

Organizational-economic mechanism of management innovative development of economic entities

**Collective monograph edited by
M. Bezpartochnyi**

Higher School of Social and Economic
Przeworsk (Poland) 2019

Mechanizm organizacyjno- ekonomiczny zarządzania innowacyjnym rozwojem podmiotów gospodarczych

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The authors of the book have come to the conclusion that it is necessary to effectively use modern approaches the management of innovative development the economic entities in order to increase the efficiency of activity, to ensure competitiveness, to intensify innovation activity. Basic research focuses on assessing the innovation processes, the fourth generation of new industrial revolution, diagnosis of sources of innovation financing, assessment of social innovations. The research results have been implemented in the different models of development innovation management, renewable energy, introduction of start-up projects and lifelong learning. The results of the study can be used in decision-making at the level the economic entities in different areas of activity and organizational-legal forms of ownership, ministries and departments that promote of development the economic entities on an innovative basis. The results can also be used by students and young scientists in modern concepts and mechanisms for management of innovative development the economic entities in the context of efficient use the resource potential and improvement of innovation policy.

Reviewers (international scientific editorial board):

Tetiana Cherniavska – *Doctor in Economics, Professor at the State University of Applied Sciences in Konin*

Volodymyr Saienko – *Doctor in Economics, Professor at the University of Management and Administration in Opole*

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INTRODUCTION

Progressive institutional and structural transformations of the economy require intensive updating and provision of programs, plans and projects for the management of innovative development the economic entities, positive changes, significant improvement of the regulatory environment, creation of appropriate conditions for modernization of industries and enterprises on the basis of latest technologies. Providing innovative development the economic entities is impossible without reorganization and improvement of the theory and practice of development of management systems of these processes.

In order to ensure the development of economic entities on an innovative basis in modern conditions of activity the necessary foundation is to intensify innovation processes in all spheres of activity and to direct the efforts of all elements of the organizational structure to the implementation of the tasks. The effectiveness of innovative development the economic entities is determined by the ability of the management system to influence on all business processes of the enterprise and to coordinate its internal capabilities with the challenges of the environment in order to ensure competitiveness and strengthen market positions.

The purpose of writing this collective monograph is to substantiate theoretical-methodological foundations and development a management system of the development of economic entities in a globalizing environment, taking into account transformational changes in the international economic environment.

The object of the authors' research was the process of management the development the economic entities in conditions of resource constraints, the specifics and trends in the development of economic entities under the influence of factors of the internal and external environment, the generalization of world experience in the management of development the economic entities in order to improve efficiency of the formation and use of the resource potential and innovative activity the economic entities in various spheres of the national economy in conditions globalizing.

The subject of research were various processes of formation and effective use of innovative potential the economic entities; formation of organizational-economic mechanisms for management of innovative development the economic entities; use of credit-financial and investment instruments to stimulate innovative development the economic entities; improving of intellectual and personnel potential of innovative development the economic entities; consideration of practical aspects of innovation development management in different sectors of the economy.

Chapter 1

THEORETICAL FOUNDATIONS MANAGEMENT INNOVATIVE DEVELOPMENT OF ECONOMIC ENTITIES

Babayeva Balash

Rahimli Etimad

PhD Student in Economics

Istanbul University

(Istanbul, Turkey)

THE EFFECT OF HABITS ON INNOVATION: A STUDY ON KEYBOARD USE

Introduction

Today's activities are consequences of the history. We do the same thing after we learn to do something new. For this thing we learn, we only ponder during the learning phase, and then we do this work that we are used to. Although the new things that emerged are better, we prefer to do things that are not perfect. Because this is a behavior has been acting on our genes. The reason why we are so connected to our habits is that learning new things actually creates costs. Therefore, it would make more sense to do the job that we have learned at a cost before, even if we think that it is a better job to learn a new job by taking new costs. Paul David and Brian Arthur made some observations by using the example of the keyboard model that we used as an example of our habits in Path Dependence Theory studies. They have shown that our habits affect our future preferences and that it develops depending on our will. We make these choices consciously and continue on our path. The habits affect the innovation activities of the countries.

Habits Die Hard

We sometimes have difficulty understanding the logic of the existing system around us. If we solve how the events have come to this point from the outset, we may be able to understand the logic of the current

situation. Paul David (1985) and Brian Arthur (1989, 1990, 1994) also argued that the current activities of individuals are based on past habits and are therefore the result of the history. David explained the superiority of lower technology, such as the Qwerty keyboard against the Dvorak keyboard, and Arthur compared the VHS and Beta video recorders based on the Pathology Addiction Theory (Liebowitz and Margolis, 1990, 1995). This theory has developed as the idea of the development of low technology and the ability to be locked due to a historical chance, in time, through the course of a learning curve (Barnes, 2012). A pathology dependence theory is a theory based on the fact that the choices among the alternatives have been repeated over time and become habit, and even if they do not yield at the following stages, the preferred way of going back is costly and the result is locked. Arthur has proved this mathematically (Küçükyazıcı, 2014).

At the beginning of the road, the selection made between alternatives prevents the choice of other alternatives along the way. These preferences are transformed into habits in time and this point is called the key point in the path dependence theory. Over time, giving up these habits is both costly and difficult. Thus, dependency on the road has started. However, people think that their activities are based on their free will and choices. But this is not a free choice. In fact, their choice is a result of past choices (David, 1985).

At the beginning of the road, the selection made from alternatives prevents choosing other alternatives along the way. These preferences are transformed into habits in time and this point is called the key point in the Path Dependence Theory. Over time, giving up these habits is both costly and difficult. Thus, dependency on the path has started. However, people think that their activities are based on their free will and choices. But this is not a free choice. In fact, their choice is a result of past choices (David, 1985).

How do these habits affect people's keyboard preferences? In his article, David (1985) stated that, despite the technological superiority of the Dvorak keyboard, he preference has always been for Qwerty throughout history. It has been linked with people's lack of willingness to abandon past habits. Not only are the habits of the users, but also the experience of manufacturers and sellers an important factor. New experience means extra cost. Therefore, each side wants to deal with the production and sale of the familiar keyboard system. In this case, the experience and cost factors take us to the “Learning Curve”, first introduced by the psychologist Hermann Ebbinghaus in 1885 to measure

production efficiency and estimate the costs. The idea behind this is spending of time learning how to perform a particular task. Much more time is needed to achieve higher results. However, over time, the person, while the task is being repeated, specializes in his work and learns how to complete the task quickly. Therefore, this reduces the required time (Kagan, 2019). The gained experience allows you to specialize in your job and form it to a habit. Although there are other alternatives over time, it is difficult to give up the experience and it is costly. So you keep doing what you have already learnt to do.

This has led people to prefer Qwerty over other keyboard systems throughout history. Not only users but also vendors and manufacturers have insisted on not giving up the system they are used to.

Literature Review

When we look at the literature, there are some studies about this issue.

In his study, Barnes (2012) examined the challenge of maintaining high-performance work systems in the USA in the context of Path Addiction and Behavioral Lockdown. David (1985) attributed the superiority of the Qwerty keyboard model to other keyboards in the context of the Path Dependency Theory. Neil (1980) in his article explained the reason for selection between the Qwerty and Dvorak keyboard model by the habits and traditions. In his study, Veblen (1899, 1994) stated that historical events and habits, regardless of being productive or not, are critical in shaping economic choices. Stack and Gartland (2003), in their study argued that, classification should be seen as an assimilated process rather than a result of a random event or historical accident.

Obstacles to Innovation

Today, innovation is one of the important issues in all areas of life. Innovation is a factor that makes life easier for both producers and consumers. While some institutions are aware of the importance of innovation, others are not successful in being innovative. This leads us to discuss the obstacles to innovation. Factors such as institutional resistance, organizational structure and failure to meet market demands are among the reasons mentioned in the studies (Uzun, 2018). But sometimes there are some preventive factors in front of innovation, even

if there is an evolutionary change in the transition to a better system. We can call them traditions and habits (Neill, 1980).

