based on the above it becomes clear that the Act on Significant Market Power in the Sale of Agricultural and Food Products and Abuse thereof uses, to define the object of the regulation (the rights and duties of the addressees of this legal regulation, such as the obligatory components of contracts between purchaser and supplier), a definition based on strict legal definitions of food, rather than a definition based on the economic perspective of the relevant market (and in particular interchangeability and substitutability). Consequently, many products that are perceived subjectively by consumers as food – referring back to the EU definition of food as any product, whether processed, partially processed, or unprocessed, intended to be, or reasonably expected to be, ingested by humans – may escape regulation (and sanctions). Thus the prevailing perspective is that of the producer or the lawmakers, rather than that of the consumer. And this, in the opinion of the author, is not right.

Literature:

Bažantová, I. (2015) The theoretical Economic, Institutional and Regulatory Framework of Protection of an economic Competition in the Czech Republic. *International Journal of Arts and Commerce*, vol. 4, no. 3, p. 50-56, ISSN 1929-7106.

Bažantová, I. & Hřaba, Z. (2017), Sources of the structure of Czech agriculture: historical heritage and economic rationality. In *4th International multidisciplinary scientific conference on social Sciences And Arts*, Volume 1, Modern Science Conference Proceedings SGEM, 28-31 March 2017 Vienna, Published by STEF92 Technology Ltd., Sofia, retrieved from <https://doi.org/10.5593/sgemsocial2017HB11>.

Bejček, J. (2016), *Smluvní svoboda a ochrana slabšího obchodníka*. Brno: Masarykova univerzita.

Nejezchleb, K. & Hajná, Z. & Bejček, J. (2014), *Ekonomické metody v soutěžním právu*. Brno: Masarykova Univerzita.

Office for the Protection of Competition (2017), *Annual Report 2016*. Brno: UOHS.

Polouček, S. a kol. (2006), *Bankovníctví*. Praha: C. H. Beck.

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PUBLIC EXPENDITURES ANALYSIS OF SPORT ACTIVITIES OF THE YOUNG GENERATION IN THE CZECH REPUBLIC

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Abstract: *The article focuses on public finance management of sport activities of school aged children in the Czech Republic in the context of supporting its healthy development. Research goal is to propose reduction of inefficiencies of the current public financial mechanism in this area. Were established two research questions. At first: What approach are school children to sports activities? At second: Are public finances allocated for support sporting activities of school-aged children according to effectiveness? Authors recommend evaluate the effectiveness of expenditure programs (projects) which are designed for support children's sports activities according to their health before, during and after the end of this programs.*

Keywords: *Financial control, public finances, spending, sport, young generation.*

JEL classification: H 51

Grant affiliation: *The paper is treated as the output of a research project of the This article was developed as part of the IGA project 04-01"Factors for Development of Competitiveness and Effectiveness of Small and Medium Enterprise Management in Local and Global Environment.*

1. Introduction

The number of sporting children is diminishing. The health condition, physical fitness of our population, overweight and obesity of children and youth are getting worse. The subject of the research was therefore to investigate the public funding of the sporting activities of today's younger generation and their interest in sporting activities. Research goal was to propose reduction measures of inefficiencies of the current public financial mechanism. According to research goal were established two research questions: What approach are school children to sports activities? How public finances are allocated to support sporting activities of school-aged children?

2. Basic theoretical and practical point

For the purposes of research, the author used the definition of Sport in Act No. 115/2011, Coll.: "For the purposes of this Act, the concept of sport represents all forms of physical activity which aim,

through organized and non-organized participation, Physical and mental fitness, health consolidation, and sports performance in competitions at all levels. Sport is gradually increasing in importance and greatly contributing to the development of society. Sport contributes to reducing some of the negative effects of society on the development of young person. (White Book, 2007) Every individual should develop regular physical activity and not be influenced by the psychological pressure of society today. (Vobr, 2006) The lack of physical activity increases the incidence of overweight, obesity and many chronic diseases such as cardiovascular diseases and diabetes that reduce the quality of life, endanger the lives of individuals and burden the health and economy of state. (White book, 2007)

The pyramid of movement activities (Willenber, 2008) states how often children should devote themselves to certain activities. In the pyramid base there are activities that children should run daily, such as home activities, playing outdoors, walking, etc. In the first part of the pyramid there are activities such as swimming, jogging, roller skating, volleyball, basketball, etc. These sports activities Children should spend on average 3-5 times a week for at least 20 minutes. In second part 2-3 times a week, it is good to engage in sports such as dancing, mountaineering, golf, fitness, etc. At the top of the pyramid there are activities that should be performed only minimally, eg. playing computer games and watching TV.

Sports activities are provided by privat and public sector. The Ministry of Education, Youth and Sport is responsible for state support of Sport. The next important actors are the Czech Olympic Committee, Ministries of interior and defence, regions, towns, municipalities, and the other organisations. System is very complicated and doesn't effective controled. Every budget year sport the Czech Republic issues about 3 billion CZK. Financing of sport activities of children are realised by state subsidies, by the budgets of regions, by municipalities. Ministry realised financing school physical education. Health insurance companies give finance throuh prevention programs of health insurers. Yearly bookmakers pay out of their profit in favor of sport 500-700 million CZK.

The share of sport expenditure in total public budget expenditure (0,4%), the share of all sports activities in the volume of GDP produced (1,5-2%). Private sources include sponsorship and donations, private revenue, advertising revenue, etc. Compared to the EU countries the Czech Republic is at the last place in the public spending on sport per capita. The Czech Republic is in the last places with Bulgaria, Malta and Lithuania. Slovakia invested at least once in the sport per capita against the Czech Republic. The financial share of households in sport financing in the Czech Republic is up to 80%. In the EU it is only 50%. Up to 23% of parents are unable to spend enough money on sports, which is about 450,000 children. The state finances sports at 3%. The EU average is 12%. Regions in the Czech Republic support sport from 1,5%. Municipalities in the Czech Republic finance sport from 9%. But 90% of these contributions go to the operation of their own facilities and only 10% are divided between the top sport and youth sports activities. In the EU 19% contribute to sport. Sponsors in the Czech Republic support sport at 6,5% of the financial contributions and the average in the EU is 14%. In the Czech Repbulic 10 regional operational programs have been launched since 2016. Only five programs focus on the development of youth in sport. In the coming years, the amount of funding for these programs should double. (Koncepce financování sportu v ČR, 2012)

According to KPMG analytical study "Prevention of overweight and obesity through sports" every 1 CZK invested in sports in the Czech Republic will save up to 2,53 CZK in the treatment of diseases of

metabolic syndrome. Overweight and obesity along with other causes are the cause of many illnesses. 66% of today's Czech population is overweight and obese, 7,3% of the population is chronically ill with type 2 diabetes, and more than 150,000 patients are hospitalized annually. The annual costs associated with the aforementioned diseases are about CZK 74 billion. By 2030 the obesity in the Czech Republic will increase to 35% of the adult population. The annual cost of treatment for chronic noninfectious diseases will be 1,5 times the current expenditure in 2030, ie CZK 350 billion a year. Costs related to welfare will increase to the amount of CZK 700 billion. (Prevence nemocí, 2014)

3. Research results and discussion

The authors made research and questionnaire survey of children of one primary school in Brno with higher number of hours of physical education per week. The results have been following:

- 95% of them meet regular physical activity during compulsory schooling.
- 55% of them irregularly perform sports activities in free time,
- 19% of them regularly sporting in free time.
- 26% of them spend the time on a computer and television.

The Authors on the basis results of analyses found out the following conclusions:

1. No exist no ministry's spending programs to reduce the overweight of children that would helped to develop physical activity.
2. No exist effective public financial management and control mechanism. Only 5% of the total amount of subsidy are under control.
3. In the other side the Czech Olympic Committee gradually invests higher amounts into youth sport. It started a successful Sazka-Olympic multi competition project. It includes assessing the physical fitness and recommendations for sports activities.
4. Health insurance companies are involved in financing sports for children through preventive programs. Contributions range from CZK 250 - 1,000 per year or one-of but without feedback on improving health and reducing the overweight of children.
5. 28% of the total expenditures of the regions for sport goes to support the activities of sports clubs and sports clubs without feedback on improving health and reducing the overweight of children.
6. 9-10% is used for youth sport and the remaining 90% of the contributions goes to the operation of own sports facilities.
7. The average income of gambling villages is CZK 461 per capita, but spending on sport per capita is on average CZK 782. There is 321 CZK remaining, which cities and municipalities have to finance themselves.

8. Up to 23% of parents are unable to pay money on sports. Up to 450,000 children are disadvantaged and cannot be discriminated against. Funding for regions, towns and municipalities that do not have enough funding for youth sport due to the preference of top and massive sports is also different. There is a very low interest in involving citizens in sports clubs, from just 20%. (in the EU is 35%). (Jansta, 2015)

4. Conclusion

The Authors proposed changes in following areas:

1. Elementary schools and multi-year gymnasiums and teacher education process

a. The introducing awareness of healthy lifestyle, extending the teaching of physical education in elementary schools and multi-year gymnasiums. Controlling the release of children from physical education.

b. Change of school physical education. To create a regular lifelong exercise cycle, to identify the sporting prerequisites of each pupil, to discover its strengths and weaknesses in sport, and to motivate them to sport.

2. Organization, control and financial system

a. Implement effective financial control at sports clubs and associations financial, non-financial results of programs of funding to support the sports infrastructure for children and youth.

b. Increasing the total amount of funds from the state budget to the sports infrastructure. Creating favorable conditions for regular physical activity in regions, towns and municipalities.

c. Establish of a new grant program for the prevention of overweight and obesity for children on the government level including physical fitness assessments and sports-health recommendations at the beginning, during and the end of compulsory schooling attendance.

In 2014, KPMG made an analytical study titled Prevention of overweight and obesity through sports. This study states that every 100 CZK invested in sports in the Czech Republic will save up to CZK 253 in the treatment of diseases of metabolic syndrome, the cause of which is obesity. If we investment cca of CZK 275 million a year supports sports clubs, sports infrastructure and sports management training could be increase the active population with an increase of 100 000 sportsmen. It is possible to reduce the number of patients by 5,200. Subsequent savings in treatment costs are incredible CZK 697 million.

Literature:

Act No. 115/2011 Coll. about Sport support

White Book of Sport. (2007). Retrieved from [HTTP://WWW.MSMT.CZ/SPORT/BILA-KNIHA-O-SPORTU](http://www.msmt.cz/sport/bila-kniha-o-sportu)

Bunc, V. (2006) *Energetická náročnost pohybových aktivit a její využití pro ovlivňování tělesné hmotnosti*. In VOBR, R. (ed.). Disportare 2006. České Budějovice: Jihočeská univerzita, 2006

Willenberg, B. (2008). *Children's activity pyramid*, retrieved from [HTTPS://WWW.CLASSBRAIN.COM/ARTREAD/UPLOADS/GH1800.PDF](https://www.classbrain.com/artread/uploads/GH1800.pdf)

Pilný, J. (2007). *Ekonomika veřejného sektoru*. 1. vydání. Univerzita Pardubice Fakulta ekonomicko-správní, 2007, 248 s. ISBN 978-80-7395-021-755-796-07.

For more see: [HTTP://WWW.SMOCR.CZ/CZ/OBLASTI-CINNOSTI/FINANCOVANI OBCI/NOVELA-ZAKONA-O-PODPORE-SPORTU-PRINESLA-OBCIM-POVINNOST-ZPRACOVAVAT-PLANY-ROZVOJE-SPORTU-ZADAT-ODOTACE-ALE-NEMOHOU.ASPX](http://www.smocr.cz/cz/oblasti-cinnosti/financovani-obci/novela-zakona-o-podpore-sportu-prinesla-obcim-povinnost-zpracovavat-plany-rozvoje-sportu-zadat-odotace-ale-nemohou.aspx)

For more see: [HTTP://WWW.OLYMPIC.CZ/FINANCOVANI/DOCS/KONCEPCE_FINANCOVANI_SPORTU_PREZENTACE_V9A.PDF](http://www.olympic.cz/financovani/docs/koncepce_financovani_sportu_prezentace_v9a.pdf)

For more see: [HTTP://DOCPLAYER.CZ/8052610-PREVENCE-NEMOCI-VYVOLANYCH-NADVAHOU-A-OBEZITOU-PROSTREDNICTVIM-SPORTU.HTML](http://docplayer.cz/8052610-prevence-nemoci-vyvolanych-nadva-hou-a-obezitou-prostrednictvim-sportu.html)

For more see: [HTTP://WWW.OLYMPIC.CZ/UPLOAD/FILES/SPORT-JAKO-PREVENCE-NEMOCI-PREZENTACE.PDF](http://www.olympic.cz/upload/files/sport-jako-prevence-nemoci-prezentace.pdf)

For more see: [HTTP://WWW.RUGBYUNION.CZ/UPLOAD/FILES/PREZENTACE-M.-JANSTA-TYRSUV-DUM-6.10.2015.PDF](http://www.rugbyunion.cz/upload/files/prezentace-m.-jansta-tyrsuv-dum-6.10.2015.pdf)

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CODE OF ETHIC AND WHISTLEBLOWERS ROLE IN PUBLIC ADMINISTRATION IN THE CZECH REPUBLIC

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Abstract: *This paper focuses on the implementation of the Code of Ethics to prevent corruption behavior at the basic level of state and local governments. The theoretical part is based on an analysis of government documents especially The Action plans for fighting against corruption, for selected years (2015-2017). These are so-called soft factors and their violations can be sanctioned only within the labor relation. So far there has not been created a uniform methodology for the application of the Code of Ethics at the basic level of state and local governments. The aim of the questionnaire is to find out whether the respondents applied the Code of Ethics at workplace and whether it can prevent corrupt practices of civil servants and local government officials in public administration. The government intention for 2017 year is the approval of the new law on protection of whistleblowers. The partial aim is to find out whether civil servants and local government officials were informed about this legislative process and the role of whistleblowers in the public service.*

Keywords: *The Code of ethics, corruption behavior, civil servants, local government officials, whistleblowing.*

JEL classification: K 41

Grant affiliation: None.

1. Introduction

The administrative culture of the any country is the product of the, peculiar social, cultural, economic and political milieu of which it is a part. Governance problems of particular country including corruption are deeply rooted in its cultural milieu. Institutions of public administration and its system and processes can be better understood if the cultural environment is understood properly (Dhanda, 2013). Corruption is one of the serious problems of the Czech civil society and the combat against corruption at all levels of public administration is considered as one of the government priorities. The current government does not work on a large-scale anti-corruption strategy but it has decided to create a simple Action plan for combating corruption for two years since 2014. This official material defines aims of anti-corruption policy, particular instruments, its limits and institutional framework. It also defines action plans for reaching targets. In details it is stated in the Government Anti-Corruption Conception for the Years 2015 – 2017, (2014). Other priorities include more efficient management and control system of public administration, the elimination of all forms of wasting

public funds, transparent purchases, avoiding of overuse of external services and consultants and uncompromising fight against all forms of corruption, including economic and financial crime.

At an organization level, management of ethics has gained in importance as codes of conduct and ethical leadership are promoted (Thaler, Helming, 2016). In 2012, there was issued the Government regulation No 331/2012 Coll. on the Code of Ethics for officials and public servants, which is not a law. This Code regulates the only general activities on base level like: impartiality, conflict of interest, corruption, handling entrusted funds, confidentiality, public activities and more. It is only a recommendatory inner material for municipal employees and civil servants.

2. Whistleblowing

The term of whistleblowing was firstly used in 70-ties of 20th century and it pointed to suspicious or criminal conduct in the workplace. Some definitions in literature say that the announcement should be made in good faith and it should not create personal benefit of announcer. To the Czech Republic, it was brought by the Transparency International in 2009. Since that time, the Transparency International has provided legal and legislative help and complete support to possible whistleblowers (Matzner, 2017).

In 2016 there was submitted a new Act, that will change some Acts concerning with the protection of whistleblowers. It is a combination of measures to improve the status of whistleblowers on suspicion of infringements against the current situation. In 2017 it is planned to complete the legislative process and approval of this Act by the Parliament of the Czech Republic. (Akční plán boje s korupcí, 2016)

Whistleblowing - reporting another person's unethical behavior to a third party - represents an ethical quandary. In some cases Whistleblowing appears heroic whereas in other cases it appears reprehensible (Dungan, J., Wayth, A., Young, L., 2015). One of the key obstacles to the efficient functioning of whistleblowing is the fact that Czech society does not consider a notice of illegal behavior to the superior authorities as commendable conduct. This comes from the history when confidants were considered as a snitch and bad informers. Or, on the other hand, people who have tried to rectify public affairs, at every change of political regime they usually suffered for their efforts.

Whistleblowing by administrative employees in local governments can bring critical knowledge about misconduct and failed policy outcomes and priorities to the attention of politicians (Skivens, Trygstad, S, 2016). Whistleblowing should be used in order to detect unethical, illegitimate or illegal practices. Most people combine this concept with the fight against corruption, which is correct, but it is not complete. Whistleblowing is also associated with money laundering, tax evasion, fraud in public procurement, unfair behavior in business competition.

3. Method

3.1. Participants and Procedure

The questionnaire survey was carried out in September and December 2016. It was attended by 190 respondents, 6 questionnaires were excluded because of insufficient data and 184 questionnaires were processed. There were 53 male and 131 female respondents. 26 respondents were from the capital city of Prague, 107 respondents are from a municipality with extended powers (the district town) and 51 people were from towns with authorized municipal office.

Professional representation of respondents were diverse: 34 respondents work in social services, 20 in finance or accounting, 15 in the Department of Transport, 14 others (not specified), 15 in the state administration, 14 in local government, 11 at the Licensing Department, 10 in the Registry office and at the Department of monument conservation. Furthermore, the respondents (less than 10) worked at the Department of offenses, the Control Department, the Department of environment, the Law Department and at Police.

3.2. Basis for theoretical and empirical research

The governmental anti-corruption strategies were written for two years 2015 – 2017 and 2016 - 2018. There are also other supporting materials like the Government regulation No 145/2015 Coll. the Government regulation No 331/2012 Coll. or The Open Government Partnership (2016) and for years 2016-2018 (2016).

The background for empirical research was created on requirements and outputs of the meeting of the initiative the Open Government Partnership (Action plan ..., 2016).

3.2.1. Efficient and Independent Executive

Codes can be understood as a set of standards and principles aimed at guiding, ordering and thereby facilitating coexistence in a given society (Boehm, 2015). At this meeting, there was presented a requirement for developing a methodology for the application of the Code of Ethics in state and public administration. Study cases and examples of good practice are essential to this methodology. Guiding principles for creation of the Code of Ethics are determined yet every organization has compiled the code differently.

3.2.2. Conflict of interest

Act No. 159/2006 Coll., on the Conflict of Interest, as amended, regulates the obligation of public officials to perform their duties so as to avoid any conflict between their personal interests and those interests that are required by their office and that have to be enforced or defended.

3.2.3. Development of Civil Society

The government of the Czech Republic primarily focuses on the adoption of legislative protection of whistleblowers. This applies especially to labor protection of persons who draw attention to the infringement of law at the workplace. The aim of the government was to present a draft law in 2017 that will be an effective mechanism for protection of whistleblowers (The Anti-Corruption Action Plan for 2016, 2015).

4. The results and data analysis

First two questions were focused on the Code of Ethics of the municipality: whether the Code of Ethics is implemented at the workplace (in the office, in local government or the state administration) and whether the Code of Ethics regulates behavior and conduct of civil servants and officials in public administration so as to prevent corruption. 91% of respondents answered that the Code of Ethics is very well or fairly well used on the workplace of local government officials so as to prevent corruption.

Nearly 80% of respondents stated that The Code of Ethics regulates conduct and behavior of civil servants and local government officials. However 14 % of respondents were not able to answer on this question.

There are some differences between respondents from the capital city and towns with authorized municipal office. 87% of respondents from the capital city think that The Code of Ethics can regulate conduct and behavior so as to prevent corruption, but at the towns with authorized municipal office this number is about 64%.

Looking at the profession of respondents the most convinced ones that The Code of Ethics can regulate conduct and behavior so as to prevent corruption, are members of Police. All 9 out of 9 respondents responded positively. Then the results fall down by this way: The Department of monument conservation and the Registry office 90%, social services, the Department of offenses and the Law Department 85%, respondents from other departments are in range from 84% to 80%. The most pessimistic respondents are from local government (78%), finance or accounting (75%) and the state administration (73%).

Next two questions of questionnaire are aimed to legal protection of whistleblowers and personal willingness to report the corrupt behavior of civil servants and local government officials. General awareness of the upcoming law on protection of whistleblowers is very low. More than three quarters of respondents are badly informed about the new coming amendment to the law concerning the protection of whistleblowers. Furthermore, 22% of respondents were somehow partially informed. Only 16% of questioned officials know very well or fairly well what law is going to be amended.

Nearly half of respondents from the capital city (43%) are informed about the new amendment to the law concerning the protection of whistleblowers, there are 17% respondents from municipality with extended powers (the district town) and only 8% people from towns with authorized municipal office.

The best informed respondents about the new amendment to the law are from the Law Department (42%), than those ones from the Department of offenses (28%), the Licensing Department (27%), the state administration (26%) and Police (25%). At the end there are respondents from social services (14%), the Department of Transport (13%), the Registry office (10%), the Control Department (9%) and the finance or accounting (5%).

Nearly half of respondents are willing to report corrupt behavior of their colleagues or superior officials. However 40% of them are decided to report corrupt behavior after the new law amendment

which can protect the whistleblowers. The relatively high number of answers is ticked at the option: "I do not know," over 40% of respondents did not answer this question.

Only one third of respondents from the capital city are willing to report corrupt behavior of their colleagues or superior officials. There are more respondents from municipality with extended powers (43%) and the most willing respondents live in towns with authorized municipal office (49%).