In his study, Avner (1994) argued that our traditions have a very important place in our lives and have shaped our social activities. Showing the traditions as cultural beliefs, Avner examined the collectivist and individualist society in his article and found that throughout history, societies have been carrying out their activities by adhering to their cultural beliefs and they have been forming their cultural beliefs and even the whole area of life in this direction. He cited the example of collectivist societies as an example of Islamic countries, individualist societies and the Western countries of our time. When we look at the results of 2018 Global Innovation Index, it is seen that there is no Islamic country in the first 25. Therefore, it is concluded that the cultural beliefs which Islamic countries have been retained throughout history have prevented development of innovation activities in this context. This does not necessarily mean that Islam is incompatible with good governance, but with the influence of traditions from the past to the present, it means that these countries have failed to compile certain factors at the right time. This distinction, which Avner made in his work, based on the cultural structure, also shows some similarities to the findings in the study named “Religion, Corruption and The Rule of Law”, by North et al. In the study, North focused on the causes of corruption and found a relationship between corruption and religious beliefs. In other studies on the subject, it was concluded that religious beliefs affected many areas from legal system to the education system. Therefore, cultural beliefs affect every aspect of our lives. This is still the case throughout history. As Paul David says, “one damn thing follows another”.

Another obstacle to innovation is habits. We can prove this with the help of detections done via the keyboard system. The Qwerty model has always maintained its superiority in the field. Another keyboard model, Dvorak, has achieved successes for 50 years after his invention, but the remains have not been known throughout history (Neill, 1980). When we look at the history of the keyboard system, we have determined the accuracy of these ideas.

In 1867, the first typewriter was patented and launched by C.L. Sholes. But there were some problems with this machine. One of them was that the order of the alphabet, which was placed in order to write quickly, caused problems due to the proximity of the keys. Therefore, as a result of the improvements made by Sholes and his

friend, the keyboard's alphabet order has been changed and the Qwerty keyboard that we are using now appeared. By 1873, the design of the system had been completely finished. Qwerty failed to be a fast typing system, although the problems experienced in the keys were resolved. Thus, this keyboard system, which Sholes designed to write faster, could only do the opposite (David, 1985). For years, other keyboard models have emerged, but Qwerty has never given this throne to anyone. The biggest rival that is the Dvorak model keyboard patented by August Dvorak and Deeley in 1932, which is still questioned that the why it is not preferred keyboard model. Despite being a superior technological system, only 1000 units of Dvorak were sold in 1939. Although the owner of the patent proposes a better system to the user, the user is not open to these innovative changes (Neill, 1980). Although the advantages of Dvorak are known, neither the users, neither the vendors nor the producers have insisted on giving up Qwerty - a system they have been in control of for years. The experiments have shown that the Dvorak model reduces learning costs and is 20-40% faster than Qwerty, although it is not a preferred model by users and vendors (David, 1985). For keyboard models competing with Qwerty, significant steps were taken in terms of innovation, but no equivalent was found. There may be many reasons for this behavior that we will call irrational. However, many of the reasons that we may consider may be insufficient to explain Qwerty's present dominance.

Because the answer to the question of why Qwerty is preferred is to examine both sides of the coin. Users are on one side and producers and sellers are on the other one. For the users, we can evaluate the situation from the learning curve. Learning Qwerty, which was unrivaled in the early days of its launch, was a cost for users. It also took a lot of time to adapt to this system. The cost and time spent in work have become a habit. This point that in which cost and time turn into a habit is called "key point". This leads us to the Path Theory, Addiction Theory. The user insists on not giving up on the system he / she has settled for, because it has been a cost for him/her to come to this point, even though it does not provide any return in the next stages. If a user changes his/her way, he/she thinks he/she can afford learning the new system and closes his door to innovations. It is more logical to precede the path you already know.

As for manufacturers and vendors, they choose Qwerty independently, rather than as a victim of any system. For the manufacturers and for the sellers, the system that they are accustomed to

is less costly to produce and produce (David, 1985). Therefore, when we look at the picture in its entirety, giving up the habits for all 3 parties creates extra costs.

The keyboard system is not open to innovation. Although more useful systems have emerged in this field, the preference has been for Qwerty since the 19th century. In this area that is not open to innovation, Qwerty has dominated against Dvorak and several other keyboard models.

Conclusion

Path Addiction Theory helps us to identify the reasons behind institutional constraints. In this paper, the reasons of the dominance of the Qwerty keyboard model have been discussed. Although low-tech, Qwerty is superior to other keyboard models, keeping the user's habits unchanged. The reason behind this behavior of users is habits based on cost and time savings. This applies not only to users, but also to manufacturers and sellers. All three sides continue to use the existing non-perfect system, even though there is a more energy-efficient one.

References:

1. Arthur, B. (1989). *Competing Technologies, Increasing Returns, and Lock-In By Historical Events*. *Economic Journal*, Vol.99, Issue 394, pp. 116-31.
2. Arthur, B. (1990). *Positive Feedbacks in the Economy*. *Scientific American*, Vol.262, Issue 2, pp.92-99
3. Arthur, B. (1994). *Increasing Returns and Path Dependence in the Economy*. *University Of Michigan Press*
4. Avner, G.(1994). *Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies*. *Journal of Political Economy*. Vol. 102, Issue 5, pp.912-50
5. Barnes, W.(2012). *Path Dependence and Behavioral Lock-in at Work: The Challenge of Sustaining High Performance Work Systems in the U.S.*, *Journal of Business & Economics Research*. Vol. 10, Issue 6, pp 325-331
6. David, P. (1985). *Clio and the Economics of QWERTY*. *American Economic Review, Papers and Proceedings*, Vol. 75, Issue 2, pp. 332-337
7. Kagan, J.(2019). *Learning Curve*. – Available at: <https://Www.Investopedia.Com/Terms/L/LearningCurve.Asp>. 26.05.2019

8. Küçükyazıcı, G. (2014). *Modelling and Analysing of Path Dependence, Thesis (Phd) İstanbul Technical University, Institute of Science And Technology*, pp.1
9. Leibowitz, S., Margolis, S. (1990). *The Fable of the Keys*, *Journal of Law and Economics*, Vol.33, Issue 1, pp. 1-25.
10. Leibowitz, S., Margolis, S. (1995). *Policy and Path Dependence from QWERTY to Windows 95, Regulation*, *The Cato Review of Business and Government*, Vol.18, Issue 3, pp. 33-41
11. Neill, S.H.B.(1980). *Dvorak vs. Qwerty, Will Tradition Win Again?*, *Phi Delta Kappa International* Vol. 61, Issue 10. Pp. 671-673
12. North C.M., Orman W.H., Gwin C.R.(2013) *Religion, Corruption, And The Rule Of Law*. *Journal of Money, Credit and Banking*, Vol.45, Issue 5, pp.757-779
13. Stack, M., Gartland, M. (2003). *Path Dependency, Path Creation, and Alternative Theories of the Firm*. *The Journal of Economic Issues*, Vol.37, Issue 2, pp. 487-494.
14. Uzun, A.K.(2018) *Obstacles to Innovation*. – Available at:
<https://Www2.Deloitte.Com/Content/Dam/Deloitte/Tr/Documents/Risk/%C4%B0novasyonun%20%C3%96n%C3%Bcndeki%20Engeller.Pdf>
15. Veblen, T. (1899, 1994). *The Theory of the Leisure Class*. Penguin Books Edition

Kálmán Anikó

*PhD of Educational Science,
Dr.habil., Associate Professor
Budapest University of
Technology and Economics
(Budapest, Hungary)*

**THE LIFELONG
LEARNING CENTRE IN
THE EARLY 2000S AS A
NEW FORMATION OF
INNOVATIVE TEACHING
AND LEARNING
A CASE STUDY OF
MANAGING CHANGE AT
THE UNIVERSITY LEVEL**

1989 was a turning point in the history of Hungary, but it is difficult to assess how many fundamental changes have taken place from the point of view of teaching and learning on a regional level. In this paper we aim to summarise the problems with traditional university education, and then create a link to the rest of the article which is about the role of lifelong learning centres. After showing why they are needed, we describe what they do and how they have been supported by the state or other organisations. Then we specifically describe the position in the author's region and the role of the Lifelong Learning Centre in Debrecen.