Nine out of nine policemen/women are willing to report corrupt behavior of their colleagues or superior officials. As well as three quarters of respondents from the state administration, 55% from the Department of Transport, 50% from social services, 45% from the Registry office and 42% both from local government and the Department of environment. The least willing to report corruption are respondents from the Law Department (28%) and from the Department of offenses (26%).

The most "indecisive" respondents are from the Law Department (71%), then from the Licensing Department and the Control Department (54%), finance or accounting (50%) and social services (42%).

Looking at gender of respondents 58% of men will report corrupt behavior of their colleagues, but only 41% of women will do it.

5. Discussion

The intention of the Government of the Czech Republic regarding 1.1.2 Areas of the Civil Service Act (Act No 234/2014 Coll.) application of Code of Ethics into practice is essentially fulfilled as 91% of respondents positively answered this question. Another task is to unify the methodology in creating of the Code of Ethics for different levels of public administration and local government. A partial objective is to create a uniform model Code of Ethics that would regulate the behavior and conduct of civil servants and local government officials so as to prevent corruption. Factors influencing ethical codes include institutional settings and organizational arrangements (Leone, Stame, Tagle, 2016).

The main findings show (Beeri et al, 2013), that the ethics program was very effective, resulting in greater awareness of the code of ethics, increased inclusion of employees in ethical decision making, and an improved ethical climate. It will be essential to instruct and inform these officials about purpose and function of the Code of Ethics so all employees in the public administration will be able to assess its effect to the exercise of state administration and local government.

Global Corruption Barometer from 2013 asked a question: "Would you report a corruption case?" 55 percent of Czech respondents answered "Yes" and 45 percent answered "No". To the question: "If you answered not - why not?" 51 percent of respondents answered that nothing would happen (Pavlišová, 2014). Over the next consideration there are also 42% of respondents who to the question of whether they are willing to report corruption of his colleagues or superiors responded - I do not know. Since 2013, the situation has not been significantly changed and there is still the same number of people who will report corruption and those who are not decided yet.

The perception of corruption in various environments differs in their impact on the readiness for its reporting (Manzin et al, 2015). The most interesting finding is that all of asked policemen/women are

willing to report corrupt behavior. Nearly three quarters of respondents from the Law Department and half of people from the Licensing Department and the Control Department are not decided to report corruption of his colleagues or superiors responded. And only one quarter from them will report corruption.

Civil servants and local government officials should be soon trained, informed and educated that there is going to be an amendment to the law concerning the protection of whistleblowers. So the personal decision about reporting of misconduct against the law will be supported by the legal protection of the reporting person. And more important, this personal decision has to be positively received and carried out by the managers of public administration and local government.

6. Conclusion

The main priorities of the Czech government are to strengthen the control system of public administration and to eliminate all forms of corruption and corrupt practices. Last but not least it is the prevention of abuse of authority of civil servants and local government officials. As mentioned at the beginning, a general reluctance to report misconduct against the law at the level of corruption or corrupt behavior is partly due to the historical development and the political situation, including the former "socialist state system" of the Czech Republic.

In accordance with these facts, the article was focused not only on the theoretical aspects of ethical behavior and the role of whistleblowers in the public service, but also on the practical side - a finding factual situation on a sample of respondents. The research part of the article is focused on the investigation of awareness of officials of selected municipalities directed at the application of the Code of Ethics into practice. Next questions were aimed to further knowledge regarding the ongoing legislative process of whistleblowers in the public service.

Findings of research will be presented in lectures at the Silesian University, the Faculty of Public Policies in Opava (Public Finance, Law of municipalities and counties, Public Economy). The authors can use the results also during meetings with representatives of local self-government units and municipalities.

Literature:

Action Plan of the Czech Republic 2016 - 2018. Prague, February 2016, retrieved from <http://www.korupce.cz/assets/partnerstvi-pro-otevrene-vladnuti/Priloha-Akcniho-planu-Ceske-republiky-Partnerstvi-pro-otevrene-vladnuti-na-obdobi-let-2016-az-2018.pdf>, p. 2-4.

Akční plán boje s korupcí na rok 2017. Praha, December 2016, retrieved from <http://www.korupce.cz/assets/protikorupcni-dokumenty-vlady/na-leta-2015-2017/Akcni-plan-boje-s-korupci-na-rok-2017.pdf>, p. 14.

Beerli, I., Dayan, R., Vigoda-Gadot, E., & Werner, S. B. (2013). Advancing Ethics in Public Organizations: The Impact of an Ethics Program on Employees' Perceptions and Behaviors in a Regional Council. *Journal of Business Ethics*, 112, p. 59-78.

Boehm, F. (2015). *Public administrative behavioral codes*. Revista digital de derecho administrativo, 14, p. 65-69.

Dhanda, S. S., (2013). *Cultural Roots of Corruption: A Systematic Analysis of Causes and Control of Corruption in India*. 9th International conference on public administration. Cape Town, South Africa, p. 126-135.

Dungan, J., Wayth, A., Young, L. (2015). *The psychology of whistleblowing*. Current Opinion in Psychology, 6, p. 129-133.

Government Anti-Corruption Conception for the Years 2015-2017. Prague, December 2014, retrieved from <http://www.korupce.cz/assets/protikorupcni-strategie-vlady/na-leta-2015-2017/Vladni-koncepcie-boje-s-korupci-na-leta-2015-az-2017.pdf>, p. 3-6.

Leone, L., Stame, N., & Tagle, L. (2016). *Exploring ethical issues and conditions for institutionalizing evaluation in the public sector*. Evaluation, 22, p. 149-167.

Manzin, M., Sumi, R., Obreckal, A. K., & Bavec, C. (2015). *Impact of Perception of Corruption on Readiness to Report Corruption*. Revija za kriminalistiko in kriminologijo, 66, p. 220-234.

Matzner, J. (2017). Whistleblowing není nadávka. V české republice však chybí potřebná legislativa. *Moderní obec*, 2, p. 66.

Pavlišová, R. (2014). *Whistleblowing není donašečství*, Transparency International. Retrieved from https://www.transparency.cz/wpcontent/uploads/2015_TI_Whistleblowing_nen%C3%AD_dona%C5%A1e%C4%8Dstv%C3%AD.pdf, p. 8.

Skivens, M, & Trygstad, S. C. (2016) *Whistleblowing in Local Government: An Empirical Study of Contact Patterns and Whistleblowing in 20 Norwegian Municipalities*. Scandinavian Political Studies, 39, p. 264-289.

Thaler, J., & Helming, B. (2016). *Do Codes of Conduct and Ethical Leadership Influence Public Employees' Attitudes and Behaviours? An experimental analysis*. Public management review, 18, p. 1365-1399.

The Anti-Corruption Action Plan for 2016. Prague, December 2015, retrieved from <http://www.korupce.cz/assets/protikorupcni-dokumenty-vlady/na-leta-2015-2017/The-Anti-Corruption-Action-Plan-for-2016.pdf>, 14.

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INNOVATION MANAGEMENT IN SKODA LOGISTICS

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Abstract: *The essential of presented paper is to apply the technics of innovation management to company SKODA. In order to fulfil the essential, we will use the method of analysis, especially for the processing of a critical analysis of information sources. Analysis and deduction will be used to describe the current state of innovations strategy and process in SKODA Logistics. We will use the case study method to synthesize detected outputs. Using deduction, synthesis and comparison we evaluate the possible implementation one innovation. We will confirm through the questionnaire the satisfaction of the employees of the analysed company with the implementation of the recommendation suggested by us in the context of the application of technics of innovation management.*

Keywords: *Innovation, innovation management, case study, SKODA Logistics.*

JEL classification: *M1, O3*

Grant affiliation: *KEGA 001DTI-4/2015.*

1. Introduction

Innovations are not only revolutionary technical solution or scientific discoveries. They are not oriented only for products, but also for services, companies and business processes. Innovations are implemented on a market - by customers, who are willing to pay for more advanced or simply different goods than the competitors offer.

2. Methodology

The essential of presented paper is to apply the technics of innovation management to company SKODA. For this purpose we chose the innovation management in SKODA Logistics, which is a part of the company's strategic innovation management.

This paper is divided into two sections, the theoretical one and analytical part.

To fulfil the presented goal we use the analyze method, the synthesis, the deduction, the comparison, the case study and the questionnaire.

3. Innovation

Professor Schumpeter defines the innovation as a “scientific and technological progress” (Schumpeter, 2007). According to him (Schumpeter, 2005), innovations do not include only scientific and technological changes and improvements, but they especially embodies a practical application.

In the widest sense, an innovation is an offered change from human regarding products, production processes, organization of a work and production, methods of leading, used firstly at least on a company level. The most important attribute of innovation is a change and newness (Tabas, Polák & Beranová, 2010), (Novák, 2017), (Soukalová, 2016).

Štrach (2009) defines an innovation as “such a kind of invention, which is used in practice in a form of new markets or products, inventions of new machines, devices and using new sources which include human capital, new methods of work, organization or inventory control – generally management, new communication tools, form of transport, marketing and marketing communication, or new financial tools and instruments.”

Kotler & Trías de Bes Mingot (2005) and Kotler & Keller (2016) work with the newness term in definition of innovation as well. The element of newness can also be found in a definition of innovation by OECD (Oslo manual, 2005), which could be considered as a basic definition.

3.1. Innovation management

Innovation management is compact manager tool for effective leading of innovation processes in an economic subject. It assumes a massive, systematic and accelerated innovation activity of people in an organization. Therefore the task and goal of innovation management is to rationally and effectively control managing of innovations that have to quickly and flexibly respond to the needs of external customers, cities and states in harmony with the needs of producers (Collins & Porras, 2016), (Leadley, 2016).

3.2. Innovations efficiency

It is necessary to assess the economic benefits of new products or the magnitude of savings stemming from a realized innovation process, and to compare those benefits to innovation costs (Synek, 2011), (Lazear, Altmann & Zimmermann, 2016).

Every innovation is specific, therefore, the efficiency of innovation is not able to detected, because of: Innovation can have immaterial character – e.g. patent and in every project phase, there may be a risk that the innovation is not applied (Pitra, 2006), (Košturiak, Čaľ, 2008), (Košturiak, Čaľ, 2013).

Some of the authors (Synek, 2011), (Pitra, 2008), (Majdúchová & Neumannová, 2015) offer to assess an efficiency of innovations based on analogical indicators as by evaluating investments efficiency.

4. Innovation management in SKODA Logistics

The SKODA AUTO a.s. wants to be constantly competitive, therefore it has its own corporate strategy, officially known as The Corporate Strategy 2025. One of the strategies among the main company's departments is an innovation. An innovative culture is supported and created by the innovative management of SKODA.

Company's culture is created by employees and SKODA is aware of how important it is to support innovative thinking, which can in turn transfer into business opportunities in the future.

A representative of each company section creates the Innovation teams which secure suitable conditions for innovative culture through all sections in the company. The main task of SKODA Innovation Management is to prepare a concept of innovation workshops for employees and management, it controls a process for evaluation of innovative ideas following the Z.E.B.R.A. Improvements (short for "Znalost; Elán; Bystrost; Rozum; Aktivita").

The system is very simple: every employee can submit a proposal for improvement related to cost savings, ergonomic improvement, occupational safety or fire safety, both on the official intranet webpages or at home, via a web link. Employees are motivated by Z.E.B.R.A. motivation program. After the suggestion for an improvement is evaluated, monetary savings are determined. In case there are savings, an author is rewarded with 10% of the amount of savings.

4.1. Logistics Innovative Management

Logistics department is a part of a production line in the SKODA organization structure, it is a relevant partner of production and other sections from company's organization. The logistics controls all issues regarding production or material management. Based on so high importance in organization, it is expected that the logistics and its innovative management will be the main initiators of innovations and a founder of "Simply Clever" solutions.

The logistics innovative management divides innovations to High Tech innovations and Process ones.

4.1.1. ProGlove: case study

The ProGlove idea is considered as a high-tech innovation from the innovative sources of PLL department.

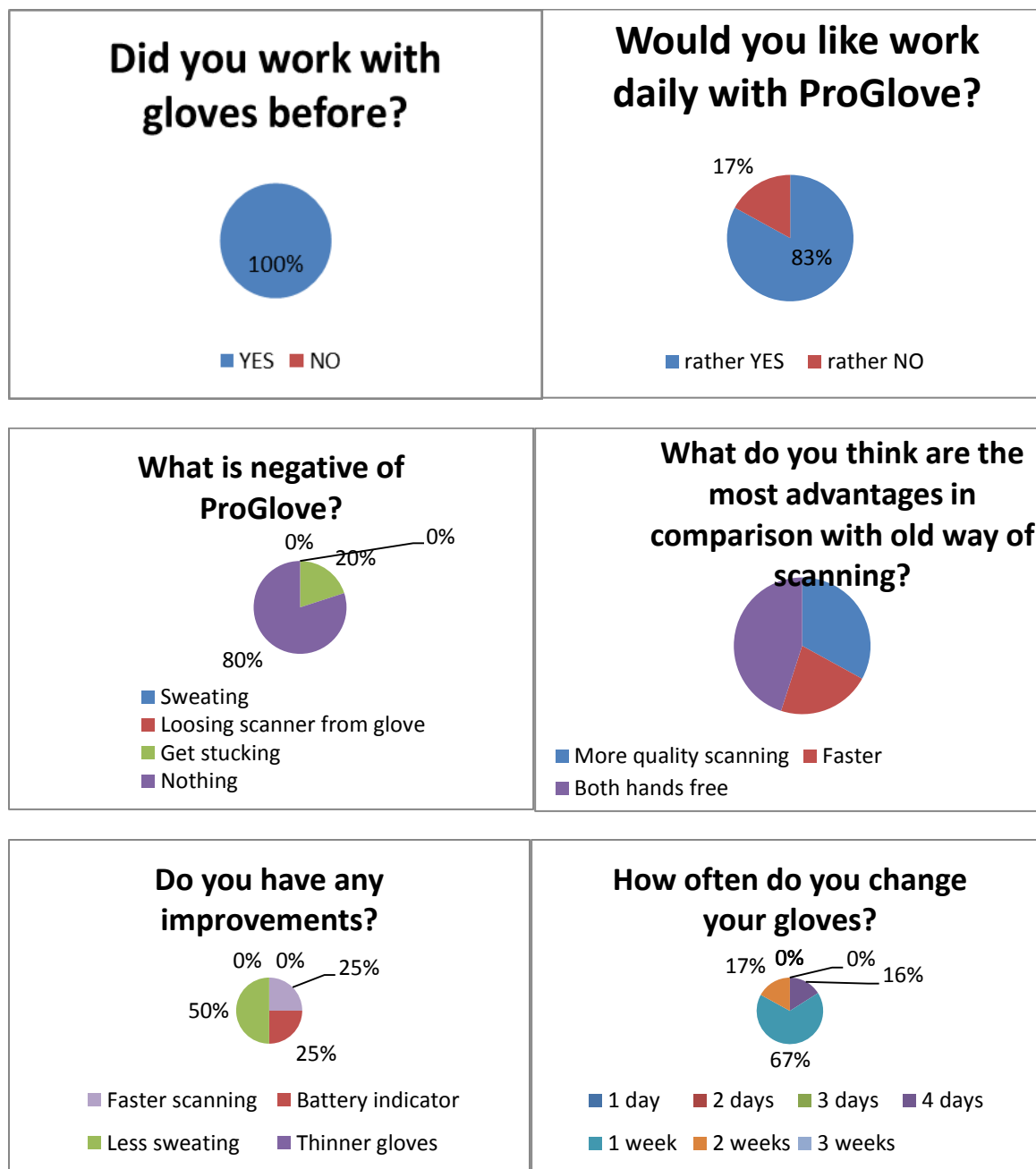
Currently a worker uses a classic scanner for reading bar codes on part numbers during the preparation of material in an assembly line. It means that every part number has to be scanned individually according to a list of parts by a worker with a scanner, which has approx. half a kilo weight. Scanning is lengthy and workers often help themselves by putting the scanner into their hands or their armpit to make their job easier. That is precisely against the ergonomic rules. The innovative idea is to give them a scanning device with which they can directly work using the gloves that would become mandatory safety equipment.

The launch of this innovative process starts by the cooperation with a company's developing scanners. A company ensured three prototype devices with complete service and technical support. They decided to continue with the ProGlove according to a usual process. The PLL department has also financial support for the project from the head of logistics.

Evaluation of the innovation process:

1. The innovation idea was created by PLL in cooperation with the scanner supplier.
2. First evaluation of potential usage in logistics area – yes, recommended also by the department of Industry Engineering and SG.
3. Presentation of innovation idea by the head of Logistics:
 - a. Workers get special safety gloves which have a scanner device directly on them. The device is able to wirelessly and cooperate with all SKODA warehouse systems.
 - b. It is going to be tested in supermarkets of assembly line in Mladá Boleslav and Kvasiny for two months.
 - c. Total cost of testing with the whole support of the company - € 8000.
4. The PLL supplied ten pre-series devices to selected workplaces, where they were tested for two months. During that time the following test goals were assessed – testing serviceability in three shifts, satisfaction of workers, evaluation of ergonomic, action radius of device, battery life, time-saving. The test goals were supported by a questionnaire that was given to workers from PLL.
5. Presentation of final results:
 - Seamless operability in three shifts,
 - Workers satisfaction and recommendation of SKODA Labour Union (results on picture PIC.1)
 - Action radius – 35 metres from main control unit,
 - Battery life – 2 shifts, 1970 scans,
 - Time-saving – 2 seconds/ scan.
6. Presentation of the project at the Innovation meeting
 - Investments – zero – device is changeable with current mobile scanner from price point of view,
 - Additional costs – increased glove costs (by 3 %) in comparison with commonly used gloves,
 - Ergonomic – recommendation of the Industry Engineering because of noticeable improvements.

PICT. 1: Workers satisfaction with ProGlove after testing



Source: Internal SKODA AUTO a.s., 2016

Regarding the results from evaluation, we recommend the Innovation to be implemented into series. The main reason is very low additional cost and the biggest benefit for SKODA is the improvement of ergonomics at a work place, which is guarded very strictly by the SKODA Labour Union.

5. Conclusion

Innovations are one of the elements that help a company to be more competitive and to offer better services or products. The ProGlove innovation, as the innovation bringing ergonomic improvements.

In spite of quite high enter costs for testing, it has finally zero additional cost in comparison with nowadays equipment and additionally it brings only 3% increasing of gloves price.

This finding supports implementation in whole SKODA scale as well.

Literature:

Collins, J. C., & Porras, J. I. (2016). *Jak vybudovat trvale úspěšnou firmu: úspěšné návyky vizionářských společností*: překlad bestselleru Built to last. Praha: Grada Publishing.

Kotler, P. & Trías de Bes Mingot, F. (2005). *Inovativní marketing: jak kreativním myšlením vítězit u zákazníků*. Praha: Grada.

Kotler, P. & Keller, K. L. (2016). *Marketing management*. Boston: Pearson.

Košťuriak, J., & Chal, J. (2008). *Inovace: vaše konkurenční výhoda!*. Brno: Computer Press.

Košťuriak, J., & Chal, J. (2013). *Inovácie: stručne a prakticky*. Žilina: IPA Slovakia.

Lazear, E. P., Altmann, S. & Zimmermann, K. F. (2016). *Inside the firm: contributions to personnel economics*. Oxford: Oxford University Press.

Leadley, C. (2016). *Innovation and future trends in food manufacturing and supply chain technologies*. Amsterdam: Elsevier, Woodhead Publishing.

Majdúchová, H. & Neumannová, A. (2015). *Podnikové hospodárstvo pre manažérov*. Bratislava: Wolters Kluwer.

Novák, A. (2017). *Inovace je rozhodnutí: kompletní návod, jak dělat inovace nejen v byznysu: 12 praktických nástrojů, 40 příkladů z praxe*. Praha: Grada.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT AND STATISTICAL OFFICE OF THE EUROPEAN COMMUN a LUXEMBOURG. Oslo manual guidelines for collecting and interpreting technological innovation data. Available at <https://www.oecd.org/sti/inno/2367580.pdf>

Pitra, Z. (2006). *Management inovačních aktivit*. Praha: Professional Publishing.

Pitra, Z. (2008). *Podnikový management*. Praha: ASPI

Schumpeter, J. A. (2005). *Business cycles: a theoretical, historical, and statistical analysis of the capitalist process*. Chevy Chase: Bartleby's Books.

SKODA AUTO a.s. Internal press release, 2016

Soukalová, R. (2016). *Design stories aneb kreativní inovace a problémy jejich transferu do praxe*. Zlín: Univerzita Tomáše Bati ve Zlíně, FMK.

Synek, M. (2011). *Manažerská ekonomika*. Praha: Grada.

Štrach, P. (2009). *Mezinárodní management*. Praha: Grada.

Tabas, J., Polák, J. & Beranová, M. (2010). *Evaluation of approaches to definition of innovations*. Brno: Ústav podnikové ekonomiky, Mendelova univerzita v Brně. LVIII, No. 6, pp. 563–570.

Valenta, F. (2001). *Inovace v manažerské praxi*. Praha: Velryba.

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THE REAL VALUE OF LONG-TERM SAVINGS

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Abstract: *The growing standard of living in developed countries is accompanied by prolonged life expectancy and significant reduction of birth rate. These two aspects jeopardize sustainability of pay-as-you-go pension systems, escalating the need for individuals to responsibly create their own lifetime savings. The study deals with the impact of inflation on the nominal value of long-term savings and, using national statistical data, compares the current possibilities for citizens of the Visegrad countries to optimize their future financial security in old age.*

Keywords: *Inflation, average wage, time value of money.*

JEL classification: E31, J32

Grant affiliation:

1. Introduction

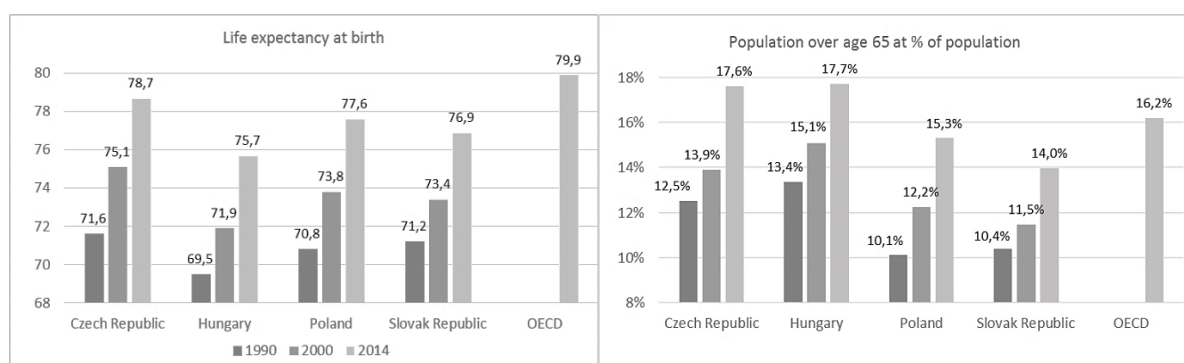
The decrease of birth rates and increase of life expectancy will impact financial security of the elderly in coming decades. Pay-as-you-go pension systems based on intergenerational solidarity are becoming unsustainable and lead to increasing the retirement age and reducing the replacement ratio. Upcoming generations must therefore follow a responsible saving plan during their economically active life.

2. Characterization of V4 pension systems

In the late 1980s and early 1990s, the V4 countries' pension systems had common inherited features from the socialist era, such as: high degree of redistribution, benefits to the privileged population groups, arbitrarily determined method of valorisation, and formula for determining the size of a pension. The situation remained similar among the countries in the first years of economic transformation. The pension system was used to solve unemployment problems by enacting

benevolent rules for early or invalidity retirement. This increased pressure to fund the system was offset by adjusting formulas for calculating the newly redeemed pensions and reducing valorisation of pensions already granted. (Hedvábný, 2005) The situation has gradually led to the introduction of both parametric and systematic changes that reflect increasing life-expectancy and an increased portion of population in postproductive age. The data presented are based on OECD data (OECD Data, 2017; see Fig. 1).

FIG. 1: Aging population



The problem of an aging population is further exacerbated by widespread emigration of young age groups. According to International Monetary Fund data (IMF, 2016), more than 20 million predominantly young people left to Western European countries, motivated by higher-quality jobs and higher wages.

Table 1 compares relevant parameters of pension systems with OECD countries (Pension at Glance, 2015).

TAB. 1: Comparison of basic parameters

Year 2014	Czech Republic	Hungary	Poland	Slovakia	OECD
Average worker earnings - in USD	13 637	11 526	11 978	12 525	40 007
Public pension spending in % GDP	8.9	10	10.8	7	7.9
Life expectancy at age 65	17.3	16.4	17.4	16.2	19.3
Gross pension replacement rates in %	49	58.7	43.1	62.1	52.9

2.1. Czech Republic

The Czech pension system consists of two parts. The first pillar is a mandatory basic retirement insurance with pay-as-you-go funding. The contribution rate for the public pension system is 28%, with employers contributing 21.5% of wages, employees 6.5%. In addition, there is a voluntary supplementary pension insurance with state-funded benefits and commercial insurance products

which may be considered to constitute a third pillar of the pension scheme. The second pillar introduced in 2013 was cancelled after two years due to lack of public interest.

2.2. Hungary

Hungary introduced a three-pillar pension system in 1998: mandatory social pay-as-you-go, mandatory private - capitalization pillar, and voluntary retirement savings to tax-benefit funds. In 2010, the government of Prime Minister Viktor Orbán intervened in 2nd pillar system, which at that time had already 3.1 million subscribers, more than 70% of the active workers. The high participation resulted in insufficient funds in the pay-as-you-go pillar during the economic crisis. The private system is made public. The second pillar has lost the support of the government and the trust of the citizens, keeping only 102,000 participants. (Pension funds online – Hungary, 2017).

2.3. Poland

The reform took place in 1999. Pay-as-you-go system is based, similarly to Sweden, on virtual personal accounts administered by the state social security institution. The size of the pension takes into account the average life span at the time of retirement. The total contribution is 19.5% of the employee's taxable income, divided equally between employers and employees. The second pillar, consisting of mandatory individual accounts paid fully by an employee (in 2011 the size of contributions was reduced from 7.3% to 2.3% with a gradual increase to 3.5 %, the difference was diverted to the state pillar). In 2014, 51.5% of savings were nationalized in order to lower the state debt. The third pillar - voluntary occupational pension plans - are DC plans with limited tax incentives. (Pension funds online – Poland, 2017) In 2017, the retirement age limit was lowered to 60 years for women and 65 for men.

2.4. Slovak Republic

The reform was launched in 2005. The system consists of a reformed pay-as-you-go pillar, mandatory individual accounts, and voluntary supplementary pension savings. The total contribution is 18% of gross wages, of which employers pay 14% and employees 4%. In 2012, the personal contribution rate for the second pillar was reduced from the original 9% to 4% and, starting in 2017, will increase by 0.25% each year up to 6%, while reducing the contribution to the ongoing pillar. The repeated reopening of the second-pillar was exploited predominantly by citizens with lower wages, their savings were transferred to the pay-as-you-go system. In the third pillar, the participant pays the sum of their own choice to an individual account in the pension fund with a potential support of the employer. Tax benefits are available.

3. Saving for retirement

In the countries under review, the other common feature is the instability of legislation in relation to the second pillar and the limitation of access to one's own resources in the third pillar. This can lead a citizen to make deposits to a private account instead. We show on a model example the problematic aspects of long-term savings that involve depreciation by inflation. What amount needs to be set aside over the period of economically active life in order to compensate for the post-employment loss of earnings due to retirement? Let us consider a hypothetical 30-year-old individual with an average income that wants to keep accumulating savings until 65 years of age. Deposits and annuities will be realized at the beginning of the month. The interest period is a month, the money

deposited will be compounded at the selected constant interest rate. Three cases are compared, differing in details of valorization of deposits and annuities.

3.1. Calculation of valorised pensions

Given an average monthly inflation rate, I_m , what is the amount of USD that would retain, after 35 years, the purchasing power of contemporary \$1?

Let a_1 represent the nominal value of the first annuity, which will be paid after 35 years (420 months) of saving. a_1 and I_m are related by:

$$a_1 = 1 \cdot (1 + I_m)^{420}, \quad (1)$$

analogously the last annuity paid after another 20 years is

$$a_{240} = a_1 \cdot (1 + I_m)^{240-1} = (1 + I_m)^{659}. \quad (2)$$

What is the total amount the client needs to accumulate over the 35 years, given a monthly interest rate, i ? This sum, D_{I_m} , is the sum of all discounted annuities incremented monthly by inflation and paid out over 20 years (240 months), that is:

$$D_{I_m} = a_1 + a_1 \cdot (1 + I_m)^1 \cdot \frac{1}{(1+i)^1} + \dots + a_1 \cdot (1 + I_m)^{240-1} \cdot \frac{1}{(1+i)^{240-1}} \quad (3)$$

For $I_m \neq i$ this equals the sum of a geometric series: $D_{I_m} = a_1 \frac{1 - \left(\frac{1+I_m}{1+i}\right)^{240}}{1 - \left(\frac{1+I_m}{1+i}\right)}$

In the second step, we determine the required size of deposits. If x_1 denotes the nominal value of the first deposit, the nominal amount of the last deposit is:

$$x_{420} = x_1 \cdot (1 + I_m)^{420-1}. \quad (4)$$

The following is required for the sum of these compounded and incremented values:

$$D_{I_m} = x_1 \cdot (1 + i)^{420} + x_1 \cdot (1 + I_m) \cdot (1 + i)^{419} + \dots + x_1 \cdot (1 + I_m)^{419} \cdot (1 + i)^1. \quad (5)$$

For $I_m \neq i$, this is the sum of geometric series and, hence, the required height of the first deposit is:

$x_1 = D_{I_m} \cdot \frac{1 - \left(\frac{1+I_m}{1+i}\right)}{(1+i)^{420} - (1+I_m)^{420}}$. This can be further simplified to:

$$x_1 = (1 + I_m)^{420} \frac{1 - \left(\frac{1+I_m}{1+i}\right)^{240}}{(1+i)^{420} - (1+I_m)^{420}}. \quad (6)$$

Expressions (1) to (5) are also used for calculation of deposits increased by average monthly wage growth, I_w . The relationship derived from (4) will be used for calculation of S_{I_w} , i.e. the future value of deposits increased by I_w :

$$S_{I_w} = x_1 \frac{(1+i)^{420} - (1+I_w)^{420}}{1 - \left(\frac{1+I_w}{1+i}\right)}. \quad (7)$$

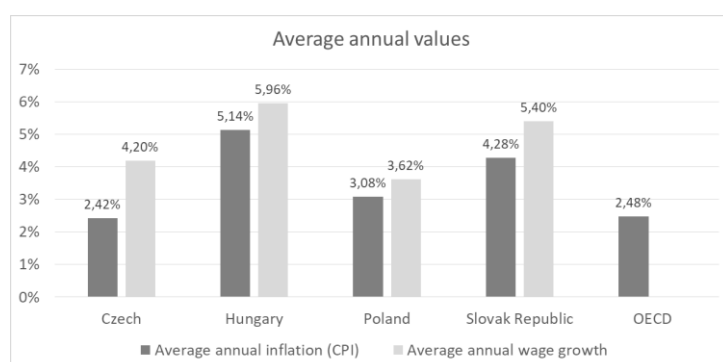
3.2. Calculations for V4 countries

We use the expressions derived in previous section to determine the size of deposits and annuities for hypothetical citizens of individual V4 countries. Three cases are compared:

1. Target real value of annuities equals 30% of initial wages. Both deposits and annuities are increased by average inflation. See Table 2 for results.
2. Target real value of annuities equal 30% of initial wages. Deposits are increased by average wage growth, annuities are increased by average inflation. See Table 3 for results.
3. No target real value of annuities - deposits are kept at 10% of wage, annuities are constant. See Table 4 for results.

OECD data for the period of 2000-2014 (OECD Data, 2017; see Fig. 2) is used to model the average inflation and average wages. We consider a nominal interest rate of 1% above the OECD average inflation rate, i.e. 3.48% p.a. All amounts in Tables 2-4 are in USD, in order to standardize all calculations.

FIG. 2: Average values of annual inflation and wage growth



TAB. 2: Deposits and annuities increased by average inflation

	Czech Republic	Hungary	Poland	Slovak Republic	OECD
Average monthly wage (2014)	1,136	961	998	1,044	3,334
Required replacement (30% of average monthly wage)	341	288	299	313	1,000
First deposit	146	253	154	221	436
First deposit as percentage of wage	13%	26%	15%	21%	13%
Last deposit	337	1,455	443	953	1,026
Total amount needed for pensions	178,871	470,048	199,685	351,987	514,358

First annuity	787	1,664	865	1,357	2,357
Last annuity	1,268	4,517	1,582	3,127	3,839

The first and the second case share the structure of annuities, but differ in the size of required deposits.

TAB. 3: Deposits increased by average wage growth, annuities increased by average inflation

	Czech Republic	Hungary	Poland	Slovak Republic
First deposit	109	217	140	180
First deposit as percentage of wage	10%	23%	14%	17%
Last deposit	457	1,640	485	1,132

Even if the differences in average wages within V4 countries reach a maximum of \$175, a citizen of Slovakia would have to save more than twice, and a Hungarian citizen even 2.8 times as much as a citizen of Czech Republic.

TAB. 4: Deposits increased by average wage growth, constant annuities

	Czech Republic	Hungary	Poland	Slovak Republic
First deposit (10% of average monthly wage)	114	96	100	104
Last deposit (10% of average monthly wage)	478	725	345	655
Total amount saved for pensions	178,747	207,912	142,117	203,602
Constant annuities	1,027	1,194	816	1,170
Annuity as percentage of the last wage	21%	16%	24%	18%
Real value of the last annuity (with respect to the first annuity)	637	438	445	506

Lack of valorization severely impacts the real value of annuities and would lead to financial insecurity in the old age.

4. Conclusion

The article demonstrates the devastating impact of inflation on the real value of long-term savings, which can only be mitigated or eliminated if the interest rate exceeds inflation. Another problem stems from significant lagging behind of post-Communist countries in terms of wages, which will reflect through savings in financial security of retired individuals in the long run, because despite globalized opportunities, the available investment options differ mainly in the amount that can be invested.

Literature:

Hedvábný, P. (2005). *Poučení z Polska a Maďarska*. Retrieved July 10, 2017, from <http://ekonom.ihned.cz/c1-13712060-pouceni-z-polska-a-madarska>.

International Monetary fund. Retrieved June 30, 2016, from <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2016/12/31/Emigration-and-Its-Economic-Impact-on-Eastern-Europe-42896>.

OECD Data. (2017). Retrieved Jun 20, 2017, from <https://data.oecd.org/economy.htm>.

Pension at Glance. (2015). Retrieved Jun 20, 2017 from http://www.oecd-ilibrary.org/social-issues-migration-health/pensions-at-a-glance-2015_pension_glance-2015-en.

Pension funds online – Hungary. (2017). Retrieved Jun 20, 2017, from <http://www.pensionfundsonline.co.uk/content/country-profiles/hungary/2310>.

Pension funds online – Poland. (2017). Retrieved Jun 20, 2017, from <http://www.pensionfundsonline.co.uk/content/country-profiles/poland/81>.

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THE IMPACT OF TRADE MARKETIZATION ON THE TRANSFORMATION OF RETAIL TRADE IN POLAND

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Abstract: *In recent years Polish trade characterized by a progressive process marketization. The most popular are three trade formats: hypermarkets, supermarkets and discount stores. Trade marketization stands for a large-scale expansion of large retail chain stores. On one hand, this process contributes to the economic development of the country because it causes the influx of not only outside capital in the form of investments, but also new technologies and solutions. On the other hand, when marketization is excessive and extends chaotically it may entail a risk of bankruptcy for local entrepreneurs and have a negative impact on social life, especially in smaller towns. According to the 2012 data, between the years of 2009 -2012, more than 50,000 small retail shops vanished in Poland. Small general shops as well as specialized stores lost competition with large retail chain stores. In addition, retail chains increasingly build their own logistics centers. Retail chains of large stores, are already present in the whole country and have plans for further expansion. Another important issue related to trade marketization is the impact on consumer behavior. The purpose of this paper is to outline how the process of trade marketization affects trade in Poland.*

Keywords: *Large retail chain stores, Trade marketization.*

JEL classification: O24, N74

Grant affiliation:

1. Introduction

As a result of changes in the Polish trade some new phenomena as marketization, economic freedom, freedom of choice, independence, integrity of goals, competition, self financing, equality of and creation of consumer market has emerged. The main changes has taken place within the four spheres: proprietary, organizational, quantity and quality. The beginning of the proprietary changes was the effect of the social-economical transformation in Poland. The pace of privatization and scale of this phenomenon was enormous. Only at the end of the year 1990 twenty-seven thousand shops

were privatized which comprised almost 22% of socialized trade objects. As a result by the year 1996 the share of private sector within the trade was at 99% and by the year 2001 was estimated at 99,57% (Kosicka-Gębska, Tul-Krzyszczuk, Gębski, 2011). Within the following years the influence on proprietary changes has been marked by the presence of trade companies with international and mixed investments (Sławińska, Mikołajczyk, 2003).

Recent years has also been the time of quality changes within the trade which emerged on one hand from the process of privatization and on the other as a result of appearance of big, international, large chain stores in the Polish market. The offer has changed and the technology of selling understood as the way of providing trade service has been improved. Moreover the development of information-communication technology resulted in growth of e-commerce (Kosicka-Gębska, Tul-Krzyszczuk, Gębski, 2011).

2. Shopping networks and large-area stores

At present within the urban space, both in Poland and in the western countries one can find various types of commerce posts. They function in different forms of aggregates which are classified according to different criteria: size, genesis, specialization or shaping large spaces (Gosik, 2014, Gosik, 2015a). This study aims at analyzing functioning and impact on the national retail market of large-area retail facilities. Three types of spatial concentration of retail units: hypermarkets, supermarkets and discount stores are considered within this study.

The 10 largest retail chains operating in Poland has been analyzed. The selection was created on the basis of Marketing Ranking of Retail Networks, prepared according to the authoritative Kondej Marketing methodology, using the Food products Retail Survey in Poland [www.kondejmarketing.com]. The analyzed networks included: Biedronka, Tesco, Lidl, Auchan, Kaufland, Intermarche, Netto, Carrefour, Piotr i Paweł, POLOmarket.

Eight of the analyzed are international retail chains with their locations also in other European countries. These are networks with German, British, French, Portuguese and Danish capital. Only two of the analyzed networks are Polish: Piotr and Paweł and POLOmarket. The surveyed large area network stores are based on three major shopping formats. Hypermarkets are represented by: Carrefour, Auchan, Kaufland and Tesco; supermarkets include: Intermarche, Piotr i Paweł and POLOmarket. Whereas, the format of the discount include: Biedronka, Lidl and Netto. It should be noted, however, that different networks within the multiform development concept also have other types of stores. Tesco has supermarkets, a new format Tesco Extra as well as petrol stations. Carrefour also offers Carrefour Market and Carrefour Express stores, while Intermarche has a Bricomarche supermarket chain and gas station network. In addition, half of the analyzed networks have introduced online shopping options. E-commerce has been introduced by such networks as: Tesco, Piotr i Paweł, as well as in selected areas Auchan network and four shops Intermarche network. Moreover, the Carrefour network has launched Internet sales of home appliances and electronics. Most of the surveyed retail chains appeared on the Polish market in the nineties. The exceptions are Lidl and Kaufland - shops of the German Schwarz group, which started operating in our country in 2001 and 2002. The largest number of shops are characterized by Portuguese discount Biedronka - over 2600 stores (April 2017). This discount chain also leads to the most dynamic

expansion strategy, intending to open 100 new outlets per year. Expansion plans also include the Netto, which plans 50 new outlets, as well as the Lidl network intending to open 30 new stores a year.

Just a few years ago, large-area shopping malls in their location strategies excluded the opening of their shops in the smallest cities. Their goal was medium and large cities, which was supposed to guarantee a greater market outlets. But the situation is changing. Expansion strategies of the large-area chain stores has also included small towns. As a result, by analyzing the surveyed retail chains, 27.6% of discount stores, 25.7% of supermarket format and 4.7% of hypermarket format are located in small towns.

3. Influence of marketization on the trade market in Poland

Changes in the pattern of trade result from continuous economic, social and technological conditions. Their sources must be found in complex processes taking place in the environment, and which poses the challenge of gaining competitive advantage in ensuring customer satisfaction and continuous improvement of efficiency (Rutkowski, 2005). The main factors influencing changes in trade include: changes in consumer behavior and increasing purchasing power, internationalization and globalization of the economy, consolidation processes, implementation of modern information technologies (Rutkowski, 2005, Walasek, 2015).

The expansion of retail chains on the Polish commercial market has created new relationships with producers. Retail networks have been identified as a separate distribution channel called the Modern Distribution Channel (MDC), distinct from the Traditional Distribution Channel (TDC). The basic difference between the two distribution channels is the time the product is delivered to the consumer. In the case of the Traditional Distribution Channel, it is longer due to the role of wholesale as an intermediary in the delivery of goods. Another difference between the Modern Distribution Channel and the Traditional Distribution Channel is the rotation of the commodity (Zimon, 2017). The commodities are much longer stored in the distribution channel using wholesalers as one of the links. In the case of the Modern Distribution Channel, storage is limited to the necessary minimum. The distribution of goods is geared to a higher frequency of supplies, but in smaller batches. The rotation of the goods on the store shelves is crucial for retail chains. The analyzed retail chains together have 49 distribution centers in Poland, which means that there is an average of 100 stores for one center (Gosik, 2015b).

When choosing a shop in which they shop consumers are guided by very different motives. The most important motives are: price level, width and type of assortment, convenience of shopping, as well as additional offer. When assessing convenience while shopping, customers take into account the quality of service, the convenient location and opening hours of the shop (Wilk, 2013). Wanting to maintain their position in the market commercial companies must adapt to customer expectations and behavior. It is also appropriate to say that consumer behavior and their changes are the determinants of shop development strategies, and the success of the market is determined by the rapid and appropriate response to both economic, demographic and socio-cultural phenomena and processes. The consumer therefore has began to play an important role, his needs has been analyzed and met, his safety taken care of and product information has been provided. Researches and

analysis, as well as consumer behavioral classifications has been conducted (Guy, 1998). Building customer loyalty has also become a key factor (Van Lin, Gijsbrechts, 2014).

Retail chains of large-scale stores have significantly influenced the structure of trade in Poland. They have become an undeniable competition for other outlets. Their activities influenced functioning and condition of small rural shops as well as local shops, traditional bazaars, bakeries, confectioneries, specialty shops (butchers, fish shops) and even pharmacies. They offer buyers a wide assortment, very often at competitive prices.