The paper is divided into the following sections:

- The current political and economic situation in Hungary
- The particular focus on the University of Debrecen
- Changes in the student body
- Teaching and learning methodologies we use in Hungarian higher education
- Innovation and organisational development
- Lifelong learning centres and the institutionalisation of lifelong education
- Basic activities, employability skills, lifelong learning
- A survey of informal learning in Canada
- Our own experiences in Hungary: employability skills in the Eastern Plain Region
- From the experiences of the first institutional survey about informal learning
- Examples of good practice

- The University of Debrecen Lifelong Learning Centre
- Conclusions – What are the key issues for adult learning on the national level?

There is no doubt that 1989 was a turning point in the history of Hungary, but it is difficult to assess how many fundamental changes have taken place from the point of view of teaching and learning on a regional level. First of all, this is because the rhetoric of change identifies the 1945-1989 periods with the 1948-1953 Stalinist era and the Soviet regime. In fact there was a period of rapid civil development between 1945 and 1948 (multiparty system, community participation, free elections with 93% turnout, etc.). During 1953-1957, the dictatorship became hesitant and social self-administration more and more openly organised, which, in 1956, revived the tradition of fight for freedom, which – without the intervention of the Western powers – led to an uprising and its Soviet repression. Between 1957 and 1989, during periods of alternate “loosening and tightening”, experiments were under way with a kind of “market socialism” attempting to bring about state and market co-ordination.

Although there was always a “one party system”, during the Kádár era, the ideology lost its meaning and the main aim became acquisition and consumption. The encouragement of the “entrepreneurial spirit” appeared even in the curricula. The questions of international relations and privatisation remained taboo, but there were parliamentary and local elections, and in the parliament, local matters were discussed instead of today’s political party fights. It was characteristic of this time that local matters could only be resolved if they got to a central level, e.g. if a member of parliament proposed it, if a minister or Kádár himself took the matter in hand, or if the central TV or a film studio producer developed the theme.

This can be regarded as a lack of democracy, but in reality, it was brought about by the revival of two traditional antagonisms. One was the urban and cosmopolitan and populist division between the capital city and the provinces, which is today even more acute than ever in the country’s history: the GDP per capita of the most remote region is only one third of that of the capital city. The other one, discord within public administration, is also traditional, revealing a thousand-year conflict between the powers of the central state and the counties. This is the reason for the situation that today, on the threshold of joining the European Union, Hungary has not been able to fully carry out the country’s regionalisation pursuant to the EU NUTS (Nomenclature of

Territorial Units for Statistics) requirements. Though formally seven regions have been set up, they are in reality loose consortia of the former counties, without powers, resources and proper elections.

Besides the economic development and the public administration traditions, the third factor influencing the present, though also of very old origin, is the discord between liberal and traditional values and subcultures. We refer here to the preservation of tradition, traditional civic and religious conservatism, which (as rightistness) is also strengthening currently in Western Europe. These traditional community values of brotherhood and communal solidarity and the (liberty centred) liberal values currently have the greatest support. The (equality centred) socialist values have relatively few followers; perhaps in the whole of Europe it is in Hungary that social inequality is most acute.

International researches proved [(1) Bródy A. 2000] that the development of disparity already started during the Kádár era, in the 1980s, with the usual symptoms – deterioration of public health, decrease in life expectancy, decrease in the number of the population, etc. In sociology, this is called “perverted redistribution”, when due to social policy the poor are intentionally put in a worse situation than better-off middle or higher-class people. There can be two reasons for this, beyond the fact that even before the change of regime the “market parties” supported the entrepreneurs, and first the catering trade, and today even the health care sectors are transformed into “enterprises”. This kind of privatisation quickly creates wealth because the new enterprises are almost free of public charges, and with advantageous credit facilities a small investment results in huge profits not common in Western business.

After the change of regime this tendency was also reinforced by the political programmes, which intended to quickly create, within a few years, the missing electoral basis of the bourgeois parties, the bourgeois middle class. Though naturally it is not enough to belong to the “middle class” defined only by wealth and income, as the “new rich” have never been accepted by the “higher” classes, it is clear that without a certain income level, it is impossible to create a bourgeois lifestyle and culture serving the social capital growth, as suggested by Putnam’s followers [(5) New Hampshire Charitable Foundation 2002].

The main losers in the change of regime have been the gypsies, as earlier, their employment rate was not lower than the national average, whereas today most of them are unemployed. In practice, this difficult problem has to be solved by the local authorities, who, on the one hand,

have to attract international investment, and on the other hand deal with this unemployment and social problem. They are accused of “segregation”, and the EU is also expecting the authorities to come up with an exemplary solution in this matter.

University education conventionally addresses three layers:

- Prospective researchers who want to increase the community’s attainments with new knowledge, but to achieve this aim, have to know the current results.
- Teachers who are not able / do not want to increase the existing knowledge but to deliver it to others.
- Professionals who ‘apply’ the knowledge, e.g. specialists, engineers, etc.

There are fewer and fewer research projects and researchers in Hungary. Practical professionals cannot use university course materials or they are better informed than the professors themselves. Even the teachers are not able to use tertiary level course materials because they are teaching on the secondary or primary level [(3) Mang, B. 2003]. There is a contradiction between the equivalence of the degrees and difference in interest of the full time / adult learners. For the socialisation of the young, universal disciplines and the detailed elaboration of the subject are needed because the majority of university students do not know what they will do in the future. According to the current assumption, if they have to learn everything, 4-6 years is enough to find an area that can catch their eyes.

By 1 January, 2000, the integrated University of Debrecen had come into being with a diversified student population of 20,000 [(26) Kálmán, A. 2002]. The colleges and universities of Hajdú-Bihar County had been integrated and, as a result, the University of Debrecen started out with five university and three college level faculties. The faculties of the legal predecessors - the three previous large universities of Debrecen - that entered into this union included: the Faculty of Agriculture, University of Agriculture (DATE); the Faculty of Medicine, University Medical School (DOTE); the Faculty of Science and the Faculty of Arts of Kossuth Lajos University (KLTE). Further faculties which had joined on an independent basis by 1 January, 2000 were: the Faculty of Economics and Business Administration, KLTE; Wargha István College, Faculty of Education in Hajdúböszörmény; the Faculty of Health College in Nyíregyháza, and the College Faculty of Engineering, KLTE. As for institutes, the Conservatory of Debrecen joined this structure as a special art education institution. There are additional research institutes in

Karcag and Nyíregyháza, the Experimental Farm and Regional Research Institute in Debrecen, and the Institute of Agroeconomics and Rural Development. Other institutes such as the Institute of Dentistry, the Institute of Pharmacy and the Institute of Law are planning to become faculties in the near future. The School of Public Health has been a pioneer in preventive healthcare policy for several years now. Based on their predecessors, Agricultural, Medical and Healthcare Centres have been formed. ATOMKI, and the institutes maintained by the Church (Kölcsey Ferenc Teacher Training College and Debrecen University of Calvinist Theology) are also affiliated members of the University of Debrecen. Section

There is no mandatory pre-service and/or in-service training in 'educational science' or 'andragogy' for university lecturers. In several forms of Open and Distance Learning, tutor training is evaluated in the framework of project work.

The most common method is lecturing (blackboard and chalk), seminar and consultation but whatever it is called, the lecturer actually dictates what he will ask at the exam. The majority of the students learn in the most conventional way: they read the course material as many times as it is necessary to memorise it. As the Hungarians' reading skill is exceptionally low in an international comparison, and the adults have no time to read anyway, it is quite predictable what the student will say about the topic at the exam. At the written examinations, the miniaturised summaries of the course materials ('cabs') could be a possible help. The lecturing (blackboard and chalk) method is explained conventionally with the lack of coursebooks and printed course materials. The reasons are the following: the writing of course materials is not profitable for the lecturers, and it could make the lecturer redundant as no copyright defends the texts edited by him and its 'stealing' could not be prevented, and the editions with a small number of copies involve financial deficit for the institution.