4. Conclusion

Trade is an extremely dynamic division of the national economy. Its transformations depend on many factors, both internal and external. In Poland, the beginning of changes and the release of market processes in trade, was the period of economic and political transformation in the 1990s. However, the biggest influence on the transformation of trade was the expansion of Polish international trade networks of large-area stores. These changes can be seen in the quantitative, proprietary, qualitative and organizational spheres. The nineties of the twentieth century is the period of the largest expansion of hypermarket and supermarket formats. Moreover, in recent years there has been an increase in the importance of the discount format and convenience stores. In conclusion, international retail chains have determined a new approach to the consumer market introducing new marketing, logistics and organizational strategies. But marketization, in addition to positive influence, also has negatives. If it is excessive and conducted in a chaotic manner which is often the case of many Polish cities, it becomes a threat to local trade, and thus can have a negative impact on communities, especially in smaller cities.

Literature:

Gosik B. (2014). *Wpływ wielkopowierzchniowego obiektu handlowego na upadłość firm handlowo-usługowych na przykładzie Focus Mall w Piotrkowie Trybunalskim*. In H. Chłodnicka, G. Zimon (Ed.), *Predykcja upadłości w obecnych warunkach gospodarczych* (p. 141-152). Rzeszów: Wydawnictwo Steiner.

Gosik B. (2015a). *Wpływ wielkopowierzchniowego obiektu handlowego na średniej wielkości miasto i jego region*. Przykład galerii Focus Mall w Piotrkowie Trybunalskim, *Zeszyty Naukowe Uczelni Warszawskiej im. Marii Skłodowskiej-Curie*, 4(50), p. 83-98.

Gosik B. (2015b). *Centra dystrybucyjne sieci handlowych w procesie marketingu handlu*. In D. Zimon (Ed.), *Logistyka stosowana* (p. 77-87). Warszawa: Wydawnictwo CeDeWu.

Guy C. M. (1998). Classifications of Retail Stores and Shopping Centres: Some Methodological Issues, *GeoJournal*, 45 (4), p. 255-264.

Kosicka-Gębska M., Tul-Krzyszczuk A., Gębski J. (2011). *Handel detaliczny żywnością w Polsce*. Warszawa: Wydawnictwo SGGW.

Rutkowski K., Cichosz M., Pluta-Zaremba A., Zaremba M. (2005). *Logistyka dystrybucji. Specyfika. Tendencje rozwojowe. Dobre praktyki*. Warszawa: SGH – Oficyna Ekonomiczna.

Sławińska M., Mikołajczyk J. (2003). *Transformacja sektora handlu w Polsce*. In Zarządzanie przedsiębiorstwem handlowym (pp. 147-163). Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu.

Van Lin A., Gijsbrechts E. (2014). Shopper loyalty to whom? Chain versus outlet loyalty in the context of store acquisitions. *Journal of Marketing Research*, 51 (3), p. 352-370.

Walasek R. (2015). *Partnerstwo logistyczne w zarządzaniu relacjami z klientami*. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 382, p. 126-142.

Wilk W. (2013). *Miasta zbyt małe na handel z dyskontem*. Acta Universitatis Lodziensis, Folia Geographica Socio-Oeconomica, 15, p. 21-37.

Zimon G. (2017). *Procurement logistics in branch purchasing group*. Research In logistics & production, Vol. 7, No. 2, p. 171–181.

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BUSINESS MODELS OF COOPERATIVE BANKS ON THE EXAMPLE OF A GROUP OF BANKS IN POLAND

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Abstract: *The sector of cooperative banks is quite diversified in terms of the scope of activity, kinds of banking services or approach to the realization of cooperative principles. Moreover, some of the banks may focus their activity on farmers who traditionally use local financial institutions. The model of the cooperative bank's functioning including the concentration of activity on specific services, groups of clients or local community's needs is most of all dependent on the management's decision. Due to relationship problems of agencies in cooperatives what determines most the functioning of credit cooperatives are the management's objectives.*

The aim of this paper is to provide a diagnosis of cooperative banks' business models and to examine the features of the models and its conditions as exemplified by a selected group of 75 cooperative banks in Poland. A substantial number of Polish cooperative banks do not offset their raised deposits and granted loans. Those banks as net lenders for other participants of the financial market do not follow a cooperative principle: local money for local needs.

Keywords: *Cooperative banks, business models.*

JEL classification: G21, M21

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1. Introduction

The cooperative bank operating among a large number of competing business entities on the financial market should create its own specific image. This image should result not only from the desire to gain competitive advantage but also from a concrete vision of doing business. Subordinating market activity to specific principles by applying a simplified picture of reality is referred to as a business model. Each company operates and adjusts its business model to the changing environment, legal conditions, and its owners' values.

In the subject literature one can find quite a number of different business models that encompass very many issues ranging from increasing the scope of applications of new technologies through creating value for various groups of stakeholders (Pyka, Klimontowicz, 2017, pp.88-89). According to A. Osterwalder a business model is a peculiar “snapshot of reality” in which a company functions and which can be described by means of many elements (resources and factors) that create and provide value (Osterwalder, Pigneur, Tucci, 2005, pp. 1-25). In practice what is most often emphasized are selected mechanisms that make it possible to express logic of doing business by specific participants of the market.

The main focus of this paper (limited in its scope) is placed on selected aspects of credit cooperatives’ activity pertaining to a local scope of activity and their key clients in terms of loan operations. The aim of this paper is to provide a diagnosis of cooperative banks’ business models and examine their conditions with regard to a selected group of banks. Taking into account the aforementioned remarks on business models the author will diagnose the extent to which the cooperative principle, “local money for local needs” is followed and to what extent cooperative banks follow the idea of “we act for the sake of our members and clients”. The key groups that the cooperative bank should care about by offering funds are SMEs, individual entrepreneurs and farmers.

2. Business models in cooperative banking

For business models to be identified the banking sector takes into consideration both the method of raising funds (from clients or from the financial market) and how the funds are used (for clients, for other participants of the market and investing in financial assets). The relationships between these categories make it possible to identify: investment banks, retail banks and more precisely defined categories of credit institutions (Ayadi, 2016, pp. 2-4). In considerations regarding these basic models of banks it is quite common for the cooperative banks to be included in the group of retail banks focusing their activity on traditional deposit and loan services (Ferri, 2012, pp. 8-9; Siudek, 2011, p. 103). Another quite often used division of business models of banks followed a classic division into specialized banks and universal banks (Nosowski, 2010, p. 161).

What is significant for the cooperative banks and their models is their affiliation with the cooperative sector, in other words, their activity in social dimension. Credit cooperatives through lending activity can meet the needs of the local environment and also build long-lasting relations with their members (Alińska, 2008, pp. 257-265; Żółtowski, 2011, pp. 20-26). The subject literature describes quite precisely the cooperative bank’s standards of business activity. However, what is not specifically outlined in the subject literature are the assessment methods and the setting-goal methods as regards the social dimension (Golec, 2010, pp.71-80). The socially utilitarian goals of the cooperative bank’s business activity can be referred to only if the bank offsets streams of the funds raised in a specific environment with the funds granted as loans. Moreover, the bank should provide funding for groups of “economically weak” clients who could have difficult access to funds at other institutions.

By offsetting the streams of deposits and the volume of loans the cooperative banks can pursue the historic cooperative principle, “local money for local needs” (Szambelańczyk, Ławrynowicz, 2003, p. 393; Szambelańczyk, 2006, pp. 111-113). If, however, the cooperative bank does not offset the

streams of clients' funds raised as deposits, then , then we deal with its surplus (when the volume of customers' funds collected as deposits exceeds the value of amounts receivable of nonfinancial entities) or deficit. An LtD ratio (loans from the nonfinancial sector to deposits of the nonfinancial sector) is used to assess the scope of the offsetting of the streams of funds. If the LtD ratio is at all times significantly below 1, it means that the cooperative bank keeps being in a position of an exporter of funds, which is unfavorable from a local economy's point of view.

By contrast what may be really indicative of the cooperative bank's actual and long-lasting approach to the idea of providing help for some groups of clients is the share of loans for this group in the loan portfolio. The European Association of Co-operative Banks, while measuring the "cooperativeness" level of groups of cooperatives in Europe, uses the ratio of share of loans for the SME sector in the loan portfolio. Other segments of clients that the cooperative banks take interest in may be farmers or individual entrepreneurs. Due to a higher lending risk for these groups of clients and even difficulty in credit rating, a greater share of these groups may be a sign of the cooperative bank's higher sensitivity towards the problems associated with financing these entrepreneurs and preferring these groups of clients in the loan policy.

The cooperative banks in Poland make up the largest group of the banking sector's entities (558 institutions in 2016). Each of them makes on their own decisions about what business model to pursue. The sector results of the Polish credit cooperatives are determined by operations of the largest entities of the sector, that is why the author undertook to examine in more detail a selected group of banks.

3. Research

That study of business models as regards selected aspects of the social dimension of the cooperative banks' activity was conducted on the basis of data from 75 cooperative banks in Poland. The data used for the study encompassed the quarterly data for the period from December 2009 to March 2016. The data were provided by the Audit Association of Cooperative Banks in Poznań, one of the three audit associations of cooperative banks in Poland.

TAB. 1: Characteristics of approach towards transfers of money and loan portfolio in researched group of cooperative banks

Variable	Loan to Deposit (LtD) [%]	Share of loans for farmers in loan portfolio [%]	Share of loans for SMEs in portfolio [%]	Share of loans for individual entrepreneurs in loan portfolio [%]
Mean	0.73	0.39	0.11	0.1
Median	0.72	0.39	0.09	0.1
Min	0.25	0.02	no data	no data
Max	2.3	0.87	0.49	0.3

Standard deviation	0.23	0.2	0.1	0.06
Coefficient of variation	0.31	0.51	0.86	0.56
Skewness	1.59	-0.08	1.46	0.51
Percentile 5%	0.43	0.06	no data	0.02
Percentile 95%	1.08	0.7	0.34	0.2

In the researched group of banks the institutions on the average do not offset the streams of funding, both the mean and median of the LtD ratio are around 0.7 (TAB. 1). The coefficient under consideration is of much less variation as regards the specified categories in comparison to balance characteristics. In terms of the quartiles of distribution, only 5% institutions have a 1.08 LtD ratio or higher. Thus a surplus-like business model refers to the majority of the cooperative banks under study.

As regards the group of farmers being borrowers of the cooperative banks the results are very much dispersed, which indicates a different kind of attitude by the cooperative banks towards this group of clients. Although mean values are quite high (around 40% compared to 26% mean value for the whole sector in 2015), one should notice a high value of variation coefficient – 0.51). Also as it comes to providing lending services for small companies (in financial reporting one can find data concerning individual entrepreneurs) it is impossible to see a uniform business model in this area. The average share of loans granted to these groups stands at around 10% and is characterized by significant variation (the highest variation being with regard to the ratio of the share of loans for the SMEs in the portfolio).

In the study which diagnosed typical models of behavior for the cooperative banks the author used the generalized least squares method (with fixed effects). The selection of independent variables was made from among potential variables which were of content-related character and were statistically significant.

TAB. 2: Model 1 - for variable Y: LtD

Independent variable	Coefficient	Stand. error	Significance
const	2.434380	0.0801959	***
share of loans in assets	0.542933	0.0215165	***
share of deposits in assets	-2.005980	0.0747815	***
significance of interest results from the bank's activity	-0.361844	0.0535464	***
quality of loan portfolio	-0.348482	0.0966254	***

capital adequacy ratio	-0.005637	0.0006955	***
R-square = 0.923			

According to the model the banks from the researched group increase surplus tendency (measured by the LtD ratio) while increasing the share of deposits as sources of funding activity and while increasing the significance of interest results from the bank's activity. Higher surplus is characteristic of safer institutions (with higher quality of loan portfolio and higher capital adequacy ratio). By contrast a bank's growing loan activity has a positive impact, which leads to the elimination of the misfit (TAB. 2.).

TAB. 3: Model 2 - for variable Y: Share of loans for farmers in the portfolio

Independent variable	Coefficient	Stand. error	Significance
const	0.412447	0.0145363	***
LtD	0.135457	0.0117728	***
share of loans for SMEs in the loan portfolio	-0.402381	0.0341422	***
share of loans for individuals in the loan portfolio	-0.125702	0.0369795	***
share of loans for individual entrepreneurs in the loan portfolio	-0.369517	0.0434789	***
employment	-0.000226	0.0001283	*
R-square = 0.952			

The detailed study on the share of farmers in the loan portfolio of the researched banks makes it possible to claim that granting loans to farmers is competitive in comparison to other groups of clients (most of all individual entrepreneurs, small and medium-sized companies, and also private persons). The greater the scope of the bank's activity (measured by the number of employees) the lesser the significance of loans for farmers. There is also a positive correlation of the LtD ratio and the share of farmers in the portfolio (TAB. 3.).

4. Conclusion

The cooperative banks in Poland are institutions that function according to the traditional retail business model. What is characteristic of the researched group of the cooperative banks is a misfit in terms of amounts of the deposits raised and the loans granted on the local territory of activity. This may be a symptom of not following the cooperative principle "local money for local needs". The

examination of the conditions of imbalance of streams of funding and investment indicates a positive correlation with safety of activity. The surplus-like banks prefer depositing surplus funds in affiliating banks in the accounts that are safe and generate market income. Moreover, a more traditional approach to conducting banking operations based on the interest revenue increases the scope of misfit.

The examined banks conduct loan-granting activity in a quite diverse manner. Some of the institutions are still, to a large extent, banks for farmers. These are smaller institutions where granting loans to this group of entities is in competition with providing funding for MSEs, individual entrepreneurs or consumers.

Literature:

Alińska, A. (2008). *Instytucje mikrofinansowe w lokalnym rozwoju społeczno-gospodarczym*. Warszawa: Szkoła Główna Handlowa w Warszawie, Monografie i Opracowania 558.

Ayadi, R. (2016). Bank business models in Europe: why does it matter for the future of regulation and resolution?. *IRCCF Policy Paper*, 1-8. Retrieved from <http://financecoop.hec.ca/en/category/publications/policy-papers/>.

Ferri, G. (2012). Credit Cooperatives: Challenges and Opportunities in the new global scenario. *Euricse Working Papers*, 31, 12, Retrieved from <http://www.euricse.eu/publications-cat/working-papers/>.

Golec, M.M. (2010), *Spółeczne uwarunkowania działalności banków spółdzielczych*. [In] Stefański, M. (Ed.). *Banki spółdzielcze w Polsce w warunkach kryzysu finansowego i gospodarczego* (p.65-84), Włocławek: Wyższa Szkoła Humanistyczno-Ekonomiczna we Włocławku.

Nosowski, A. (2010). Bankowe modele biznesowe – ewolucja czy innowacja. *Annales UMCS. Sectio H*, 44, 2, 157-167.

Osterwalder, A., Pigneur, Y., Tucci, C.L. (2005). Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of AIS*, 16, p. 1-26.

Pyka, A., Klimontowicz, M. (2017). Przesłanki zmian modeli biznesowych banków ze szczególnym uwzględnieniem podatku od niektórych instytucji finansowych oraz wymogów kapitałowych. *Annales UMCS. Sectio H*, 51, 1, 87-99. <http://dx.doi.org/10.17951/h.2017.51.1.87>.

Siudek, T. (2011). *Bankowość spółdzielcza w Polsce w wybranych krajach Unii Europejskiej – wymiar ekonomiczny, organizacyjny i społeczny*. Warszawa: Wydawnictwo SGGW.

Szambelańczyk, J. (2006). *Banki spółdzielcze w Polsce w procesach zmian systemowych*. Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu.

Szambelańczyk, J., Ławrynowicz, M. (2003). *Transfer pieniądza na rynkach lokalnych w strukturze spółdzielczego sektora bankowego w Polsce*. In Stacharska-Targosz, J. (Ed.), *Bankowość korporacyjna i inwestycyjna* (pp. 389-408), Poznań: Wydawnictwo Wyższej Szkoły Bankowej w Poznaniu.

Żółtowski, W. (2011). *Bank lokalny*. Warszawa: CeDeWu Sp. z o. o.

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DECISION-MAKING OF THE PITTEL & BRAUSEWETTER FIRM DURING THE PERIOD OF SOCIO-POLITICAL CHANGES FROM THE END OF THE 19TH CENTURY TO THE FIRST HALF OF THE 20TH CENTURY: FAMILY OR MANAGEMENT?

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Abstract: *The constructional firm Pittel & Brausewetter was founded in 1870 and gradually had gained its leading position in a monarchy at the area of reinforced concrete constructions. Specialists and firm management had been gradually co-opted to the leadership of the firm from across the monarchy. The firm had been cooperating not only with the engineering practice but also with Technical Universities in Vienna, Brno or Prague. During the interwar period (after the year 1918), the firm was forced to base its subsidiary firms in the successor countries. Nevertheless, those firms had been constantly in mutual contact with the leadership of the whole concern in Vienna, though the heartbeat of the management was in Prague. It is the behavior of the subsidiary parts of the firm and their adaptability to changes of the political situation which could be the guideline for more general principles of decision-making in business whatsoever.*

Keywords: *Economic history of the 19th and 20th Century, the history of business, the history of engineering, family firms, management.*

JEL classification: N8

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1. The firm in a monarchy

The family firm Pittel & Brausewetter was founded in 1870 in Vienna by a young constructional engineer Victor Brausewetter and an entrepreneur Adolf Pittel. The main area of their activity was civil engineering, mainly constructions from concrete (later from reinforced concrete), bridges, drainage, industrial buildings – the firm had been perpetually surprising the market with innovations at the area of new material usage as of technological methods. The firm had been cooperating from the beginning with Technical University in Vienna but also very intensively with German Technical University in Brno (mostly with the professor Josef Melan) and in Prague. Moreover, they cooperated

with notable architects at particular times (an example could be the cooperation with a notable architect Adolf Loos). At first, the firm's focus was on the development of the drainage network. The very first drainage network in the Austria-Hungary was in Bratislava, followed by Vienna and other cities in the monarchy. Progressively, the firm had been constructing apartment buildings, administrative buildings all over the monarchy, the firm had also been successfully constructing the factory buildings, various technological objects but also bridges and water buildings (from the regulation of water flows to the construction of the dams). Already in the monarchy, the firm had about 20 subsidiaries and branches, first in 1872 in Bratislava and Budapest, in 1886 was based a branch in Brno and in Prague. In the 90's of the 19th Century had been the Pittel & Brausewetter's branches also in Karlovy Vary, Most, Český Těšín, Ústí nad Labem, Teplice – Šanov, Šumperk, Trutnov, Liberec and in the half of the 20th Century in Moravská Ostrava (in Slovakia in Trnava, Košice, Žilina, Poprad and Užhorod).

For the firm's development and management decision-making (business philosophy and the overall firm's policy was in the hands of only one man, a founder Victor Brausewetter. Another important moment was the fact that Victor Brausewetter as an entrepreneur had evaluated the knowledge which he had gained during his studies in Technische Hochschule in Hannover and experience gained from the work of a leading engineer of the railway and bridge constructions. As an engineer at the area of high-rise and underground constructions, he had tried to find new areas for sales by improving the technological methods and new constructions which had met the needs of customers. His successes were based on continuous application of progressive techniques in which were reflected not only scientific discoveries but also everyday experience. All the leadership positions were filled with experts who had appropriate knowledge and abilities. After the end of the war in 1918, a lot of engineers and constructors had finished their education which they obtained right in the firm.

"Broadening" of the firm all over the monarchy – constructional activity of the firm from its beginning had been extended to other regions of the Austrian and Hungarian part of the monarchy – had meant big economical advantage. Not only Victor Brausewetter but also his companions in the branches had known individual regions, where the firm had operated, and their distinctions. This fact, in many cases, had prevented a lot of difficulties or national conflicts.

An important positive moment – and the root for the future – had been the expansive economic policy and business covered by own sources. The firm had even solved its succession which had underlined the family tradition of the company.

2. The firm in the successor countries

After the dissolution of the Austria-Hungary, the firm had submitted for an entirely new conception, in Czechoslovakia had been based an independent firm Pittel & Brausewetter Prague with many branches in the Czech lands and in Slovakia. The headquarters of the motherfirm had stayed in Vienna, its branches were, for example, in Italy, Bulgaria or even in Yugoslavia. Interesting fact in the development was, however, that even after the new political-economical arrangement of the countries (and the firms), the management and the department of development and engineering had been constantly in cooperation regardless the borders. Most of the decisions and innovations had

been arisen in Prague and there even existed an exchange of experience and people on individual constructions not only in our lands but also outside the borders of Czechoslovakia.

From the point of view of the Vienna firm that remained with about one quarter of the original asset of the firm had not been impaired at the area of the leadership – and the fact that remains is that from the point of view of the whole concern this exchange at the leading positions had been successfully executed within individual national firms which came out of the past roots: on these positions were taken up long-standing and approved employees of the Pittel & Brausewetter which had known the business culture, had faith in the business philosophy and had created a new group of managers with “old” roots. The conglomerate of the firms had been affected by the personal union in individual leaderships and had formed so to say “share concern”. To some extent, it had been a horizontal concern given by a big significance of the production-technical cooperation.

All the formerly established firms were henceforth interconnected by many contacts under the roof of the firm Pittel & Brausewetter. It had both historical roots due to a big number of regulations connected with civil engineering and particularly because of the shareholders connection and corporately nurtured strategy of the firm. Main management decisions and directions of the enterprise had arisen not foremost in Vienna but in Prague. Both Vienna and Prague were, as a matter of fact, headquarters – the cooperation of these headquarters was given, on the one hand, by the personal staffing – the shareholders of both of the firms were represented in both of the headquarters. In different branches (even if they were autonomously operating firms in the new successor countries) operated temporary both the people from the management of the firm and also technicians and officers. Up to date exigencies of the important orders and technical problems on some of the constructions required from the leadership of the concern and individual branches operative movement of the employees. An important assistant during the information exchange process and the mutual platform was the business magazine *Mitteilungen*.

His indisputable advantage was an exchange of information, processes with technical character, constructional processes or news at the area of concrete and reinforced concrete and the experience with them. This “standardization”, mostly in the requirements of quality and the uniformity of processes had enabled adaptability in individual orders or constructions. It had also enabled the development of new products which had reflected the requirements of the market – every order was regarded from the headquarter in terms of technical execution and economical convenience. Even in a number of orders had been devised a solution based on the experience from other branches. These particular processes, already from the time of the war, had been an assumption of the success for the firms based in particular states with clear endeavor of the leadership to preserve the contemporary synergy for the future. Henceforth, the point was to preserve the steady contact and professional exchange of information which had been happening successfully all over the period thanks to the “company-wide” magazine. The editorial office had been persuaded that the inspiration by the experience is a necessity and that in every single branch is enough experience among the employees that could be progressive and beneficial for others who could be facing the same problems. There were written not only positive experience of various workflows but also the failures which, if happened, had some causes with which it was necessary to acquaint others.

3. Final word

From the development of the firm Pittel & Brausewetter ensued lots of possible generalizations which could even answer the questions of today's business:

The business culture in and outside the firm – and in the branches based in the successor countries, had stayed faithful to the heretofore cultivated business identity of the precedent firm from the time of Dunaj Monarchy. It had been given not only by the personnel representation and the leadership's business philosophy but also by prepared generation exchange. The founder of the firm Victor Brausewetter set "the rules of the game" which his successor, a son Benno Brausewetter, not only abided but even developed positively forward.

The transformation of the so to say "home" firm into other firms with different citizenship required very fast and at the same time deliberated adaptation to general terms in individual countries at the legal, social and economic level. From all of the foundations however implies that Vienna – even in connection with ownership relations – held the reins of the uniform leadership policy in every other of its firm.

The uniform leadership policy was based on coherent continuity of the main parts of the concern, key competencies in the production which the concern was able to preserve in every part of the concern at the same extent. Pittel & Brausewetter had already had for many years at the area of civil engineering very good position when constructing the bridges, pit constructions and constructions of drainage same as the constructions of roads. This position could be exploited within all of its subsidiaries. To preserve this position in the market based on the targeted firm's policy and effective work of every firm of the concern in the successor countries was the objective number one. Therefore, the credo was not an expansion and the growth of the concern but to preserve this position in every ambitious national economy where Czechoslovakia also belonged to.

The conversion of the firm, which had been operating under the scheme of cooperated branches, in the scope of an international concern would not had been possible without appropriate decisions taken by the leadership of the concern. The representatives of the family Brausewetter had been still at the head of the company, however, to the leadership had been appointed other partners and members of the top management. In the leadership of individual national firms Pittel & Brausewetter had been also reputable experts and no less inappreciable moment had been historically proven relations of the theoretical front of experts with practical experience. The firm had been cooperating with Technical Universities, mostly from Brno and Prague, from the very beginning. Nonnegligible task for the uniformity of the concern and invariable exchange of information had been provided from the 1912 by the magazine "Mitteilungen".

Literature:

Dohnálek, J., Seidlerová, I. (1991). *Dějiny betonového stavitelství v českých zemích do konce 19. století*. Praha: Historický ústav ČSAV.

Brausewetter, K. (1969). *Wie Pittel & Brausewetter entstand* (Jak vznikl Pittel & Brausewetter). Wien 1969, 15 s., uloženo PA P+B Wien.

Genau, W. 56 Jahre Brünnener Zweigstelle (56 let brněnské pobočky). Časopis *Mitteilungen*, 1943, p. 90-96, uloženo PA P+B Wien.

Geršlová, J., Sekanina, M. (2003). *Lexikon našich hospodářských dějin 19. a 20. století v politických a společenských souvislostech*. Praha: Libri.

Krawarik, H. *125 Jahre Pittel & Brausewetter*. rkp. 55 s., uloženo PA P+B Wien, karton Firmengeschichte.

Mosser, A. P+B. *Die wirtschaftliche Entwicklung* (hospodářský vývoj). rkp., 55 s., uloženo PA P+B Wien.

Mosser, A. „Pittel+Brausewetter“. *Ein Industrieunternehmen der Baubranche* (Průmyslový podnik stavebního odvětví). rkp. 99 s., uloženo PA P+B Wien.

Průcha, Václav a kol. *Hospodářské a sociální dějiny Československa 1918-1992*. 1. díl, období 1918-1945. Brno: Doplněk 2004.

Průmyslové oblasti českých zemí za kapitalismu (1780-1945). Svazek I. Období 1780-1918. Opava: Slezský ústav ČSAV 1987.

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SENSITIVITY ANALYSIS OF PROFIT OF A BAKERY OPERATING IN THE CZECH REPUBLIC

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Abstract: *This article uses a sensitivity analysis to test the importance of factors that influence the profit of a typical manufacturing plant operating in the baking industry in the Czech Republic. The factors tested include the selling price and the quantity of products sold, as well as the purchase price of the items with the greatest cost impact, such as flour, power supplies and fuel. A sensitivity analysis was performed for the three most important products (a loaf of bread, a roll, and a bun) of a bakery operating in the Czech Republic while considering the revenue figures resulting from the sales of these products from 2009 to 2015. The sensitivity analysis results indicate that the factor with the greatest impact on profit for all three products is the selling price; the factor with the next largest impact is the purchase price of flour.*

Keywords: *Baking industry, cost calculation, food economics, sensitivity analysis.*

JEL classification: D24, Q11

Grant affiliation:

1. Introduction

Bakery production in the Czech Republic is significantly influenced by the pressure customers exert on decreasing the selling prices. Since 2009, the baking industry in the Czech Republic has been struggling with significant fluctuations in purchase prices of the resources such as flour, power supply or fuel. This has resulted in trouble bakeries have to face when managing their costs and planning their future business results. The business result expressed as a difference between revenues and costs (i.e. a profit) is a basic criterion for assessing the effectiveness of a company. Costs, margin, profit, price or any other variable of a product, service, activity/operation, business investment or another naturally expressed unit of performance are assessed by the means of calculations (Niazi, Dai, Balabani, & Seneviratne, 2005). An important step in cost calculation is allocating costs to the object of allocation: a calculation unit (Young, 1985). Direct costs are purchased directly, indirect costs can be allocated using an intermediating variable that is referred to as an allocation basis (Lucey, 1990). Popesko (2009) emphasizes the importance of correct selection of an allocation basis, especially with respect to the influence it has on the accuracy of calculated costs relating to the

calculated performance and thus also on the correctness of the calculation as such. According to Král, Fibírová, Šoljaková, and Menšík (2003), cost structure is expressed in every company individually in a so-called calculation formula. The typical structure of a calculation formula used in companies is shown in Fig. 1.

FIG. 1: Typical structure of a calculation formula

1. Direct material	
2. Direct wages	
3. Other direct costs	
4. Production overheads	
<hr/>	
Full production costs	
5. Administration overheads	
<hr/>	
Full costs of a performance	
6. Distribution overheads	
<hr/>	
Total full costs of a performance	
7. Profit	
<hr/>	
Price of a performance	

Cost calculation is often used for determining the price. Price calculation for the goods where it is hard to determine the total full costs is described by Noble and Gruca (1999) as simply adding a margin to the purchase price of such goods. In goods where it is possible to determine the total full costs, the price is determined on simply knowing them, it is cost pricing (Maxwell, 2002). The business result of a manufacturing company is primarily influenced by the profitability of its products.

In order to assess the impact of various factors on the profitability of products manufactured, a sensitivity analysis may be used. According to Fotr (1992), a sensitivity analysis is suitable for determining the sensitivity of a company's business result to factors that influence this indicator. A sensitivity analysis also allows for identifying the most critical factors that determine the result. A sensitivity analysis generally consists of the following steps (Fotr & Souček, 2010):

1. Identifying risk and uncertainty factors that influence the observed result.
2. Determining and assessing the impact these factors have on future results. Determining the degree of risk and assessing its acceptability or unacceptability.
3. Considering possible measures to be taken that will result in decreasing the risk in terms of its impact.

When performing an analysis, it is important to determine correctly the critical point when changes to risk factors occur. This point can be determined using various modelling techniques when one or more factors relating to the observed expected result are changed and the impact of these changes on the result is assessed (Christopher Frey & Patil, 2002):

1. One-way sensitivity analysis works on the assumption that always only one factor changes in order to determine the sensitivity of the observed result; the same is done with all factors observed.
2. Multi-way sensitivity analysis differs from the previous one in changing an arbitrary number of factors at the same time, while their mutual interaction is neglected. A special example of a multi-way analysis is the best-case and worst-case scenario.
3. Probabilistic Sensitivity Analysis is also known as Monte Carlo. The use of this analysis is preconditioned by determining the probability distribution around an average value of every input parameter.

According to Fotr and Souček (2010), one-way analysis is sufficient when performing a sensitivity analysis of a manufacturing company's profit and it can be applied in two forms.

1. The first form looks into how a profit will be influenced by a change to one risk factor (by e.g. 10%) in a negative or positive direction. The exact percentage change is usually an expert estimate. The value of the observed criterion is then repeatedly determined when there are the same absolute as well as relative changes made to all the risk factors. The disadvantage of this method is the possibility of a different actual degree of uncertainty of the risk factors used.
2. The second form consists in compiling pessimistic and optimistic scenarios. These scenarios are estimates of reality that will be exceeded with certain pre-selected probability. This form allows for taking into account different degrees of uncertainty of risk factors. The drawback is the necessity to quantify the pessimistic and optimistic scenarios.

Regardless of the form of the sensitivity analysis, it is obvious that significant risk factors will include factors that are absolutely big and factors that are very uncertain, with a rather extensive interval of possible values. The application of a sensitivity analysis in food industry can be found, for instance, in Zwietering and van Gerwen (2000) or Tiwari and Cummins (2010).

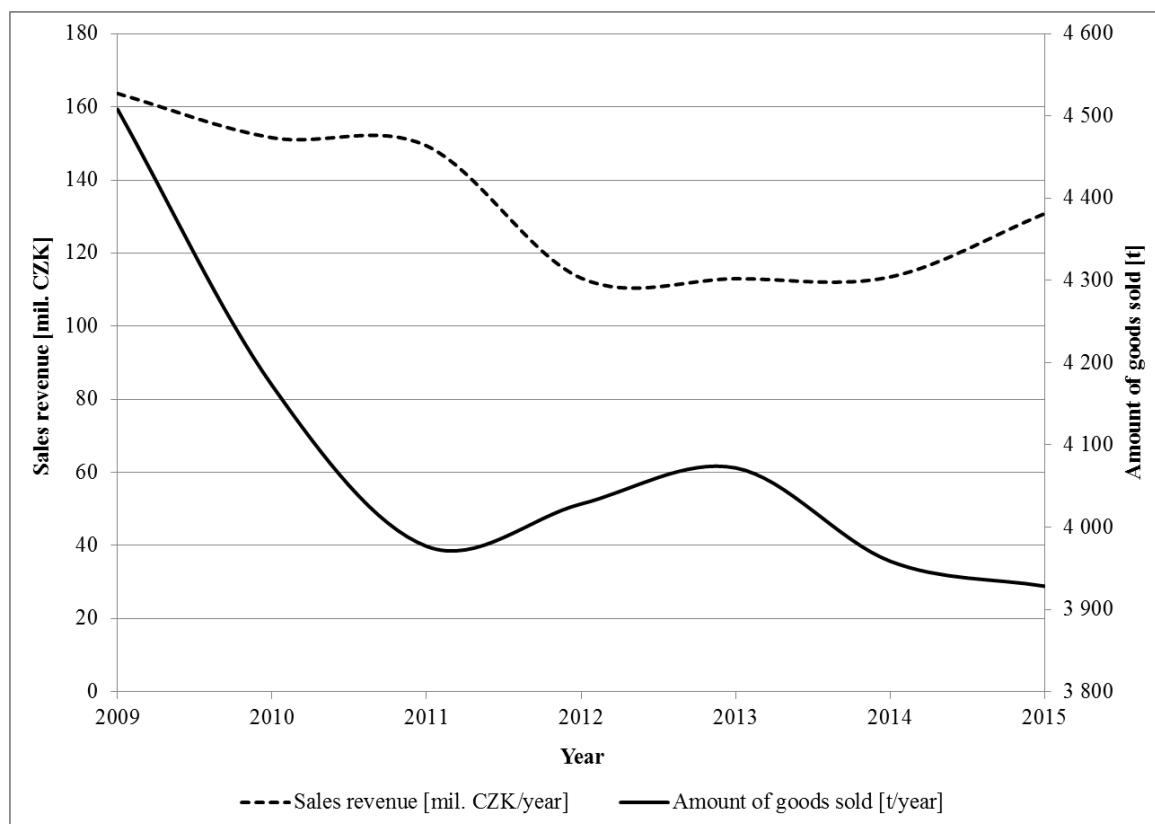
The objective of this study is to determine, by the means of a sensitivity analysis, the significance of factors influencing the profit of a typical manufacturing company carrying out its business in baking industry in the Czech Republic. These factors include selling prices and the amount of goods sold as well as purchase prices of the most important inputs such as various kinds of flour or purchase prices of power supply and fuel.

2. Material and Methods

With respect to market shares, we selected as a typical representative of the Czech bakery market a bakery [see Rusňáková (2013)] whose annual turnover exceeds CZK 100 million, the number of its employees is between 100 and 500. The input data for the study were obtained from a bakery

carrying out its business in the Czech Republic. The data provided included figures of total amounts sold and revenue from the sale of products and product groups in 2009 - 2015 (see Fig. 2).

FIG. 2: Amount of goods sold and sales revenue from products and product groups in 2009-2015



Sales revenue was subjected to an ABC analysis described, for instance, in Ramanathan (2006) or Teunter, Babai, and Syntetos (2010). Category A included products and product groups that account for approx. 80% of the sales revenue (see Fig. 3).

FIG. 3: Products and product groups in Category A according to the ABC analysis

Product or product group	Sales revenue in 2009-2015 [mil. CZK]	Share in total revenue [%]
Loaf of bread	298.3	32%
Roll	150.2	16%
Bun	105.8	11%
Soft baked products	84.1	9%
Pastry	83.0	9%
Other cereal bakery products	47.4	5%

For individual products in Category A (i.e. a loaf of bread; a roll and a bun), the bakery provided a cost calculation (see Fig. 4) structured as the calculation formula described in Fig. 1.

FIG. 4: Cost calculation for individual products in Category A according to the results of the ABC analysis

			<i>j</i>		
			1	2	3
Category: Costs	<i>i</i>	Cost item <i>c_i</i> Product <i>j</i>	Loaf of Bread	Roll	Bun
Direct material	1	Wheat bread flour	2 986	0	0
	2	Rye bread flour	1 886	0	0
	3	Wheat plain flour	0	5 552	5 777
	4	Other ingredients	1 186	2 308	2 694
Direct wages	5	Direct wages	1 495	2 990	2 990
Other direct costs	6	Other direct costs	507	1 015	1 015
Production overheads	7	Electricity	210	419	419
	8	Gas	698	1 397	1 397
	9	Other production overheads	1 420	2 840	2 840
Administration overheads	10	Administration overheads	3 081	6 162	6 162
Distribution overheads	11	Gasoline	705	1 405	1 405
	12	Petrol	144	286	286
	13	Other distribution overheads	2 415	4 814	4 814
Total full costs of a performance [CZK/ t of a Product]			16 732	29 187	29 798

The production capacity of the bakery was considered to be 2,880 tons of loaves of bread per year, 620 tons of rolls per year and 450 tons of buns per year.

The initial value of profit for *j*-th product *z_j* was obtained from equation (1):

$$z_j = Q_j \cdot \left(p_j - \sum_{i=1}^{13} c_{ij} \right) \quad (1)$$

where *p_j* is the average selling price of *j*-th product in 2009 – 2015 and *Q_j* is the average annual amount of *j*-th product in the same period. 1 pc of a loaf of bread was considered to weigh 1.2 kg, 1 pc of a roll 0.043 kg and 1 pc of a bun 0.05 kg. By breaking down the cost category to individual items, we obtained factors that were subsequently used for defining scenarios for one-way sensitivity analysis of the profit. Including cost items among factors was preconditioned by the availability of statistic numbers concerning the development of the price of these items in 2009 - 2015. Furthermore, the factors included selling prices and amounts sold of the individual products in Category A. Factors *f_k* included in the sensitivity analysis of the profit and their average (AVG*f_k*), minimum (MIN*f_k*) and maximum (MAX*f_k*) values are shown in Fig. 5.

FIG. 5: Factors included in the sensitivity analysis of the profit

k	Factor f_k	$MINf_k$	$AVGf_k$	$MAXf_k$	$min\Delta f_k$	$max\Delta f_k$	Δf_k
1	Purchase price of wheat plain flour [CZK/t]	5 534	6 959	8 504	20%	22%	25%
2	Purchase price of wheat bread flour [CZK/t]	4 940	6 633	8 267	26%	25%	30%
3	Purchase price of rye bread flour [CZK/t]	5 288	7 049	8 636	25%	23%	25%
4	Purchase price of diesel [CZK/l]	24.7	33	37.2	25%	13%	20%
5	Purchase price of petrol [CZK/l]	25.2	35.5	40.1	29%	13%	25%
6	Purchase price of electricity [CZK/MWh]	2 507	2 716	2 894	8%	7%	10%
7	Purchase price of gas [CZK/MWh]	737	864	1 002	15%	16%	20%
8	Selling price of a loaf of bread [CZK/pc]	19.2	21.1	22.2	9%	5%	10%
9	Selling price of a roll [CZK/pc]	1.4	1.5	1.6	7%	6%	10%
10	Selling price of a bun [CZK/pc]	1.2	1.6	1.7	21%	8%	15%
11	Amount of loaves of bread sold [t]	2 132	2 335	2 676	9%	15%	15%
12	Amount of rolls sold [t]	516	539	561	4%	4%	5%
13	Amount of buns sold [t]	382	401	433	5%	8%	10%

The values of the factors were obtained from the development of prices and amounts sold in 2009 – 2015, these data were provided by the bakery. Using the average and minimum values of the factors we determined their relative change ($min\Delta f_k$) as:

$$min\Delta f_k = \frac{AVGf_k - MINf_k}{AVGf_k} \cdot 100\% \quad (2)$$

Similarly, we used the average and maximum values of the factors to determine their relative change ($max\Delta f_k$) as:

$$max\Delta f_k = \frac{MAXf_k - AVGf_k}{AVGf_k} \cdot 100\% \quad (3)$$

Using $min\Delta f_k$ and $max\Delta f_k$ we determined Δf_k for each f_k as:

$$\Delta f_k = \frac{min\Delta f_k + max\Delta f_k}{2} \quad (4)$$

The value of Δf_k was rounded up to the nearest multiple of 5% following a recommendation stated in Fotr and Souček (2010) and it was used as a scenario for the one-way sensitivity analysis of the profit. Every tested scenario consisted in increasing the k -th factor by Δf_k and calculating the profit change $max\Delta z_j$ as compared with the initial value of the profit z_j . In case of factors derived from cost items (i.e. factors $f_1 - f_7$) $max\Delta z_j$ was calculated using the following equation:

$$max\Delta z_j = Q_j \cdot \left(p_j - \sum_{i=1}^{k-1} c_{ij} - (1 + f_k) - \sum_{i=k+1}^{13} c_{ij} \right) - z_j \quad (5)$$

In the case of factors derived from the selling prices of products (i.e. factors $f_8 - f_{10}$) $max\Delta z_j$ was calculated using the following equation:

$$max\Delta z_j = Q_j \cdot \left[(1 + f_k) \cdot p_j - \sum_{i=1}^{13} c_{ij} \right] - z_j \quad (6)$$

In the case of factors derived from the amount of products sold (i.e. factors f11 – f13) maxΔzj was calculated using the following equation:

$$max\Delta z_j = (1 + f_k) \cdot Q_j \cdot \left(p_j - \sum_{i=1}^{13} c_{ij} \right) - z_j \quad (7)$$

Using maxΔzj, the value of minΔzj was calculated for every scenario tested as:

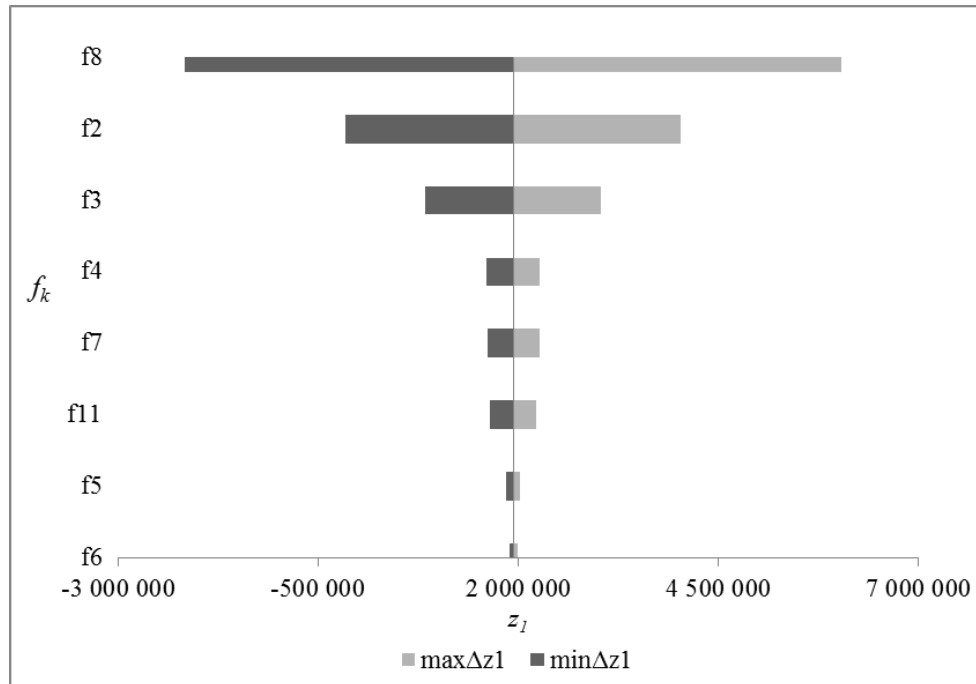
$$min\Delta z_j = z_j - max\Delta z_j \quad (8)$$

For a loaf of bread, 8 different scenarios were tested. The difference was that always one factor out of the factor group f2 – f8 and f11 was changed. For a roll, 7 scenarios were tested, the difference was that always one factor out of the factor group f1, f4 – f7, f9 and f12. For a roll, 7 scenarios were tested, the difference was that always one factor out of the factor group f1, f4 – f7, f10 and f13 was changed. The values of maxΔzj and minΔzj were processed and shown in tornado charts.