Some more arguments for the method mentioned above are the following:

- It is not only the cheapest and most secure method, but it actually does not need continuous preparation, it is possible to 'lecture' during the whole day or the whole year.
- The students have become used to oral presentation during the previous 12 years while writing skills became secondary. Correspondence students unlearned reading and writing while suspending their education.

- Present day students were not trained how to use literature and periodicals, and as they did not see such things during the previous 12 years, the majority of the students would not be able to study on their own.

- Actually, even the oral presentation is received in two phases. In a group there are only a few students who understand what the teacher says and they are the ones who explain it to the others. It can be called the ‘method of peer tutoring’.

- The most important fact is that the majority of the tutors are teachers without qualification, who do not really know what else they can do for their salary than to tell what they know or consider as essential about the topic.

Every course at the universities is accredited, otherwise they would consider it ‘morganatic’ and accreditation is required by law as a necessary condition for state financing. Accreditation is only able to assure good quality permanently with the help of a quality assurance system. But in order to achieve good quality and to maintain continuous quality developing, a suitable interest system is needed.

We all remember what has been the end of those elements (books, messages, attitudes) which are not familiar or alien for formal education; they seize them, they mock them.. Nevertheless, at present worldwide and at the national educational change management orders they try to find a solution to the problem of how schools could be such an organization which support and legalise informal teaching and learning [(29) Kálmán A., Jakó M. 2002]. Another trend urges to set up new institutions and make organizational changes in structure which would create the conditions for informal learning. These ambitions always existed, but after founding them these were surviving their economical instability to hire themselves to formal education, which was grappling with lack of emplacement possibilities (which is a persistent peculiar part of formal education).

And at the end, there are a few who find the solution in labelling. Naturally, names represent a high level of cultural capital, but seem weak in themselves. As it is not possible to separate “formal organisation” and “informal organisation” locally, the solution is developing such a mechanism which is capable of continuously ensuring the acknowledgement of the - often conflicting - interests and results of the formal and informal organisation [(25) Kálmán, A. 2002]. These co-operating with each other can solve the always reproduced problems of nurturing and supporting lifelong education with a high

level of creativity.

Referring to the structuring of lifespan into specific intermits and base activities, we acknowledged the natural way to obtain skills of employability, which are more than and constituted a rather divergent frame from Bloom's system of objectives. Due to the logical order of „interacting, activity, skill, competency, resource”, it is obvious to begin our study not with the exact scope of activities or professions when attaching skills of employability to them. Acknowledging and developing these skills are rather infrastructural investments which are preconditions of the society's compatible functioning.

The technical-social-reflective elements in the above table are „layers” of real activities and competencies i.e. in every real competency there is a technical-social-reflective part. The trendiest „learning to learn” paradigm is not featured here as it is a non-existing thing. By it, we mean the methodology and technical-social-reflective competencies of higher level intellectual work (writing, reading, counting, computer studies, problem solving, self-management, etc.). Otherwise, „problem solving” is not a base competency as in the five level process of problem recognition and solution almost every basic competency is required. Real problem solving, conflict management, conducting and administration etc. are far too complicated systems of activities or „integrative competencies”. The fundamental skills („basis of further development”) are communication, managing information, using figures, thinking and problem solving. Self-management (personal skills, attitudes and behaviour being mainspring for personal growth): manifesting positive attitudes and behaviour; assuming liability; accommodating; continuous learning. The skills of teamwork, which are the needed endorsement skills and attributes for the team's results and success, are the following: cooperation and participation in projects and tasks.

Some of the work reported here follows a survey of informal learning that was first carried out in Canada [(6) Livingstone, D.W. 2000]. Livingstone writes about this survey:

“This paper summarizes the first large-scale, country-wide survey of the informal learning activities of Canadian adults (N=1562) which was conducted in 1998. After defining informal learning and briefly reviewing prior studies, the major findings on Canadian adults' schooling and current participation in both further education courses and informal learning activities related to employment, housework, community work and general interests are presented. According to their

self-reports, Canadians are now averaging about 15 hours a week in informal learning activities--regardless of prior schooling or current further education involvement. Comparisons with earlier studies suggest a recent increase in the incidence of informal learning and confirm that people in virtually all walks of life exhibit similar patterns of incidence of informal learning. It also appears that the relative importance of informal learning vis-à-vis course-based education is greater for older people and for lower occupational classes. Potential implications of the massive scale of adults' self-reported informal learning for social and educational policy are briefly noted, especially a greater general appreciation of the extent and importance of informal learning activities. The survey was conducted as part of the SSHRC-funded research network on New Approaches to Lifelong Learning (NALL)."

The important aspects of continuous learning are

1. Having some basic values in your life or priorities in your work
2. Doing something in the world, applying new information and skills
3. Taking the time to inquire and reflect about your life and experiences
4. Getting up-to-date feedback, that is, understood and useful information about yourself and your experiences
5. Removing personal obstacles to your accepting and understanding the feedback
6. Having the courage and humility to change

"... Continuous learning is a way of being in the world. It is not staying busy by continuing to attend one course after another, gathering more and more information." [(7) Kopp, M., Skrabski, Á., Szedmák, S. 1998]. Our most important fundamental assumption is that each activity is learning and each learning is activity. The mentioned "intended-unintended", "formal-nonformal" categories are only relative differences and not borderlines of the systems. We at least can show a few aspects which consider an activity or organisation more "formal" than the other [(16) Harangi, L. 2001].

It would be most appropriate to say that learning is autonomous in the first case, as activity is rationalised for maximum learning, and in the latter case it is heteronym as activity is not organised considering the "law" of learning and development, but focussing on the maximisation of economic etc. profit. To tell the truth, knowledge is just exactly as much as structure and norms of activity form it. The most important question of our survey was the definition of activities to which informal

learning is attached, like work, community, housekeeping, etc., and to define their ratio.

The learning process is always a mutual effect, interaction and transaction of man and its environment. The environment is always the resource of cases and information (facts, instructions, interpretations, valorisations etc.), which can often be represented or simulated as models, while in other cases it is not possible. If someone learns to gallop, sooner or later he/she has to ride the horse.

The only theoretically indispensable element of 'teaching' is valorisation (approval-disapproval), although selected and ordered cases and information without any doubt can speed up and ease the learning process, while raising the question of other special problems. In this interpretation, the phrases 'learning by/from nature' and 'history as a master of teaching' are not only metaphors, but also informal cases of education. Man as an interpreting being can read not only from the book of nature or fate, but can also interpret messages of ghosts and gods allegory of teaching (???). On the other hand, a human being is not disposed to learn from - especially older, often graduated - teachers and does not interpret their communication as a parable.

The school or the course is not the only source of communicative learning; innumerable are those professions and cases where many people make an attempt to inform, influence and develop others. In case someone gives way to these 'parables', it is called nonformal education.

Of course teaching-learning intentions cannot guarantee the learning impact. There is always a chance that 'A' does not want to teach, and 'B' does not want to learn; in these cases 'B' can bear indelible marks of 'A'. In several cases, the opposite practice may appear when common intentions and efforts alongside are unable to yield a result.

Otherwise, proposition of „random learning i.e. learning occurring as an unintended by-product of other activities, should be excluded from informal learning”, sounds like the parable of the man who is afraid to pick up the 'windfall' because it was not within his or her plans. When studying 'random' learning - which is rarely that short to overlook - at most the beginning of learning is 'unintended', but at the very moment we perceive that we learn, we continue or end it as a cognitive process [(14) Hutchins, R.M. 1968].

What is most important: even if we do not consider learning as a purpose, it does not mean that it is not intentional. First of all, we work for money, but if from among two equally paid jobs, one offers the possibility to learn, it is more likely that we choose that one. Like this,

we intended the learning process, came to pass as an additional product of work. However, statistics will exclude it from the listing if it takes the standpoint that work is work and not learning.

Intentional can be distinguished but cannot be derived from unintentional, like formal from non-formal, learning from teaching, work-purpose from not work-purpose and learning goal from not learning goal. Otherwise, learning as a purposive rationality cannot be derived from learning as an inner circulation process.