3. Results and Discussion

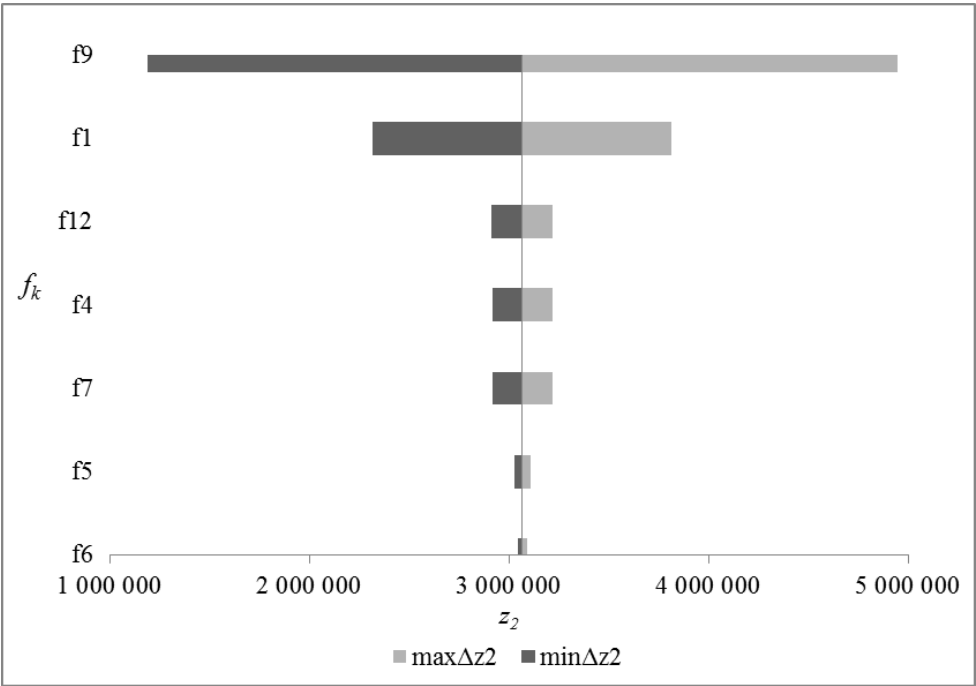
The results of the sensitivity analysis for a loaf of bread are shown in Fig. 6.

FIG. 6: Results of the sensitivity analysis – a loaf of bread



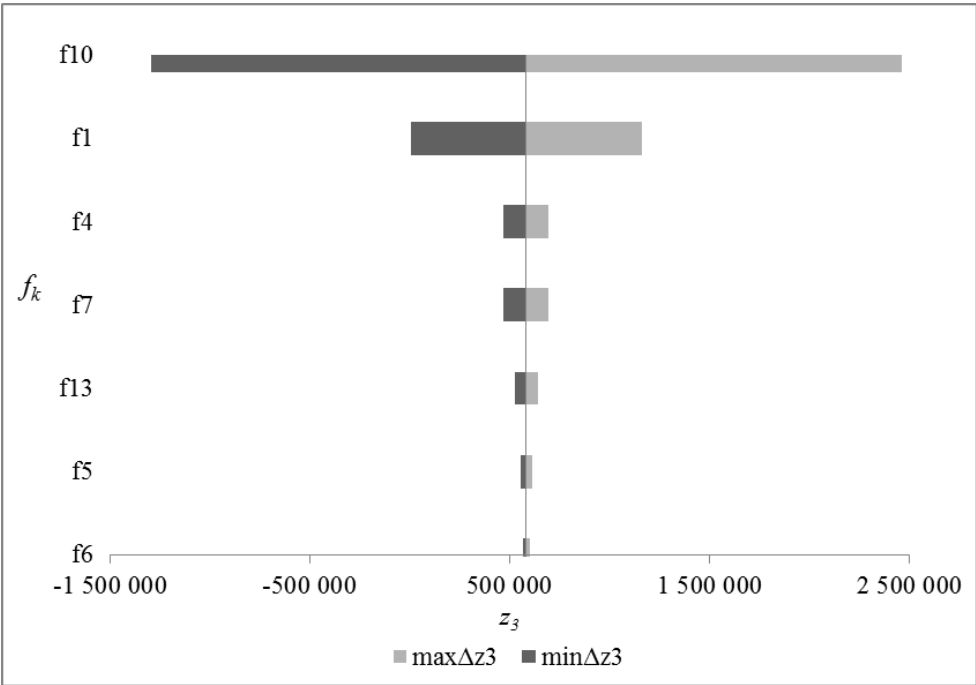
The results of the sensitivity analysis for a roll are shown in Fig. 7.

FIG. 7: Results of the sensitivity analysis – a roll



The results of the sensitivity analysis for a bun are shown in Fig. 8.

FIG. 8: Results of the sensitivity analysis – a bun



In the case of a loaf of bread, the factor that most influences the profit is the selling price of the product, followed by the purchase price of wheat bread flour and rye bread flour. In the case of the

selling price of the product and the purchase price of the wheat bread flour, the percentage increase of these factors results in values near Δf_k and possibly to the loss of the product profitability.

In the case of a roll, the factor that most influences the profit is the selling price of the product, followed by the purchase price of fine wheat plain flour. Unlike in the case of a loaf of bread, a significant factor influencing the profit is also the amount of the product sold. No percentage increase or decrease in any of the tested factors resulted in values near Δf_k , or in possible loss of the product profitability.

Finally, in the case of a bun, the factor that most influences the profit is the selling price of the product, followed by the purchase price of wheat plain flour. As for the selling price of the product, the percentage increase of this factor results in values near Δf_k and in possible loss of the product profitability.

4. Conclusion

The results of the sensitivity analysis indicate that the factor that most influences the profit is in all 3 products the selling price of the product, followed by purchase prices of flour. The impact of purchase price of power supply and fuel on the profit is less significant for all three products tested. The same can be said about the amounts of products sold with the exception of "a roll". As for "a loaf of bread" and "a bun", the percentage increase of the factor "selling price" and the factor "purchase price of wheat bread flour" (in the case of "a loaf of bread") results in values near Δf_k and possibly in loss of the product profitability.

Literature:

Fotr, J. (1992). *Jak hodnotit a snižovat podnikatelské riziko (1 ed.)*. Praha: Management press.

Fotr, J., & Souček, I. (2010). *Investiční rozhodování a řízení projektů: Jak připravovat, financovat a hodnotit projekty, řídit jejich riziko a vytvářet portfolio projektů (1 ed.)*. Praha: Grada Publishing.

Christopher Frey, H., & Patil, S. R. (2002). Identification and Review of Sensitivity Analysis Methods. *Risk Analysis*, 22(3), p. 553-578.

Král, B., Fibírová, J., Šoljaková, L., & Menšík, M. (2003). *Manažerské účetnictví*. Praha: Management Press.

Lucey, T. (1990). *Costing (3 ed.)*. London: DP Publications Ltd.

Maxwell, S. (2002). Rule-based price fairness and its effect on willingness to purchase. *Journal of economic psychology*, 23(2), p. 191-212.

Niazi, A., Dai, J. S., Balabani, S., & Seneviratne, L. (2005). Product Cost Estimation: Technique Classification and Methodology Review. *Journal of Manufacturing Science and Engineering*, 128(2), p. 563-575.

Noble, P. M., & Gruca, T. S. (1999). Industrial Pricing: Theory and Managerial Practice. *Marketing Science*, 18(3), p. 435-454.

Popesko, B. (2009). *Moderní metody řízení nákladů: jak dosáhnout efektivního vynakládání nákladů a jejich snížení (1 ed.)*. Praha: Grada.

Ramanathan, R. (2006). ABC inventory classification with multiple-criteria using weighted linear optimization. *Computers & Operations Research*, 33(3), p. 695-700.

Rusňáková, E. (2013). *Pekářenský obor v ČR : (komplexní hodnocení oboru za období 2008-2012)* Praha: Ústav zemědělské ekonomiky a informací.

Teunter, R. H., Babai, M. Z., & Syntetos, A. A. (2010). ABC Classification: Service Levels and Inventory Costs. *Production and Operations Management*, 19(3), p. 343-352.

Tiwari, U., & Cummins, E. (2010). Sensitivity Analysis in Predictive Models for assessing the Level of β -Glucan in Oats and Barley Cultivars Using Meta-Models. *Food and Bioprocess Technology*, 3(6), p. 935-945.

Young, H. P. (1985). *Cost allocation: methods, principles, applications*. Amsterdam, Netherlands: North Holland Publishing Co.

Zwietering, M. H., & van Gerwen, S. J. C. (2000). Sensitivity analysis in quantitative microbial risk assessment. *International Journal of Food Microbiology*, 58(3), p. 213-221.

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EXPERIENCE WITH INFORMATION SECURITY MANAGEMENT SYSTEM

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Abstract: *The Information Security Management System is a newly used conception that includes a sum of all requirements and measures in order to secure protection and security of all important corporate assets, i.e. information. There was a transition period of three years, when companies were obliged to move to a new standard. The article describes the experiences of this period. There is a list of mandatory documented information, new concepts including brief annotations of the contents of the individual chapters of the standard (ISO/IEC 27001 : 2013, ČSN ISO/IEC 27001 : 2014).*

Keywords: *State standard, Information Security Management System, ISO/IEC 27001:2013.*

JEL classification: *M15IT*

Grant affiliation:

1. Introduction

The goods of our time became information. How businesses can handle the process of creating, processing, storing and distributing information, are dependent on business and institutions. The question of protection and security of information is therefore becoming more and more important. The management of many organizations is aware that information protection and security is one of the priorities in an organization's management system.

There is a time when customers (mostly large multinational companies) are starting to require their suppliers to implement the Information Security Management System (ISMS). These are reasons such as new design or design solutions, new services, and products that these suppliers supply. Of course, these multinational companies are not interested in leaking information about new products to the public. This information could just be escaped from the drawing documentation or produced prototypes.

ISMS is suitable for all organizations that offer and operate customer service, outsourcing, processing their clients' data, processing personal data, etc. The core objective of ISMS is to protect critical assets of an organization from the point of view of availability, confidentiality and integrity to ensure

continuity Business. ISMS is appropriate where an organization needs to protect its assets, including information, image, know-how, reputation from internal and external attackers.

2. Initial phases

The implemented ISMS provides customers with proof of security level according to international standards. What are the most common expectations organizations have from an established ISMS:

- penetration into new markets and portfolio expansion,
- integrating and unifying current security practices and policies into one management system,
- definition of the central ISMS policy and setting of rules and procedures according to the requirements of ISO/IEC 27001,
- Introducing a system approach to risk management based on a documented process and improving the logic and physical security of personalization.

Implementation of the ISMS implementation serves as the prerequisite for the successful certification of the ISMS in accordance with ISO/IEC 27001. The necessary starting point of each ISMS implementation project is so-called ISMS situational analysis. The objective of the situational analysis is to evaluate the status of the ISMS in the organization, including the status of process control according to the requirements of the legislation, standards (e.g. ISO/IEC 27001 , ISO/IEC 27011, ISO/IEC 27099 etc.).

3. Experience from implementation

From the implementation experience, the below-described individual phases of the ISMS implementation are logically sequenced:

a. Implementation of the initial ISMS analysis, i.e. SWOT search in the current information security system and determination of compliance with ISO/IEC 27001. Part of this phase is also the elaboration of a detailed timetable for individual activities, including human resource requirements. There are new internal and external aspects that are relevant to the organization's intentions from the point of view of ISMS. Identifying these aspects refers to the internal and external context of the organization in 5.3. ISO 31000: 2009.

b. Determining the scope and structure of ISMS. Immediately at the beginning of the implementation, it is necessary to determine the scope and structure of the ISMS, what will be protected and the areas of the organization to be covered by the ISMS. The baseline for determining the scope and structure of ISMS is the ISMS initial analysis (situational audit). Another source for determining the scope and structure of ISMS is the list of information assets that are important for information security. At this stage, the subject (range) and boundaries of the information security system are defined.

c. Defining Security Policy (ISMS Policy). At this stage, the ISMS policy will be defined to cover the scope and boundaries of ISMS, while also drawing on the results of the initial analysis, which is a virtually indispensable basis for defining basic principles in security policy.

d. Introduction of systematic risk management (Risk Management), i.e. the development of a methodology for risk analysis, assessment and management based on selected threats and vulnerabilities for ISMS assets. Part of the methodology is also to establish a procedure for defining an acceptable / unacceptable level of risk. At this stage, it is necessary to identify and evaluate the assets of the organization, including the assignment of their owners. Additionally, the assets and threats and assets vulnerabilities are identified. Subsequently, the probability of occurrence of individual threats should be determined. Finally, for each asset, the risk was calculated as the product of probability and impact. Risk analysis is carried out in the form of brainstorming with the participation of individual asset owners, consultants and experienced moderator, using the WHAT - IF method. The results of the risk analysis are crucial for the further implementation process, especially for the selection of risk management options and appropriate security measures for their elimination.

e. Design and selection of risk management options and design of individual safety measures to eliminate unacceptable risks. Based on the results of the risk analysis and the ISMS policy, a proposal for risk elimination options and a proposal for risk management measures will be developed. The output from this and the previous phase is a detailed report describing unacceptable risks and proposing options and measures for their elimination. This report must be presented to the management of the organization. Leaders, together with Security Committee staff, choose the most appropriate solution for individual unacceptable risks. The selection of security measures is based primarily on the following priorities:

- conscious risk acceptance, if consistent with security policy and risk management system (acceptable risks),
- avoiding risks,
- transferring or distributing risk to other parties (such as suppliers, insurance companies),
- meeting the requirements of applicable laws, applied standards and other regulations,
- the planned development of the organization's activities and its ISMS,

f. Implementation and operation of ISMS. Implementing security measures and testing them is one of the most complex and longest stages. At the beginning of this phase, plans for the implementation of these measures, called RTP = Risk Treatment Plans.

The plans thus drawn up must be implemented in practice and gradually put the individual measures into operation. In addition, the various documented processes, operating rules, safety and testing procedures, guidelines and policies as set out in ISO/IEC 27001 standards are developed and implemented. Drafts of security documentation, templates and forms for individual documents and records that cover the entire life cycle of the logical and physical security system according to the requirements of ISO/IEC 27001 are being drafted.

Essential documentation (manuals, guidelines, procedures). The documented documentation also includes procedures for emergency planning and recovery of functionality, and a description of the incident management process. Separate chapters are design and documentation, including workflows for security testing, including vulnerability testing and penetration testing.

At this stage it is necessary to:

- allocate human and financial resources to implement individual risk management, ISMS operations and implementation,
- prepare training programs and increase employee safety awareness,
- implement selected measures through risk management programs,
- implement procedures and processes, including necessary controls for day-to-day monitoring and information security controls,
- implement a system for rapid detection and response to security incidents and increase ISMS efficiency,
- implement Disaster Recovery Plans.

The most important documents that are needed for the organization to work properly:

- security policy including scope and subject of ISMS, aspects, stakeholders,
- statement of Applicability (SOA),
- a list of assets,
- classification of information,
- document and record management,
- non-compliance management,
- management of corrective and preventive measures,
- internal ISMS audits,
- Risk analysis and assessment, including the report,
- Risk Management Plan,
- accident plans and renewal of business continuity.

In the framework of security, the following plans must be created:

- Business Continuity plan (main activities) - BCP,
- backup and recovery plan - DRP,
- emergency plans (for each IS) and list of all emergency plans,

- plan of emergency plans,
- security education and training plan,
- ISMS audit plan.

g. Monitoring and review of ISMS. For the correct functioning of ISMS, it is necessary to initiate as soon as possible the necessary inspections and testing of individual ISMS areas in order to collect as much data and information as possible. This data was then processed and in the form of reports and ready to be presented for audit purposes. The basic monitoring and measurement activities that need to be carried out at this stage are as follows:

- regular ISMS validation for security policy implementation, risk mitigation targets and programs, and taking into account the results of security audits, incidents, Customer complaints and other parties,
- regular evaluation of the effectiveness of implemented risk mitigation measures with respect to changes in organization, technology, business objectives and processes, identifiable changes in the external environment, etc.,
- implement the internal ISMS system audit as one of the basic control tools for determining the status and level of ISMS deployment,
- perform a review of ISMS by management,
- record all activities and incidents that could affect the effectiveness or performance of ISMS,
- perform physical and logical perimeter testing through a wide range of tests, especially vulnerability and penetration tests,
- manage, record and evaluate audit logs, records of administrators' activities,

h. Certification process. This phase is usually approached after approximately 12 months of implementation. It is then certified according to ISO/IEC 27001. The purpose of the certification audit is to verify the implementation of the system. By default, it is divided into two separate stages, which cannot be longer than 90 days. At the first stage, the documentation is assessed to see if it meets all the requirements of ISO/IEC 27001. Any deficiencies must be removed to the second level of audit. In the next second step, the implementation of an information security system is already being audited.

i. Maintenance and improvement of ISMS. It is the phase of maintaining and further developing an implemented and certified system. According to the PDCA (Plan - Do - Control - Act) principle, an organization must strive for continuous improvement to improve its ISMS.

4. Conclusion

If an organization decides to implement an ISMS, the procedure is outlined in step 9. Each phase is described in terms of content and the individual phases relate to each other. Phases cannot be skipped or changed. The total time intensity of these activities depends on support and cooperation

from the organization (access to workplaces, course of activities according to the approved timetable, etc.). Usually, an information security system can be implemented in 4 to 12 months, taking into account the complexity of the processes and the size of the organization. What the organization will get after implementation:

- the organization has implemented and certified ISMS according to the requirements of ISO/IEC 27001,
- implementing ISMS sets up a system and process approach to information security management with clearly defined responsibilities for each ISMS area, with clearly defined procedures and rules in ISMS,
- the established information security system significantly eliminates the possibility of information leakage or threatens the confidentiality, integrity and availability of information assets in the organization,
- the introduction of ISMS is also cost-effective, as the costs will gradually be reversed in particular by minimizing possible economic losses resulting from partial or complete loss of information or the unavailability of the organization's processes. System costs will also be reimbursed by realizing profits in deliveries of products subject to certification or required by ISO/IEC 27001.

Literature:

Standard ISO/IEC 27000:2012 - Information technology -- Security techniques -- ISMSs -- Overview and vocabulary.

Standard ISO/IEC 27001:2013- nformation technology -- Security techniques -- ISMSs -- Requirements.

Standard ČSN ISO/IEC 27001:2014 - Informační technologie – Bezpečnostní techniky: Systémy managementu bezpečnosti informací – Požadavky. Praha: Český normalizační institut.

Standard ISO/IEC 27002:2013 - Information technology -- Security techniques -- Code of practice for information security controls.

Standard ČSN ISO/IEC 27002:2014 - Informační technologie – Bezpečnostní techniky – Soubor postupů pro management bezpečnosti informací. Praha: Český normalizační institute.

Standard ISO/IEC 27003:2010 - Information technology -- Security techniques -- ISMS implementation guidance.

Standard ISO/IEC 27005:2011 - Information technology – Security techniques – Information security risk management. Praha: Český normalizační institut.

Standard ISO/IEC 27006:2011 - Information technology -- Security techniques - Requirements for bodies providing audit and certification of ISMSs.

ISO 31000:2009 - Risk management.

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ANALYSIS OF SIMILARITIES IN CONTEXT OF ENTERPRISE INNOVATIONS

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Abstract: *Innovations are important activities in enterprise development. The presented research detects similarities in enterprises innovation strategies. In this paper, the authors used dataset provided by Community Innovation Survey 2010, describing various innovation activities of surveyed enterprises in the Czechia. The enterprise innovations are reported in two groups of indicators: technical (product and process) innovations and non-technical (marketing and organisational) innovations. As the information about innovation is represented by binary values, coefficients of association were used for analysis of relations between objects. Detection of similarities by a coefficient of similarity is one of basic data mining methods. Moreover, the cluster analysis was used for result values of the similarity coefficients. Finally, the evaluation of similarity is presented for the selected Czech district.*

Keywords: *Innovations, association, enterprises, data mining, cluster analysis.*

JEL classification: O3, O32, Q5

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1. Introduction

Innovations are crucial for economic growth and (regional) development and are considered as a key to growth and long-term success, especially in “knowledge-driven-economy”. According to (Sternberg, 2000), seeing as innovation requires information and knowledge, continual development and production of innovative products function as decisive elements for successful regional development. Generally, in entrepreneurship context, innovations are treated as something new with added value to company’s performance helping to increase its competitiveness on the (regional) market. In developed countries, innovations are widely seen as the basis of their competitive economies (Porter and Ketels, 2003). An enterprise that tries to improve its position on the market should implement or adopt an appropriate innovation policy for sustaining competitive advantage. Due to innovation activities, managers are empowered to influence and cultivate their environment actively. Therefore, it is important to analyze innovation activities and potential of the (regional)

market in the managerial decision-making process. In the literature, a term regional innovation network or system is used. The regional innovation network or system is stimulating growth and innovation from an individual business perspective and a regional perspective (Sternberg, 2000; Cooke, 1992). Then, it is a question, how to describe, evaluate, and analyse a (regional) innovation performance. One of the most used methods for acquiring desired data about innovations is questionnaire survey (e.g. Kirton, 1976; Maillat, Quévit and Senn, 1993, Sternberg, 2000). In this paper, a questionnaire-based survey called Community Innovation Survey conducted by the European Union was used in order to analyse the similarity of enterprises' innovation activities. The main objective of this study was to explore (dis)similarities in selected LAU 1 (Local Administrative Units) regions in Czechia with the use of the coefficient of similarity and consequent clustering.

2. Data

Fifth period of Community Innovation Survey (CIS) covering years 2008 to 2010 was used (hereafter as CIS 2010). This survey is carried out by all EU member states and uses harmonised questionnaire (EUROSTAT, 2012). Data collection for CIS 2010 were organised in 2011 by a questionnaire a survey focusing on all enterprises with ten or more employees, stratified by size and economic activity. In total 5,151 responses, representing 21 % of the total statistical population, were received with 83 % return rate of useful answers (ČSÚ, 2013; Vaculík et al., 2017).

The enterprise innovations are reported in two groups of indicators: technical (product and process) innovations and non-technical (marketing and organisational) innovations. The technical innovations consist of two product indicators concerning innovation of final products or service. Next three technical process indicators refer to an improvement of production, supply and distribution of products, and change of accounting and information systems. The non-technical innovations are comprise four marketing indicators (new design of packaging of products, advertisements, licensing and franchising), and by three organisational indicators (internal business practices for process organization, internal workflow changes, and external change of relationships). A total number of twelve innovation indicators represents source data for the analysis of similarities and clustering of enterprises in the Czechia.

3. Methodology

This chapter describes the main methodological steps of data processing. Firstly, the calculation of similarity coefficients is mentioned. Secondly, the possibilities of use of clustering according to the values of dissimilarity coefficients are presented.

3.1. Coefficient of similarity

The coefficient of similarity is one possible measure of the enterprise innovation similarity. Binary similarity coefficients are used when only presence-absence data are available. The basic data for calculation of binary similarity coefficients is a 2x2 frequency table (TAB.1), i.e. for two entities. That frequency table is calculated from input binary data that describes types of innovations.

TAB. 1: Basic frequency table of number of presence-absence innovations

		Enterprise A	
		Number of innovations present (1)	Number of innovations absent (0)
Enterprise B	Number of innovations present (1)	a	b
	Number of innovations absent (0)	c	d

where:

a - number of innovations in enterprise A and enterprise B (joint occurrences)

b - number of innovations in enterprise B but not in enterprise A

c - number of innovations in enterprise A but not in enterprise B

d - number of innovations absent in both enterprises (zero-zero matches)

There are mentioned several similarity coefficients in the literature (Petr, 2014; Krebs, 2014; Šarmanová, 2012). Possible coefficients to be used are Jaccard's, Sokal-Micheren, Sorensen, Russel-Rao, Dice, Rogers-Tanimoto, Hamman, etc. Most often used similarity coefficient for binary data is Jaccard's coefficient, which was finally applied in this study. This index does not consider the number d. Jaccard's coefficient (SJ) calculates the similarity by this equation:

$$SJ = a / (a + b + c),$$

where a, b, c are defined above in presence-absence matrix (TAB. 1).

The value of SJ is equal to 1 for a presence of all types of innovations. Value 1 represents the maximum and indicates the maximum similarity of two enterprises. The minimum value is 0 and means total dissimilarity of two enterprises.

Jaccard's index can be modified to a coefficient of dissimilarity by taking its inverse. Dissimilarity is calculated by the equation:

$$DSJ = 1 - SJ$$

The higher value of dissimilarity index means the greater dissimilarity of two enterprises. For the evaluation of similarities, the Jaccard's dissimilarity coefficient was chosen. The result of similarity calculation for two objects (a pair) is one coefficient (number). In case of more entities (enterprises), the result is square matrix of Jaccard's dissimilarity coefficient. Clustering of data is used as the next step of data analysis (Petr et al., 2010).

3.2. Clustering

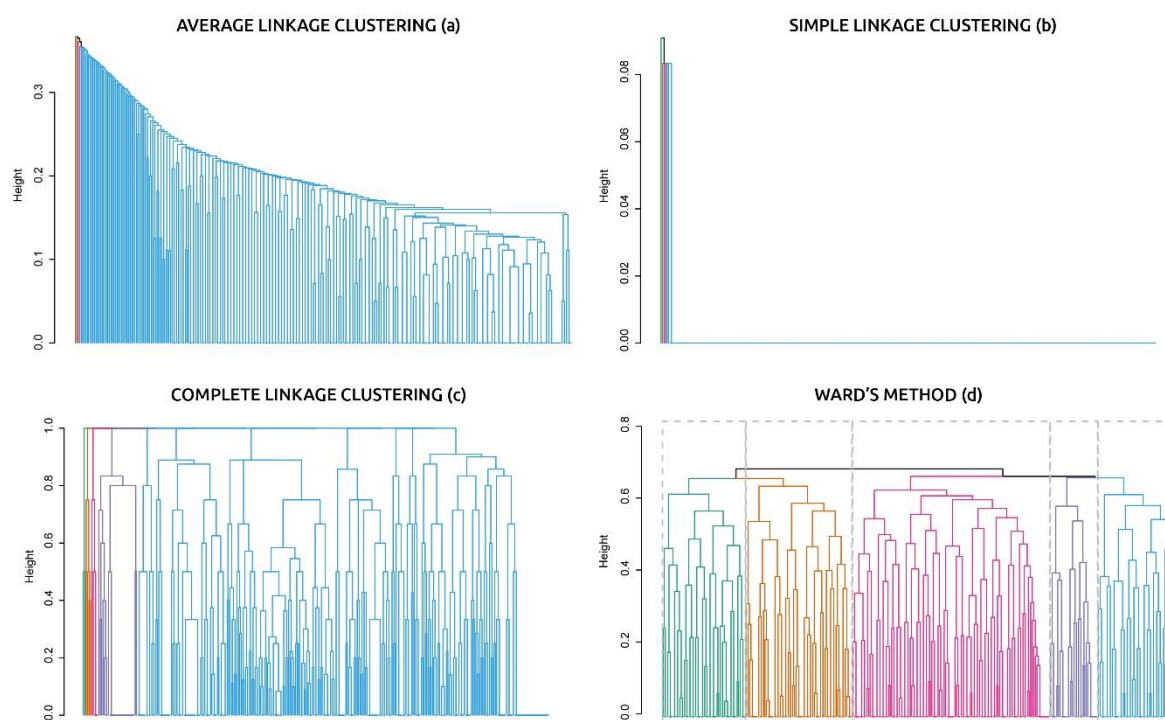
Association coefficients describe similarities between companies regarding the number of applied innovations. However, these results cannot be reasonably visualised, and with a larger number of records (more than twenty), the resulting matrix of coefficients is obfuscatory and misinterpretable. In case of large number of records (large matrix), it is for discussion if any grouping technique based on samples similarity can make the interpretation clearer.

There is no limitation of clustering methods usage to process the values of association matrix. Cluster analysis is a general logical process formulated as a procedure by which individuals are clustered objectively into groups based on their similarity and difference (Tyron, 1939). It helps with investigating of similarity between multidimensional objects and their classification into clusters. Singh and Rajamani (1996) presents possibilities of clustering on binary data using single linkage, complete linkage, and average linkage clustering algorithm. These methods are examples of hierarchical agglomerative clustering, when the objects are classified in the "from the bottom" order, i.e. firstly, clusters are created from individual entities, and in next iterations, these clusters are aggregated together based on their similarities.

Once the (dis)similarity coefficients are determined for pairs of enterprises, clustering algorithm evaluates the similarity between two groups of companies (or a company and an existing cluster), and consequently, the highest similarity is grouped. Final results of clustering can be visualised by a dendrogram, from which the clusters can be read.

Several hierarchical clustering methods were tested: simple linkage clustering (SLC), complete linkage clustering (CLC), average linkage clustering (ALC) and Ward's method. By CLC (FIG. 1c), the dendrogram tends to merge records at dissimilarity value 1. This is because the similarity of each cluster to the others is defined by the least similar pairs among the two, which is often complete dissimilarity. Analogically, SLC (FIG. 1b) merges many records at value 0. For ALC (FIG. 1a) is typical increasing chaining in clusters. The best result is provided by Ward's method with five clusters (FIG. 1d). The number of clusters was defined by the total within-cluster sum of square (WSS), which measures the compactness of the clustering, and it should be as small as possible.

FIG. 1: Dendrograms for different clustering methods



4. Results

In total, CIS 2010 data contains 5,151 records about various enterprises. More than half of the enterprises (2,938) reported any type of innovation activity. Only 21 enterprises innovated in all 12 indicators. They could be considered as the top innovative enterprises. For investigation of similarities and consequence clustering, the sample of data was selected, based on the sector of industry C – Manufacturing (TAB. 2) with the use of the classification of economic activities in the European Community (NACE) (Eurostat, 2008). The selected codes are from code 11 (Manufacture of beverages) to 15 (Manufacture of leather and related products). The total number of enterprises is 631, from which 334 of them have gone through any innovation activity.

TAB. 2: Statistical overview about enterprise innovations - selected sectors

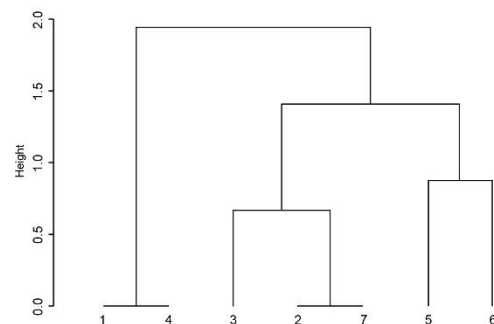
Section C – MANUFACTURING INDUSTRY		
Code of sector (according to NACE)	Manufacturing Sector	Number of innovating enterprises
11	beverages	81
12	tobacco products	2

13	textiles	127
14	clothing	135
15	leather and related products	71

Unfortunately, the clustering of hundreds of records did not bring relevant results. The problem is following – two companies are similar to each other and have a certain value in the association. Another two different companies may be similar, with the same Jaccard's coefficient, but in other innovation types. Cluster analysis merges all of these records into one, which results in erroneous interpretations. In the extreme case, companies that innovate in all categories, along with companies that have only one innovation, can appear in one cluster. This phenomenon is due to the large variance of the association coefficient values. For comparison, smaller samples were tested – Olomouc district (69 records), Prostějov district (19 records), and Jeseník district (7 records, see FIG. 2 for Jaccard's coefficient results and the final clustering dendrogram). In this smaller datasets, clustering produced better (more relevant and interpretative) results.

FIG. 2: Example of the Jeseník district

ID	1	2	3	4	5	6	7
1	0.000						
2	1.000	0.000					
3	1.000	0.500	0.000				
4	0.000	1.000	1.000	0.000			
5	1.000	1.000	1.000	1.000	0.000		
6	0.875	0.875	0.750	0.875	0.875	0.000	
7	1.000	0.000	0.500	1.000	1.000	0.875	0.000



5. Conclusion and discussion

The calculations of the associations' coefficients have proven to be an appropriate tool for detecting similarities in binary data. Due to a large number of available coefficients, some expertise is needed to select a suitable one. The resulting matrix of similarities allows to compare individual pairs of records easily, but it does not offer added synthetic information that would help in classifying records into smaller generalised groups. For this reason, cluster analysis methods have been tested. Calculations show that for more records, there is no easy-to-interpret pattern in the final clusters, and therefore clustering is not very appropriate for this type of data. Cluster analysis has proved good results for small number of records (up to 20), where a dendrogram can be used as a visualisation tool for detection of (dis)similarities. Enterprises with the same type of innovations can be revealed this way. However, with the rising value of dissimilarity (FIG. 2, y-axis), correctness is

decreasing. For future research, it would be useful to use other methods that would take into account not only the number of innovations but also their order (type) in the dataset.

Literature:

Cooke, P. (1992). *Regional innovation systems: competitive regulation in the new Europe*. Geoforum, 23(3), p. 365-382.

ČSÚ. (2013). *Statistické šetření o inovacích – metodický přehled*. Retrieved from <https://www.czso.cz/documents/10180/20542669/21300314m.pdf/>.

EUROSTAT. (2008). *RAMON – Reference And Management Of Nomenclatures*. Retrieved from http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2.

EUROSTAT. (2012). *The Community Innovation Survey, The harmonised survey questionnaire*. Retrieved from <http://ec.europa.eu/eurostat/documents/203647/203701/Harmonised+survey+questionnaire+2012>.

Kirton, M. (1976). Adaptors and innovators: A description and measure. *Journal of applied psychology*, 61(5), p. 622.

Krebs, C.J. (2014). *Ecological Methodology, Chapter 12 Similarity Coefficients and Cluster Analysis*, retrieved from http://www.zoology.ubc.ca/~krebs/downloads/krebs_chapter_12_2014.pdf.

Maillat, D., Quévit, M., & Senn, L. (1993). *Réseaux d'innovation et milieux innovateurs*. Réseaux d'innovation et milieu innovateurs: un pari pour le développement régional. Paris: GREMI/EDES.

Petr, P. (2014). *Metody Data Miningu*, part I. University of Pardubice, Pardubice.

Petr, P., Krupka, J., & Provaznikova, R. (2010). *Statistical Approach to Analysis of the Regions*. In H. Fujita & J. Sasaki (Eds.), *Selected Topics in Applied Computer Science*. Athens: World Scientific and Engineering Acad and Soc.

Porter, M. E., & Ketels, C. H. (2003). *UK competitiveness: moving to the next stage*, (UK) Department of Trade and Industry economics paper no. 3.

Singh, N. and D. Rajamani (1996) *Similarity coefficient-based clustering: methods for cell formation*. Cellular Manufacturing Systems. Boston, MA: Springer US, p. 70. DOI: 10.1007/978-1-4613-1187-4_4. ISBN 978-1-4612-8504-5.

Sternberg, R. (2000). *Innovation networks and regional development—evidence from the European Regional Innovation Survey (ERIS): theoretical concepts, methodological approach, empirical basis and introduction to the theme issue*. *European Planning Studies*, 8(4), p. 389-407.

Šarmanová, J. (2012). *Metody analýzy dat*. VŠB – Technická univerzita, Ostrava

Tryon, R.C. (1939). *Cluster Analysis: Correlation Profile and Orthometric (Factor) Analysis for the Isolation of Unities in Mind and Personality*. Edwards Brothers, Ann Arbor.

Vaculík, M., Pászto, V., Švarcová, B. (2017): Spatial distribution of innovation activities in Czech Republic, 2010-2012, *Journal of International Studies* 10(1), p. 123-134, DOI: 10.14254/2071-8330.2017/10-1/8.

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CHINESE BRAND NAMES IN ENGLISH: AN OUTLINE OF THE MAIN ADOPTION METHODS

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Abstract: *Before entering a foreign market, there are a number of factors that have to be considered. Apart from other things, an understanding of the cultural context should be involved in the preparation process. Despite language differences, brands are often presented to foreign customers under unchanged name, among others to ensure the brand integrity. Difficulties might arise, however, when entering a country with a different type of writing system, such as in the case of Chinese companies expanding to Latin alphabet countries. They are faced with a decision as to which way to go when choosing the name in English. There are two main approaches that can be taken into consideration: phonetic similarity or semantic equivalence. The combination of the two, of course, can best convey the brand's essence. This paper provides an overview of adoption methods used by Chinese companies when choosing English versions of their brand names.*

Keywords: *Chinese brand names, grammarology, Chinese characters, Latin alphabet*

JEL classification: *M31, Z13*

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1. Introduction

Brand name is one of the features that constitutes the brand image: it is used to identify and distinguish one seller's good or service from those of other sellers. It is defined as "the part of a brand that can be spoken, including letters, numbers, or words" (Ferrell & Hartline, 2014, p. 199). Considering the fact that the name represents an inseparable part of the brand personality, it can be observed that, generally speaking, it preserves a high degree of cross-language consistency. This might not be easy to achieve, however, in cases of languages that use another writing system. Or to be more specific, the real challenge comes when another type of writing system is used, i.e. a type whose graphemes encode different speech segments.

The high amount of basic graphic units, composed of a number of strokes organized in a squared-shaped spatial configuration, is the attribute that distinguishes, at first glance, the Chinese writing

system from alphabetical scripts. A less obvious difference, which determines the nature of the Chinese writing system, is the more complex form of linguistic information hidden in one grapheme since both the phonological and semantical dimension are activated: with a few types of exceptions, every character corresponds to one syllable and carries its own meaning. In light of this, it can be stated that one character corresponds to a monosyllabic morpheme (Sehnal, 2002, p. 14–15). For a further description, it is also important to note that the most progressive word formation system in Modern Chinese consists of compounding (for details, see Packard, 2001; Švarný & Uher, 2014). The majority of Chinese words are disyllabic compounds constituted of two roots, i.e. two morphemes written down by two characters. Although it is somewhat inaccurate, the term character will be used when referring to the parts of the compounds, considering the significant role of characters in the Chinese linguistic tradition and the grammatological orientation of this paper.

Simply speaking, the Chinese naming system is based on a combination of suitable characters, taking into consideration a number of various criteria. Through the selection of particular Chinese characters, not only can the desired meaning be conveyed, but also various images and associations can be evoked. Creation of names is a complicated process, due, among other things, to the Chinese belief that a good name can guarantee a successful future. The same system is also applied in case of Chinese given names, which are not selected from a specific list of names (such as, for example, in the case of Czech names), but are created based on the personal preferences of the name giver. A number of books, articles or web pages can be found, which can be consulted during the creating process. Most of the books are focused on given names, although one or more chapters concerning different kinds of trade names can be frequently found as well, usually placed at the end of the publications (e.g. Chen & Sun, 2011; Li, 2012; Qin, 2010; Shu, 2006; Zhang, 2004).

Most of the advice in these handbooks can be classified as general marketing strategies, although, linguistically relevant information can be found as well. The basic requirements include that the brand name should be able to be easily read, written and remembered. To achieve this, the brand name should be no longer than three characters (Li, 2012, p. 237). As concerns their graphics, characters with a lower stroke number are recommended, easily interchangeable and traditional; non-simplified versions are to be avoided (Qin, 2010, p. 329–330; Chen & Sun, 2011, p. 266). The graphics of the chosen characters are supposed to be proportionally balanced and easy on the eye. (Li, 2012, p. 234) Concerning the acoustic form, traditional Chinese rhyme schemes are supposed to be taken into consideration in order to obtain a melodious syllable combination (Qin, 2010, p. 333–336). Due to the high level of homophony in Chinese, one should try to avoid possible semantic ambiguity, and that not only relating to Standard Chinese, but also to varieties. (Zhang, 2004, p. 348). Finally, the meanings of the characters should reflect the desired image of the brand, i.e. the company type, the line of business, key concepts, the provided goods or services, the target group of customers, etc. A perfect brand name should be both clear and simple, as well as original in the sense of utilizing linguistic tricks or power of symbolism.

As concerns the language and culture specific differences, the question arises as to how to maintain brand integrity, while at the same time making the brand name easy to remember and pronounce for foreign customers. What makes this task particularly difficult is that the name has to be not only converted from one language to another, but also from one script to another. This paper examines what strategies are used by Chinese companies as concerns the name under which they present the brand to foreign customers whose native language is written down in the Latin alphabet. As English is

recognized as an international language, it is understandable that the English version is developed in the first place. Naturally, some original Chinese names might be easily convertible, while others might be quite challenging. Due to limited space, the purpose of this paper is not to cover the full spectrum of possibilities, but to provide an outline of the main methods applied when adopting a Chinese brand name into English.

2. Analysis

The methods used will be illustrated with brands listed under BrandZ Top 100 Most Valuable Chinese Brands 最具有价值中国品牌100强 *Zuì Jù yǒu Jiàzhí Zhōngguó Pǐnpái 100 Qiáng*. According to their web pages, BrandZ “is the largest global brand equity platform covering over 100,000 brands across 45 countries” (How We Can Help Grow Brand Value, for details see Literature below). Top 100 Chart has two versions, a Chinese and an English one, and as such, represents suitable material for the presented research. Nevertheless, some discrepancies concerning the provided English versions have been noticed and were corrected in favor of the versions written on the companies' web pages.

Two opposite strategies can be expected: the first one giving preference to phonetic correspondence, the second one to semantic equivalence. As will be demonstrated, however, the analyzed companies did not limit themselves to these two methods. As will be observed, companies frequently abandoned absolute phonetic accuracy (as represented by means of the official Romanization system Hanyu Pinyin) or semantic equivalence in favor of a name that was supposedly more attractive for foreign customers. Analysis has shown that the following six main types can be identified. When describing the specific features of the brand names, either the transcription Pinyin or the English translation of Chinese characters is provided, considering its relevance for the provided explanation.

Type A: Phonetic transcription, mostly Pinyin without tone marks

This method was applied, for example, with the following brand names (the category as given in the BrandZ Top List follows in brackets): 华为Huawei (Technology), 苏宁Suning (Retail), 全聚德Quanjude (Catering), 蒙牛Mengniu (Food & Dairy), 云南白药Yunnan Baiyao (Health Care), 五粮液Wuliangye (Alcohol) or 安尔乐Anerle (Baby Care). In case of two brands, the product specification is not included: in 中华牙膏Zhong Hua (Personal Care) the two last characters yá gāo “toothpaste” and in 长安汽车Changan (Cars) the two last characters qì chē “automobile” are omitted. It should also be mentioned that the apostrophe should be used between the two syllables in the case of Changan, i.e. should be correctly transcribed as Chang'an. In addition, several examples of older transcriptions can be found. The Chinese wine company Changyu 张裕 (Zhāng Yù in Pinyin) was founded long before Pinyin was established. It was apparently transcribed by means of Wade-Giles Transcription, however, the umlaut over –u was omitted. Furthermore, two other brands should be mentioned that do not seem to follow the rules of the generally recognized systems. The used letters clearly indicate, however, an attempt to reflect the Chinese pronunciation, i.e. Alcohol Companies 茅台Moutai and 青岛啤酒Tsingtao, in case of the second one, the two word “beer” is omitted in English.