The concepts of 'curriculum' and 'curriculum development' were unknown in Hungary before. The syllabuses and course materials are centrally developed, recognised and prescribed. In traditional higher education systems, laws and acts set out the obligations of education (which actually are the syllabus) accurately [(12) Bardóczy, A. 1999]. In the case of "accredited higher educational vocational training" and "continuing education subjects towards a specialised degree", a most detailed description of the programme must be attached to the proposals.

Hence, all questions about the curriculum is already decided, and then they wait for those applicants who consider these conditions as just adequate for their needs. If after introducing the course any change occurs, the authorisation of the course or subject is withdrawn. Another reason for the central uniformisation procedure is that EU requirements can only be transmitted in this way; moreover, international negotiations can be conducted well informed enough if this pattern is applied.

Moreover, the case does not exactly appear to be so. Before the political turn, curricula were legislated by the law though the more organisations and teaching staffs applied them, the more interpretations of the unified and general requirements existed. As part of this, everybody tried to figure out the „Central Will”, presuming that others may interpret it in the same way. In spite of this, in Canada, where no central requirement exists and every college follows its own pathways making hard attempts to develop the documentation of its own curriculum so that it should be highly professional, these are so similar to each other that one could only see a difference in their paper-head. The former example is the diversity of unit like the proceeding is the unit of the lately mentioned variety. Nevertheless, the Hungarian educational stream hardly conceals its belief that on a local level, both the students and the instructors are unable to develop proper curricula without central patterns and counselling.

The Training Centre Organisation supported by the Irish, Canadian, Belgian and Danish governments and the World Bank is a mixture of the

advantages of the European learning organisations and the American community colleges, established to satisfy the training and workforce development needs of the new market economy. In these centres, those Hungarian adults who are dropouts from the intramural education system are able to obtain a vocational qualification. At the same time, multinational companies may find this kind of training partners who could be found anywhere in the western world to satisfy their Quick Star-type needs. The fact that the same organisation handles both a competing market and provides social service helps the quicker reintegration of the unemployed and rehabilitated into the labour market. The collaboration between the training places and the higher educational LLL centres can strengthen the practical orientation of the universities, besides the provision of labour market trainings and services for those who have a university or college degree.

‘A learning organisation is such that reacts to new information in a particular way, changing the elaboration and valorisation programme of the information’ – wrote an international expert in organisational development at the beginning of the 90s [(17) Kálmán, A. 2001]. In other words, the organisation will put its service under constant self-assessment, handling it as a variable capital in the trade market which is needed to be reflected on permanently.

Besides, the know-how of this reflection is determined from the point of view of the ‘healthy’ development of the organisation. In case each member of the given organisation could develop and utilise its own potential – ‘doing his or her best’ –, we may make a great stride forward in the enhancement of organisational goals. Nevertheless, the majority of human capacity is wasted in the organisations; energies are not improved and multiplied but detracted and used up in the organisation’s everyday life.

Adequate methods can be learnt and applied to free creative energies. Learning begins on the level of the individual: at first, it is the senior manager who has to acknowledge the urgent need for building a learning organisation. This could jeopardise their position as their individual interests may be hurt when losing privileges and sharing power in advance. At the same time, to experience their colleagues better and the responsible creative sharing in the organisation’s life could be a definite relief to experience.

The five main principles aimed to support the learning organisation are:

- Thinking in organisational structure

- Recognition of mental models
- Sharing visions of the future
- Studying in a team
- Self-guidance of the individual

Considering the above details of the University of Debrecen's adult education system and guidelines, it may seem surprising that during the development of the survey on informal learning, the University of Debrecen Lifelong Learning Centre was founded. From the beginning of its operation, the Rector's Office has assigned multiple duties to the Centre, which has finally found the links for networking both on a national and international level.

The LLC has all the forms of support which extramural education and the newest ODL solutions can provide. To encourage learners and university attendees to make use of the provided support and to ease guidance and decisions of possible "consumers" by the development of learning support systems, both service providers and learners have to know the preferences of learning and the possible types and measures of ODL-ICT interactions. We use several tools to survey learning preferences (styles, habits), but very few reliable data are obtained from the presumably Hungarian adaptations of these tools as Hungarian patterns are not even standardised. We know even less about how and at which level learning preferences determine the choice from the contextual possibilities of learning. Furthermore, we know almost nothing about other aspects, like the ISCED levels of learning, the content of attended course on a university or cultural area, the educational heritage or experience, the disadvantaged peoples' situation and the individual learning difficulties, not knowing how these areas influence the interaction between the personal preferences of learning methodology and learning context. For managing learning professionally, we should know for what kind and how strong learning preferences it is "worth" adjusting learning needs to personal needs. Considering that financing LLL is a key factor in Hungary, the management should optimise the interaction of the learning-teaching-financing triangle. This means we have to tailor learning context in only such a way that the learner can cope with it and ensure that these efforts will not damage his/her learning and will not ruin learning achievement on a wide scale. Considering the results of our surveys, chances to reach most of the learning goals are destroyed for many people when learning in groups of 20-30. The reachable learning performances will not be significantly better in groups of 14-16 people, either, which means that

we halve the size of the groups. The characteristics of effects within group dynamics in micro-groups are changing, too, which can also reduce performance if the teacher is not ready to provide “situation-oriented leadership”. Other contextualised aspects like frontal education, personal tutoring, electronic media conference etc. are secondary, related to learner-tutor parity.

What are the key issues for adult learning at the national level?

- To involve students in planning is not considered anywhere: the curricula and the programmes cannot be modified after the accreditation process while in the development phase, there are no students yet. The students are not allowed to lodge an appeal against the teacher’s evaluation. In case of the newest forms (e.g. Open and Distance Learning, continuing education programmes towards a specialist qualification etc.), under the influence of recent Quality Assurance concepts, learners’ self-evaluation and feedback of satisfaction with the teacher’s work is prescribed as mandatory [(20) Kálmán, A. 2000].

- What the fact involves that the question of adult education is not conceptualised on a national level still lacks clear relevance. The law on this subject is under evaluation at present, but it will only be a legal document - the frame of lately orders -, and not a new opening for LLL.

- Learning is not a problem on a macro-level in any of the ages, as in Hungary multi- or overapplication is a characteristic feature; courses and trainings are attended in a great number – education is among the most profitable businesses these days.

- Experts and politicians are continuing their endless debate on the institutional structure, the national basic training curriculum, the question of religious education and quality assurance - accompanied with the complete indifference of the community.

- Our education system is traditionally selective, information-oriented, teacher-centred, routine-based and mechanical.

- People think that there are some who like studying and are able to study (the minority), and there are some who do not (the majority), but it cannot be changed as it is innate.

- When mentioning development, they exclusively mean the special education of the handicapped and not the process affecting each individual for a lifetime.

- In extramural vocational training and higher education not even didactic qualification is required for working as a teacher.

- Otherwise, formal learning is considered as a necessity for obtaining a „paper” (certificate), which must be forgotten as soon as possible.

- The most common ICT (announcing technique) is dictation, when the teacher declares what is necessary to be learned for the examination and how it should be done. If the learner misunderstands something, it is solely his or her fault, so they usually try to keep it in secret. Although there are teachers who are willing to repeat what has been mentioned before, they too become somewhat upset (see phrase: „Not even the preacher says something twice”). Particularly lecturers in IT are embarrassed if learners are not completing the task perfectly the first time they are instructed. Luckily, in this field several teaching softwares exist which are endlessly patient, moreover, they do not explain the same content in the same way, but open up new ways of learning for the student, as well.

- There are not only unqualified teachers, but the lecturers’ didactic culture is also traditionally very weak, researchers say. This problem has been raised on a local level although it is a national problem, as well. The teaching materials are not tailored either to the learners’ needs or to the more practical needs of the employer.

- Higher education sometimes does not represent a „higher level”, but is rather like secondary education; the training material of the universities duplicates the secondary schools’ course material and no one harmonises the two levels. Only the learners are those who select, accommodating to the teacher’s severe examining habits.

- In Hungary, due to a historically shaped mechanism, it was education which transmitted new scientific and technological developments towards industry, economy and community. Employers are not willing to share ideas on the shape and development of the curriculum even today, though with the appearance of the multinational companies it may be more common that the workstation applies such a technique which is unknown for Hungarian education and science.

- With the appearance of multinational companies further problems arise. The tendency shows that multinational companies produce the largest proportion of income but employ only a small part of the workforce. The small and medium size enterprises, comprising more than two third of enterprises, are those who employ most people though due to their low income they cannot spend money on human resources development and training.

- All over the world, higher education lecturers prefer research activities and public duties to teaching roles. In Hungary, this is considered to be natural, as the general view is that the better expert a teacher is, the better he/she is as a teacher, as well.

- The roles beyond knowledge transfer (tutor, mentor, coach, counsellor) are not widespread in university education because the teacher does not consider it his or her duty to take responsibility for each student's learning, but to fail and „drop out” those who are thought to be inadequate by him/her. The higher education act is based on the assumption that the equivalence of degrees between the learners and the training organisations are only guaranteed by meeting unified and common, centralised requirements, without considering content (subjects), local needs and conditions. Actually, even attempts to achieve equivalence is outdated; today transparency is what needs to be assured. On the other hand, formal education of a heterogeneous community of learners can only lead to heterogeneous learning outcomes. Or formulating it differently, the formal education of a heterogeneous learning community could only lead to heterogeneous learning outcomes. This is not acknowledged as part of uniformised education, but as the „Law” of the grades even share. Besides, it is a mistake again as normal share could only be natural in an occasional multitude. This could appear in the first grade of primary school, though actually it is not the relevant there, either, as those who are „unprepared” for school are separated, while many parents carefully select from a wide range of schools, and in the „elite (?)” schools, distribution of learners could not be considered as occasional. Moreover, high schools are frankly as selective as higher education.

- Educational laws misinterpret the constitution when talking about assuring „basic rights to learn”; the constitution announces the „right for cultural education” which is translated into English with the word „education” as in the case of pure teaching ??? Parallel with this, the constitution misinterprets the Announcement of Civil Rights, when it assures the right for higher education by ability, talent and faculty. The Announcement talks about assurance according to merit, which means anything here but ability.

As Hungarian education considers ability not as the outcome but rather the precondition of education, not dealing with the improvement of skills and competencies is more provisional. Since the proper meaning of ‘skills’ and ‘competencies’ were unknown before the political changes, only those are familiar with these elements of the

terminology who are involved in some of the programmes of the EU or World Bank [(23) Kálmán, A. 2001]. For most of the people, ‘skills’ do not only represent a learning element but also a level, while competency means ‘responsibility’ and not the skill for the completion of some activity or task, which contains ‘skills imparting willingness, knowledge and attitude’.

References:

1. Bródy, A. (2000). *A magyar felsőoktatás ingadozásairól. (in English: The fluctuation of Hungarian higher education).* Közgazdasági Szemle, XLVII. évf., 2000. Oct., 817- 831.
2. Mang, B. (2003). *A magyar felsőoktatás jövőképe. (in English: The vision of Hungarian higher education).* BMEU Conference, 22-23 Jan. 2003. www.bme.hu/bmeu/eloadas_2_1.html
3. New Hampshire Charitable Foundation (2002). *100+ Things You Can Do to Build Social Capital. Social Capital in New Hampshire,* <http://www.bettertogethernh.org/100ideas.htm>
4. Livingstone, D.W. (2000). *Exploring the Icebergs of Adult Learning: Findings of the First Canadian Survey of Informal Learning Practices. The Canadian Journal for the Study of Adult Education.* <http://www.oise.utoronto.ca/~dlivingstone/icebergs/index.html>
5. Kopp, M., Skrabski, Á., Szedmák, S. (1998). *A szociális kohézió jelentősége a magyarországi morbiditás és mortalitás alakulásában. (in English: The importance of social cohesion in the variation of morbidity and mortality in Hungary).* In: *Magyarország az ezredfordulón, Népeesség, orvos, társadalom* (Glatz, F.ed.)MTA, http://www.mpsz.org/kopp_skrab_szed_1.htm
6. Bardóczi, A. (1999). *Mi bajotok az iskolával?. (in English: What's the matter with schools?). III. Lifelong Learning. Új Pedagógiai Szemle.* (source: <http://www.oki.hu/cikk.asp?Kod=1999-10-mu-bardocz-Mi.htm>)
7. Harangi, L. (2001). *A folyamatos változtatás képességének fejlesztése és a regionális foglalkoztathatóság növelése. (in English: Development of the ability to change continuous and expansion of regional employability). Case Study, Report and Source of Literature, National Employability Foundation (OFA), DRMKK.*
8. Hutchins, R.M. (1968). *The Learning Society.* F.A. Praeger Publishers, New York / Washington / London, p 122.
9. Kálmán, A. (2001). *The Teaching Organisation as a Learning Organisation. Lecture on 'Salzburg Talks'. Wien, Austria.*
10. Kálmán, A. (1998). *A felnőttképzés megújítása 2000-ig. (in English: The*

- renewal of adult education until 2000). In: A magyar felnőttoktatás története című konferencia dokumentumai, Debrecen, 1997. Oct. 6-8. Felnőttoktatás, továbbképzés és élethosszig tartó tanulás FTE 18 Budapest, 259-263.*
11. Kálmán, A. (1998). *Experience of OECD Country Report on Lifelong Learning. International Seminar, The Role and Organisation of Adult Education in the Period of Transition, Tallinn, 5-8 November 1998, www.andras.ee/papers/kalman.html*
 12. Kálmán, A. (2000). *Felnőttképzési törvény: alapelvek, javaslatok. (in English: The Adult Education Act: basic principles and proposals). In: A fejlettek sarkában lenni. A felnőttképzési törvény előkészületeinek keretében szervezett nemzetközi szakértői szeminárium dokumentumai, Oktatási Minisztérium, Nemzeti Szakképzési Intézet, Budapest, 25-29.*
 13. Kálmán, A. (2001). *A felnőttoktatás módszertana. (in English: Adult education Methodology). Kultúra és Közösség. 2001. IV. - 2002. I. szám 175-184.*
 14. Kálmán, A. (2002). *Tanulásszervezetek-szervezett tanulás: Felnőttoktatás, Ifjúság, Művelődés. (in English: Educational organisations – organised education: adult education, youth, culture). Felnőttnevelés, Művelődés. Acta Andragogiae et Culturae sorozat, 19. szám. Debreceni Egyetem, 18-35.*
 15. Kálmán, A. (2002). *Az életen át tartó tanulás koncepciójának és a Debreceni Egyetem Lifelong Learning Központ működésének bemutatása. (in English: The concept of lifelong learning and the introduction of the University of Debrecen lifelong Learning Centre). In: Horváthné Bodnár, M. (ed.) Partnerség az élethosszig tartó tanulásért. Az európai modernizációs folyamatok a magyar felnőttoktatásban. FTE 27., Budapest, 43-56.*
 16. Kálmán A., Erdei G. (2002). *A Lifelong Learning Központ empirikus távoktatási felmérése az Észak-Alföldi Régióban, valamint a távoktatás regionális helyzete. (in English: The empirical assessment of distance education in the North Plain Region and the regional conditions of distance education), Lifelong Learning Füzetek, Debrecen, 1-60.*
 17. Kálmán A., Jakó M. (2002). *Felsőoktatás és folyamatos tanulás, Lifelong Learning a Debreceni Egyetemen. (in English: Higher education and continuous learning, Lifelong learning at the University of Debrecen), In: Művelődés-Népfőiskola-Társadalom. A Magyar Népfőiskola Társaság negyedévenként megjelenő folyóirata, ISSN: 1218-1455, www.nepfoiskola.hu/mntlap/archiv/2002_1/debrecen.htm*

Ženko Zdenka

*PhD in Economics, Full Professor
Faculty of Business and Economics
University of Maribor*

Hudek Ivona

*Master of Economics, Young Researcher
Institute for Entrepreneurship and
Small Business Management
Faculty of Business and Economics
University of Maribor
(Maribor, Slovenia)*

INNOVATION MANAGEMENT: SOME MANAGEMENT THEORIES RELEVANT FOR UNDERSTANDING OF WORKERS ROLE

1. Introduction

Innovativeness is recognized in numerous areas of human activities. It is present in e.g. economic, social and individual areas. Innovation management as science is striving to purposefully guide, steer and lead these diverse activities. Due to various activities and diversity of areas also innovation management needs to include such requisite variety.