Type B: Modified phonetic transcription

These names preserve the sound similarity with the original Chinese version, although, they are somewhat modified to imitate an English word or sound similar to an existing English word, such as: 腾讯 Tencent (Technology; Chinese pronunciation in Pinyin: Téngxùn), 格力 Gree (Home Appliances; Pinyin: Gélì), 新浪 Sina (Technology; Pinyin: Xīnlàng), 雅戈尔 Youngor (Apparel; Pinyin: Yǎgēěr), 苏泊尔 Supor (Home Appliances; Pinyin: Sūbóěr), 脉动 Mizone (Soft Drinks; Pinyin: Màidòng), 海信 Hisense (Home Appliances; Pinyin: Hǎixìn). One of the analyzed branch names can even be found in the English language lexicon: 百丽 Belle (Apparel; Pinyin: Bǎilì). It is also worth noticing that the name of the brand 美的 Midea (Home Appliances; Pinyin: Měidì) can be found in the Greek proper name system.

Type C: Relatively accurate translation in English

This method is extensively used by companies whose Chinese branch names contain a product or provided service specification, such as: 中国银行 Bank of China, 交通银行 Bank of Communications, 中国建设银行 China Construction Bank, 中国农业银行 Agricultural Bank of China, 中国南方航空公司 China Southern Airlines. There are also companies which use a location indication as part of the brand name, such as 海南航空 Hainan Airlines, 燕京啤酒 Yanjing Beer (Yanjing is the old name of Beijing), 哈尔滨啤酒 Harbin Beer. Some of the companies have a preference for the use of the abbreviation of the English translation, such as 中国工商银行 ICBC, i.e. Industrial and Commercial Bank of China, 中国国际旅行社 CITS, i.e. China International Travel Services or 中国人民保险 PICC, i.e. People's Insurance Company of China. To specify the country of brand origin, the word China is often added at the beginning of the English version of the brand name: 东方航空公司 China Eastern Airlines, 太平洋保险 China Pacific Insurance. A similar method can also be observed in 绿城房产 Greentown China, although this time, the word China is substituted by a specification of the business focus, i.e. 房产 “real property”. Another solution can be found in the case of the beer brand 珠江啤酒: the English translation of the river Zhu Jiang was used at first, and later, the Chinese word 啤酒 “beer” was omitted.

Type D: Modified translation in English

Just as the previous type, these brand names also often contain a product or service specification. What is different is that some modification concerning the core (i.e. the main identification part) of the brand was undertaken. Different types of changes can be observed within the analyzed brand names: a) generalization: 雪花啤酒 Snow Beer, in Chinese “snowflake” + “beer”; b) specification: 东方金钰 Eastern Gold Jade (Jewelry Retailer, in Chinese “east” + “gold” + “treasure”; c) reduction: 如家酒店 Home Inn, in Chinese “like” + “home” + “hotel, restaurant”; d) creation of a new compound: 恒大地产 Evergrande Real Estate, in Chinese “permanent” + “big” + real estate; e) use of other words conveying the general idea: 壁桂园 Country Garden, in Chinese “wall” + “cinnamon, Chinese cassia” + “garden” or 招商银行 China Merchants Bank, in Chinese “recruit, attract” + “business” + “bank”; f) a combination of more changes: 春秋航空 Spring Airlines, in Chinese “spring” + “autumn” + “aviation”.

Type E: Combination of Transcription and Translation

Names of this type combine translated words (product or service specifications) with transcribed Chinese words (core of the brand name), such as 古井贡酒Gujingong Liquor or 永辉超市Yonghui Superstores. Some companies somewhat modified the core part in one way or another. In the case of 明牌珠宝 Ming Jewelry, for example, the word 牌pái “brand” was omitted; in the case of 潮宏基珠宝CHJ Jewellery, an abbreviation was used instead of 潮cháo, 宏hóng and 基jī; and finally, in the case of 保利地产 Poly Real Estate the accurate transcription Bǎolì was adjusted to sound like a natural English word.

Type F: Semantically motivated creation of a new word

Compared with Type B, the motivation factor was not the phonetic matching, but the semantic link between the original Chinese version and the newly created English one: 网易NetEase (Technology), in Chinese “net” + “easy”; 佰草集Herborist (Personal Care), in Chinese “hundred” + “herb” + “collect”; 金地集团Gemdale (Real Estate; in Chinese “gold” + “land” + “group”; 携程Ctrip.com (Travel Agencies; the letter C can be understood as a reference to the word “see”, such as in the case of the abbreviation CUS “see you soon”), in Chinese “carry, take along” + “journey”; 中国石油PetroChina (Oil & Gas), in Chinese “China” + “petroleum”; 中国石化Sinopec (Oil & Gas), in Chinese “China” + “petrochemical industry”. As can be seen, different types of word formation principles are used.

Apart from these six main types, a number of other techniques, usually limited to one or two brand names, can be identified. The home appliances company TCL (initials of the English full name Telephone Communication Limited) already uses, for example, Latin alphabet letters as the official Chinese name. A similar method can be observed in the case of the brand name 中兴 ZTE, although, the initials are only used in the English version and, moreover, one of the full version letters is omitted (full name: Zhongxing New Telecommunications Equipment). The brand Alibaba received its name after a character in Arabic literature (Kim, 2014), thus it was the other way around: Chinese characters were chosen so that their pronunciation reflects the original sound. The brand name 360 (Technology) makes use of numerals that do not need to be converted. The English version of the car brand name 比亚迪BYD (PY: bǐyàdí) was created from syllable initials in Pinyin. The hotel brand name 锦江之星 Jinjiang Inn, in Chinese combining the name of a river + “river” + possessive particle + “star”, used the untranslated name of the river to which the word “inn” (instead of “star”) was added.

3. Conclusion

This paper explored the issue of adopting brand names from one writing system to another. To be specific, it examined the methods applied while creating English versions of Chinese brand names. The analysis has shown that only about one fourth of the brand names were “merely” converted by means of a phonetic transcription, usually by the official Romanization system Pinyin. As can be observed, most of the companies make an effort to have their products acoustically or/and semantically easier to comprehend for foreign customers. The modified version of the phonetic transcription, in particular, and the relatively accurate or adjusted translation are popular adoption

methods. The creation of new words, and combinations of transcription and translation, do not occur so often, at least with the analyzed brand names. One cannot overlook the connection between the typology of the original Chinese name and the adoption method: two or more word names, usually containing the product or service specification, tend to be translated, such as the names of banks, airlines, real estate or insurance companies. In contrast, one-word names are likely to retain some kind of phonetic matching. In closing, it is worth mentioning that the topic of adoption of Chinese brand names for the purpose of foreign market entry offers additional interesting issues which would be deserving of further investigation. This paper highlighted the most important adoption methods, and thus, is to be considered a starting point for a larger sample analysis than can provide deeper insight into the diversity of practices.

Literature:

- Chen, R. 陈荣赋 & Sun, L. 孙良珠. (2011). *Hao Mingzi Hao Qiancheng 《好名字好前程：大全集》* [Good Name Good Future: Complete Collection]. Beijing: Xin Shijie Chubanshe.
- Ferrell, O. C. & Hartline, M. (2014). *Marketing Strategy*. Mason, OH: Cengage Learning.
- Kim, S. (2014, Sep 18). *How Did the Chinese Company Gets Its Name?*. ABC News. Retrieved August 4, 2017, from <http://abcnews.go.com/Business/alibaba-chinese-company/story?id=25591454>.
- Li, M. 李貌. (2012). *Hao Ming Hao Yun: Zui Xin Qiming Baodian 《好名好运：最新起名宝典》* [Good Name Good Fate: The Newest Handbook for Choosing a Name]. Beijing: Jingji Kexue Chubanshe.
- Packard, J. (2001). *The Morphology of Chinese: A Linguistic and Cognitive Approach*. Beijing: Waiyu Jiaoxue yu Yanjiu Chubanshe.
- Qin, L. 秦伦诗. (2009). *Xingming Yingyong Jingyanxue 《姓名应用经验学》* [A Practical and Experience-based Study of Anthroponyms]. Huhhot: Nei Menggu Renmin Chubanshe.
- Sehnal, D. (2002). *Čínské znakové písmo. Jeho povaha a vývoj*. In *Z myšlenek a představ Žluté země* [From Thoughts and Imaginations of the Yellow Earth] (pp. 145–160). Brno: Moravské zemské muzeum.
- Shu, D. 舒大峰. (2006). *Hao Ming de Aomiao: Hao Ming Qi Hao Yun 《好名的奥妙：好名起好运》* [Secret of a Good Name: Good Name Brings Good Luck]. Nanchang: Baihuazhou Wenyi Chubanshe.
- Švarný, O. & Uher, D. (2014). *Prozodická gramatika čínštiny* [Prosodic Grammar of Chinese]. Olomouc: Univerzita Palackého v Olomouci.
- Zhang H. 长河. (2004). *Qiming Shouce 《起名手册》* [Handbook for Choosing a Name]. Nanchang: Baihuazhou Wenyi Chubanshe.
- BrandZ. *Top 100 Most Valuable Chinese Brands 2016*. Retrieved June 29, 2017, from Kantar Millward Brown/ BrandZTM Online <http://www.millwardbrown.com/brandz/top-chinese-brands/2016>.

How We Can Help Grow Brand Value. Retrieved July 28, 2017, from Kantar Millward Brown/BrandZTM Online <http://www.millwardbrown.com/brandz/brandz>.

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PREFERENCE OF STEVIA LEVEL IN COCA COLA: PRELIMINARY FINDINGS IN 50+ YEAR OLDS

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Abstract: Coca Cola Life was first introduced in Argentina in June 2013. In the following 15 months, it was launched also in Chile, Sweden, and the U.K. Since January 2015, it is available in many but not all countries. In the version of Coca Cola Life, which was produced till December 2016, 35% of sugar was replaced by stevia. In the version produced since January 2017, 45% of sugar is replaced by stevia. This opened a limited time-frame for studying preferences between regular Coca Cola, Coca Cola Life with 35% of stevia, and Coca Cola Life with 45% of stevia. The aim of the paper is to investigate if Big Five Inventory personality traits, gender, age, smoking, and drinking of any cola in general influence preferred amount of stevia. The research was conducted in the Czech Republic where Coca Cola Life is not available, so all respondents are equally unaware of (or equally not used to) the taste. All three types of Coca Cola were imported from Denmark in half-liter bottles. With regards to results, conscientiousness (and extraversion) seemed to influence the preference.

Keywords: Consumer behavior, personality traits, Big Five Inventory, stevia, Coca Cola Life.

JEL classification: M31

Grant affiliation: n/a.

1. Introduction

Coca Cola Life, i.e. Coca Cola with some portion of sugar replaced by stevia is sold for four years but it appears that it was not involved virtually in any research. The only occurrence of "Coca Cola Life" in the Web of Science database as a topic is Reuss et al. (2016) that describe the isolation of stevioside and rebaudioside A from dried leaves of the sweetleaf plant and provide the complete set of spectra for stevioside but mention Coca Cola Life only as an example of use of steviosides. Additional three article can be found when searching for "Coca Cola" AND stevia (stev* instead stevia gave the same results) as a topic. One (Anonymous, 2014) announced that Coca Cola Life would be launched in the United Kingdom in September 2014. Another (Da Silva, 2015) reported than stevia, Coca Cola, coffee, etc. are not good for growth of a certain plant. And the last one (Clos, 2008) was about photostability of rebaudioside A and stevioside in beverages - published several years before launch of Coca Cola

Life. Searching for "Coca Cola" AND stev* in the Scopus database yielded ten results. The first was Reuss et al. (2016); following seven results were notes from Food Manufacture from 2011 to 2014. The penultimate result was (Kienle, 2010), who mentioned that Coca Cola sought to patent a stevia-based sweetener and that Pepsi Cola and Merisant seemed to want to undergo an analogous licensing procedure. And the last article among search results in Scopus was again (Clos, 2008).

So, there is no research investigating what factors influence people to prefer Coca Cola Life versus regular Coca Cola. In the version of Coca Cola Life, which was produced till December 2016, 35% of sugar was replaced by stevia. In the version produced since January 2017, 45% of sugar is replaced by stevia. This opened a time-limited opportunity to investigate what influences people to prefer regular Coca Cola, Coca Cola Life with 35% of stevia, and Coca Cola Life with 45% of stevia. The aim of the paper is to investigate if preferred version of Coca Cola is influenced by Big Five Inventory personality traits, gender, age, smoking, and drinking of any cola in general. This paper reports preliminary findings in 50+ year old respondents.

The rest of the paper is organized as follows: The next section describes the questionnaire and the analysis, the following section contains results, the penultimate section discusses these results and the final section summarizes the findings.

2. Data and methodology

Data were collected in February-March 2017 using a paper-based questionnaire. There were 36 respondents 50+ years old from the Czech Republic, of whom 8 were male and 28 female. There were more respondents, who were most likely 50+, but they did not provide information about their age, therefore, they are not included in the presented analysis. Czech respondents were used because Coca Cola Life (35% nor 45%) were never sold in the Czech Republic, so these respondents were not influenced by already tasting, or even getting used to the taste of stevia-flavored cola. (To the best of authors' knowledge, there has not been any other stevia-flavored cola on the Czech market.)

Besides questions about gender, smoking, age, and drinking cola, the questionnaire contained an instrument for measuring personality traits. These were measured using Rammstedt and John's (2007) Big Five Inventory-10, i.e. a 10-item version of the Big Five Inventory questionnaire developed by John and Srivastava (1999), and translated to Czech by Hřebíčková et al. (2016).

Respondents were asked to rank taste of three samples (regular Coca Cola, Coca Cola Life with 35% of sugar replaced by stevia, and Coca Cola Life with 45% of sugar replaced by stevia, all three purchased in Denmark in half-liter plastic bottles) at room temperature, the samples were provided in plastic cups coded with 4-digit codes. Regular Coca Cola was preferred by 23, Coca Cola Life with 35% of sugar replaced by stevia was preferred by 6, and Coca Cola Life with 45% of sugar replaced by stevia was preferred by 7.

The questionnaire contained additional questions which were not used in the analysis presented in this paper.

General linear model was used to analyze impact of age, gender, smoking, drinking cola drinks in general, and five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) on the percentage of sugar in most preferred version, i.e. regular Coca Cola was coded as 100, Coca Cola Life with 35% and 45% of sugar replaced by stevia were coded 65 and 55 respectively. In order to easily compare significance of independent variables, they were re-ordered in TAB. 1, so they follow the order from TAB. 2 and 3.

Just in case the amount of stevia does not linearly influence taste, but the relationship is still monotonic, ordinal logistic regression was used to analyze impact of the same independent variables on the same dependent variable.

Having in mind future research where probably only one version of Coca Cola Life is available, logistic regression was used to analyze impact of the same independent variables on the whether the preferred version of Coca Cola contained stevia or not. Even though it was clearly a binary logistic regression, for practical reasons, ordinal logistic regression function was used. SPSS software was used for the three analyses.

3. Results

First, a full factorial model was used to estimate impact of age, gender, smoking, and five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) on the percentage of sugar in the drink. Since all interactions had all p-values above .6, the interactions were removed from the model. The general linear model only with main effects is provided in TAB. 1.

TAB. 4: Parameter estimates for the linear regression model

Parameter	B	Std. Error	t	Sig.
Intercept	55.096	57.010	.966	.343
Extraversion	8.107	4.475	1.812	.083
Agreeableness	-4.095	4.586	-.893	.381
Conscientiousness	12.262	4.734	2.590	.016
Neuroticism	-.573	4.497	-.128	.900
Openness to experience	.317	4.737	.067	.947
Age	-.058	.552	-.106	.917
[Gender=male]	-15.311	9.532	-1.606	.121
[Smoke=yes]	-13.745	12.490	-1.100	.282
[Drink cola=yes]	-2.235	8.177	-.273	.787

The full factorial model had $R^2 = .300$, $R^2_{adj} = -.050$, $p\text{-value} = .591$. The model only with main effects in TAB 1. had $R^2 = .277$, $R^2_{adj} = .006$, $p\text{-value} = .452$. The effect of conscientiousness is significant at .05 level, and the effect of extraversion is significant at .1 level. The effect of gender is marginally above .1 significance level.

The same model which assumes only a monotonic relationships is provided in TAB. 2.

TAB. 2: Parameter estimates for the ordinal logistic regression model

Parameter	Estimate	Std. Error	Wald	df	Sig.
[Sugar percentage=55]	-.264	7.293	.001	1	.971
[Sugar percentage=65]	1.087	7.314	.022	1	.882
Extraversion	.989	.594	2.771	1	.096
Agreeableness	-.470	.580	.656	1	.418
Conscientiousness	1.458	.656	4.945	1	.026
Neuroticism	-.122	.537	.052	1	.820
Openness to experience	.097	.576	.029	1	.866
Age	-.036	.075	.226	1	.635
[Gender=male]	-1.813	1.252	2.097	1	.148
[Smoke=yes]	-1.773	1.547	1.315	1	.252
[Drink cola=yes]	-.343	1.030	.111	1	.739

The alternative model in TAB. 2 had Cox and Snell pseudo-R² = .244, Nagelkerke pseudo-R² = .298, McFadden pseudo-R² = .164, p-value = .391. The results are virtually the same, i.e. the effect of conscientiousness is significant at .05 level, and the effect of extraversion is significant at .1 level, and the effect of gender is marginally above .1 significance level.

The model which does not distinguish between Coca Cola Life with 35% and 45% of sugar replaced by stevia (coded as 2; regular Coca Cola coded as 1) is provided in TAB. 3. It is worth noting that coding of the dependent variable was reversed compared to the first two models, therefore, the regression coefficients in the third model have opposite signs compared to the first two model.

TAB. 3: Parameter estimates for the binary logistic regression model

Parameter	Estimate	Std. Error	Wald	df	Sig.
[Stevia=yes]	-5.565	8.044	.479	1	.489
Extraversion	-.777	.745	1.089	1	.297
Agreeableness	.608	.651	.873	1	.350
Conscientiousness	-2.201	1.186	3.445	1	.063
Neuroticism	-.002	.586	.000	1	.998
Openness to experience	-.074	.628	.014	1	.906
Age	-.022	.079	.079	1	.779
[Gender=male]	2.748	1.978	1.929	1	.165
[Smoke=yes]	1.719	1.802	.909	1	.340
[Drink cola=yes]	.314	1.225	.066	1	.798

The model which considers only whether stevia is present or not in TAB. 3 had Cox and Snell pseudo-R² = .266, Nagelkerke pseudo-R² = .372, McFadden pseudo-R² = .246, p-value = .309. In this model, the effect of conscientiousness is significant at .05 level again, and the effect of gender is above .1 significance level too. But the effect of extraversion was not found to be significant at .1 level, not even marginally above.

4. Conclusion

Coca Cola Life is sold for a few years now but there is a gap in literature on what influences consumers to prefer it compared to regular Coca Cola. The aim of the paper was to investigate what influences this preference. Big Five Inventory personality traits, gender, age, smoking, and drinking of any cola in general were tested.

Conscientiousness (and extraversion) influence preference of the tested versions of Coca Cola; the higher are respondents in these two personality traits, the higher level of sugar they prefer. Considering the distribution of genders in the sample, it is possible that, in a larger sample, the effect of gender may be significant. According to all three tested models men prefer less sugar (i.e. more stevia).

With regards to preference between regular Coca Cola and Coca Cola Life (regardless of the stevia level), only conscientiousness significantly influenced the preference. This is the most likely setting for future research. It may be advisable to use more statements to measure conscientiousness in future research in order to improve significance level.

Literature:

Anonymous (2014). United Kingdom Coca-Cola to launch stevia-sweetened soda in September. *International Sugar Journal*, 116(1388), p. 557-557.

Clos, J. F., DuBois, G. E., Prakash, I. (2008). Photostability of rebaudioside A and stevioside in beverages. *Journal of Agricultural and Food Chemistry*, 56(18), p. 8507-8513.

Da Silva, J. A. T. (2015). Response of *Syngonium podophyllum* L. 'White Butterfly' shoot cultures to alternative media additives and gelling agents, and flow cytometric analysis of regenerants. *Nusantara Bioscience*, 7(1), p. 26-32.

Hřebíčková, M., Jelínek, M., Blatný, M., Brom, C., Burešová, I., Graf, S., Mejzlíková, T., Vazsonyi, A. T. & Záborská, K. (2016). Big Five Inventory: Základní psychometrické charakteristiky české verze BFI-44 a BFI-10. *Československá Psychologie*. 60(6), p. 567-583.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In Pervin, L. A. & John, O. P. (Eds.), *Handbook of personality: Theory and research*, 2nd edition (pp. 102-138). New York, NY: Guilford Press.

Kienle, U. (2010). A natural product carves out a career [Ein Naturstoff macht Karriere]. *Journal für Verbraucherschutz und Lebensmittelsicherheit*, 5(2), p. 199-203.

Rammstedt, B., John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), p. 203-212.

Reuss, F., Zeller, K. P., Siehl, H. U., Berger, S., & Sicker, D. (2016). Kaa-He-e Natural Sweetness from Paraguay Stevioside from Stevia. *Chemie in unserer Zeit*, 50(3), p. 198-208.

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