Some interesting questions about management as a science were presented also by Freedman (1992). In its fundamentals, innovation management derives from the theories of management. Although Western European countries were well scientifically, economically, socially and politically advanced in the early 20th Century, management became the scientific discipline first in the USA. In 1911 an engineer Frederic Winslow published the scientific monography *The Principles of Scientific Management* and described the basic principles of efficient industrial organization.

In the first part of this chapter, we will select and briefly present only some management theories relevant for understanding the role of an individual employee also named worker from an innovation manager's viewpoint.

In the second part of the chapter, we will focus on the theories of the US and Japanese authors who made some great contributions during the 20th Century in the field of product improvement or quality management, which made the foundations of today's innovation management regarding the contemporary improvement of approaches in the business processes. The feature they have in common is giving more

importance to the human aspect in managing the quality, human relations in the workplace, job satisfaction and emphasizing the employees' potential.

A greater understanding of the subject of innovation management will be grasped with a better understanding of the research question. Where innovating takes place? What are the specific areas of innovating, what types of specialists are involved? What is the role of workers in innovation processes? What is innovation management? An interesting awareness of the importance of forming research questions has presented Nobel laureate with Irish father and mother of Slovene nationality, researcher and professor at Princeton University Duncan Haldane (Haldane, 2016). Jaklič (2019) wrote in an interview with Haldane, that in most of scientific problems it is not about searching the answer. It is about accurately defined questions. When in difficult situations, Haldane always focuses on the question and tries to reformulate it. In another discussion at conference Haldane explained that success in science depends not only on learning a lot of facts. It also depends on a critical way of thinking and on asking questions and looking for alternative explanations (Zhang, 2018).

In this chapter we will also apply systemic thinking to search for the objective reality of areas of innovating to acquire a more holistic understanding of innovation management.

2. How can we define areas of innovating?

For a better understanding of areas of innovating have a governmental agency for research - National Science Foundation in the USA together with U.S. Patent and Trademark Office and NBC (National Broadcast Corporation) prepared several series on American innovators. (NSC at https://www.nsf.gov/news/special_reports/innovation/). They also wrote, that innovators and inventions are changing the ways how we communicate, travel and live our daily lives. Innovation is a process, which starts with imagination, combination and develops into the creation of something valuable in society.

Innovation is something that solves a problem in a new way. It is a result of cooperation and team work. Teams are cooperating specialists with different specific knowledge, experiences and methods. In system theory, we will value them for their different viewpoints, which can contribute to the understanding of the problems and a wide variety of ideas, possible new inventions.

Innovation managers work with such teams to develop new solutions into by potential users recognized beneficial novelties - innovations. Their knowledge derives from various management theories. In this chapter, we will briefly present only some, which mention worker, employee as a person motivated to solve problems, as person knowledgeable of problems and with proper training, management and methods capable of solving problems. Today we call them inventors.

3. Beginnings of management with scientific management

As mentioned in Introduction management as a scientific discipline was first developed in the USA and included scientific principles of industrial engineer Frederic Winslow Taylor (1911). At the beginning of 20th century natural sciences were dominant and also Taylor was trying to optimize the use of natural resources, production optimization, calculation of capacity of machines and workers, the highest efficiency of organizations. He was convinced that the main cause of loss of human and natural resources was in poor management of processes, in *unscientific management*.

Taylor's scientific management laid the ground of efficient industrial organization. Scientific managers had duties in four principles - Taylor named them *heads* (p.20): 1. Develop a scientific approach to study the work process and each element of man's work and replace *rule of thumb* (Taylor, p.21 and p.13). 2. Scientifically observe worker and his motivation. Select, train and teach workers to ensure the most efficient method of working. 3. Work closely with workers, cooperate to ensure that work will be done in accordance with the scientific's management principles. 4. An almost equal division of the responsibilities and work is among managers and workers.

Managers are better fitted for responsibilities, while in the past... *the greater part of responsibilities was thrown upon* workers (p. 21). In this new division of duties among managers and workers almost friendly cooperation developed (p.87). Managers were studying, planning and keeping records in workshops, in production units - amongst workers.

Concepts: training, motivation and providing instructions later developed into team work where managers and works could perform specific tasks.

On the other hand, Taylor observed workers' motivation to increase ones' efficiency, to assure lower costs for the company and higher wages for the worker. When the worker did perform his tasks as

instructed by his manager his salary was higher (p.22). So he stayed motivated to be efficient. For Taylor “motivation” has a very different meaning than for Maslow (1970, p.30 and p.260). Taylor’s scientific management was based on training to provide one best way to do an operation and not to value workers’ initiative.

4. Mogensen - father of work simplification

As Taylor believed that the worker needs to be studied by his manager to teach him how to perform his tasks in one most efficient way so was Alan Mogensen studying the similar question: how can worker perform his job in the best way (1932). Mogensen believed, that worker performing his work knows the process much better than a person observing or trying to manage him.

The worker has an important role and is involved in the process of studying the work process or operation and improving them. His theory of work simplification is focused on the human element. Mogensen used symbols to present, describe and study process charts, flow charts. Workers together with managers participate in work improvement. In contrast to Taylor, Mogensen observed workers as treasured resources, the most vital factors in continuous improvement.

Mogensen presented his theory at Work Simplification Conferences at Lake Placid since 1937 and for almost 50 years (Mogensen & Rosarion, 1989). At 1944 Conference participated Ben S. Graham. He learned the methods and used them in The Standard Register Company. He embraced the team approach where employees participated in process improvement and developed the horizontal process flow chart with multiple information flows (Graham, 1950).

Taylor and Mogensen had a very different perception of the importance and role of a worker. But what their both management theories have in common is an early recognition of the workers’ role in the improvement of work task, processes and responsibilities. New problem solutions derive from the participation of workers and managers, on shop floors or in teams.

The third theoretical management concept briefly presented in this chapter was developed by Deming, who found sources of improvements in production - where many innovative management concepts and methods originate.

5. Deming and theoretical concepts of continuous quality improvement

In the post II. World war period Japan was devastated. General MacArthur was the head of Allied Occupational Forces responsible for post-war reconstruction of Japan. Japan at that time had a well-earned reputation of cheap and poor quality consumer goods. They were forced to export in return for food, energy and raw materials. MacArthur provided managers with the literature on quality control improvement prepared by engineers in the US company Bell Laboratories. Japanese culture and practices were so different, that these actions were not enough. So Supreme Command of Allied Forces invited W. Edwards Deming to come to Japan (Ženko, 1999, pp. 30-31).

Deming was a statistician and he applied systematic approach in studying quality as a system. In very simple words: he was detecting, measuring and counting where in the process variations, defects occur. With such information, he taught Japanese engineers and managers to detect variations, defects (Walton, 1991, p. 12).

Deming's method is based on detecting defects in the earliest stages. Counting or measuring their frequency to evaluate their importance, costs. His methods of statistical quality control included eliminating defects, waste and reducing costs. In those days of post-war reconstruction and scarcity of goods, the industry in the USA and in Japan was more concerned with quantities, while Deming's methods were more focused on quality improvements. Also, managers at that time believed, that you cannot have productivity and quality at the same time. When productivity is increased, quality suffers.

But Deming wanted to improve products and quality. He reports that asking production workers "Why is it that productivity increases as quality improves?" Workers responded with: less rework or not so much waste. (Deming, 1995, p. 1). So Deming found out that quality has a different meaning in the USA and in Japan. It also had a different meaning for managers and workers. Workers were among other responses also proud of their workmanship and they were satisfied with their performance.

Japanese managers learned about their responsibilities and used simple statistical methods to detect causes of variation and defects. And Japanese workers knew, that defect requires rework, waste of material and energy and if sold also a possible loss of the customer. The managers, engineers, production workers and suppliers had since 1950

one common commitment: improvement of quality.

Production workers were valuable members with specific knowledge of the task, operating machines and how the job is done. The workers' and managers' knowledge, experiences and methods were shared in search for new solutions to the problems at hand. Term work is not just for production worker, it can be a pilot or a teacher, or administrator.

From Deming's quality improvement circles many other methods derived and today we use them for creative problem-solving in innovation management. Toyota is using such methods or techniques like Kaizen - change for better; 5 Whys, Fishbone or 20 Keys. With technique 5 Whys we try to determine the root cause of a defect or problem. We repeatedly ask the question "Why?". Number 5 relates to the number of questions usually needed to solve the problem.

Deming respected his motion striving for continuous improvement. He would frequently ask: "May I not learn?" (Walton, 1991, p. 13).

In recognition of Deming's contribution to Japanese managers and economy, the Union of Japanese Science and Engineering instituted a prestige's annual Deming award for continuous improvements of products quality and dependability (Deming, 1995, p. vii).

Besides Deming, we are introducing two more quality experts, the US expert Joseph Moses Juran and the Japanese expert Kaoru Ishikawa. They share some common approaches for quality management and have developed their management philosophies, based on the Deming's doctrine, which are now embedded in the foundations of American and Japanese management.

6. Joseph Moses Juran's management philosophies for quality managers

Joseph Moses Juran was born in Romania. At the beginning of the 20th century, he moved with the family to Minnesota, USA. He was an outstanding student, especially in mathematics. In 1924 Juran graduated with a Bachelor in electrical engineering and started to work at Western Electric in the Inspection Department of the Hawthorne Works in Chicago. The next year, as a part of Hawthorne Works personnel, he was trained with newly developed innovative statistical quality control methods. This experience gave Juran a foundation of his later career when he passed on the knowledge and held courses and training on statistical methods to companies' managers.

He also became a professor of Industrial Engineering and Chairman

of the department in New York University's College of Engineering. That position gave him enough time to create a consulting practice and develop his management philosophies. One of his outstanding works is the book *Quality Control Handbook*, released in 1951, which represent the standard reference work for quality managers. Consequently, Juran got in 1952 an invitation from the Union of Japanese Scientists and Engineers to teach Japanese leaders the principles of quality management in order to rebuild their economy (Godfrey & Kenett, 2007).

While Deming in his approach was more concerned with developing a systematic concept of quality improvement, Juran's approach of managing the quality was more practical.

Like Deming's, around 1950, Juran's work was also affected by World War II. Juran went to Japan and hold lectures about managing the quality. He paid special attention focusing on human resources in managing the quality, especially on the role of top-down management (Ross, 2009). He believed that top management is mostly responsible for quality problems and providing the training for them would improve quality and reduce expenses, while increasing productivity (Landesberg, 1999). Whereas workers are encouraged to solve their problems with innovative solutions.

Furthermore, he was best known for using the Pareto Principle in quality management and introducing the trilogy approach: quality planning, quality control, and quality improvement.

Namely, the universal Pareto Principle stands that 80% of consequences come from 20% of the causes or an unequal relationship between inputs and outputs. This principle serves as a general reminder that the relationship between inputs and outputs is not balanced. The Pareto Principle is also known as the Pareto Rule or the 80/20 Rule (Pareto Principle, 2019).

Juran was the first to use the universal Pareto Principle in solving the quality problems in his work. He used terms *vital few* and *useful many* to refer to those few causes that account for most of the effects and to those many others which account for a smaller proportion of the effect (Juran, 2019). Juran believed that it is very important for the organizations to apply the Pareto Principle and with this knowledge to identify that 20%, which means eliminating the 20% of mistakes causing the majority of defects, rewarding the 20% of employees causing 80% of the success and serving the 20% of loyal customers that drive sales (Lopresti, 2018).

Like Pareto, Juran introduced the universal thought process of managing the quality, which fits all functions, all levels and products lines, known as a *quality trilogy*, or also known as *Juran trilogy*. This concept also includes three basic quality-oriented processes: quality planning, quality control, and quality improvement.

Quality planning represents the first step in quality management within organization. The quality planning process includes the identification of the customers and their needs, developing the features of the product that respond to their needs, establishing quality goals that meet needs of customers and suppliers and do so at a minimum combined cost and the proof of process capability. Then, quality control process includes the choice of control of subjects and units of measurement, establishing the measurements and standards of performance, measuring of actual performance, interpretation of the difference and take actions on the difference.

Finally, the quality improvement process includes the prove of the need of improvement, the identification of specific project for improvement, organization to guide the project and diagnosing for discovery of causes, provision of remedies, the prove that remedies are effective under operating conditions and the proof for control to hold the gains (Juran, 1986). The quality trilogy is an example of cause and effect relationships. Quality improvement is focused on reducing chronic problems by inducing structural changes and process improvements.

The purpose of *quality trilogy* is to avoid the cost of poor quality. It is stated that without the change, there will be a constant waste; during change, there will be increased costs, but after the improvement, margins will be higher and the increased costs are recouped (Vijayan & Ramakrishnan, 2014). Similar are Deming's findings that cost reductions are based on saving with reworks and less material, labour and energy wasted in inferior products or services (Deming, 1995)

In addition, the authors Godfrey and Kenett (2007), claim that the philosophy of Six Sigma Quality of the 1980s directly builds on methodologies developed by Juran in the 1960s. The concept of Six Sigma has been adopted by many of the world's leading companies. It was developed in the Motorola factory in America. The goal of the process is to improve the quality of finished products by identifying and removing the cause of the defects, minimizing variability in production and business processes.

The Six Sigma name comes from statistical methods, where the

developed business process can be described as sigma or standard deviation that indicates the size of the deviation in the data group. Motorola calculated that processes centred on target with six standard deviations from the upper and lower specifications would produce essentially perfect products. But since most processes have some shift around the mean, Motorola allowed for a 1.5 standard deviation shift of the mean, meaning, in their terms, a Six Sigma process creates no more than 3.4 parts per million falling outside of the specification limits. The higher the sigma number is, the better.

The Six Sigma process drives out waste and improves the quality, cost and time performance. Six Sigma levels are achieved using the *Define–Measure–Analyze–Improve–Control* (DMAIC) problem-solving and improvement methodology. DMAIC is, in fact, the Juran's' quality improvement steps, later codified in the DMAIC, designed to impact causes so that the effect is an improvement in efficiencies and quality.

Juran is a founder of Juran Institute in Wilton, Connecticut. The Institute provides international training, certification, and consulting services in quality management, Lean manufacturing management, and business process management, as well as Six Sigma certification (Juran, 2019). Doing more with less by employing 'lean thinking'. Lean manufacturing involves never ending efforts to eliminate or reduce 'muda' (Japanese for waste or any activity that consumes resources without adding value) in design, manufacturing, distribution, and customer service processes (Business dictionary, 2019).

7. Kaoru Ishikawa's Fishbone diagram

As mentioned before, Deming's doctrine had a great impact on Japanese innovativeness and quality of the products and services. It was so appreciated that from 1951 the Deming Prize for quality has been awarded in Japan.

Thus, it is important to mention Japanese quality theorist Kaoru Ishikawa, who was awarded the Deming Prize. He was a chemical engineer, born in Japan and worked as a professor at the Faculty of Engineering at the University of Tokyo. In the second period his career, he entered the world of industry and worked as a consultant for development strategies in numerous companies and institutions (Ishikawa, 2018).

At that time, when Japanese industry was most affected by the war, Ishikawa stood out with his contributions for recovering the production

process in terms of quality control. Later on, in the late '70s, most Japanese large companies accepted his concept of quality management.

In that way, Kaoru Ishikawa has expanded Deming's cycle or Plan-Do-Study-Act cycle of quality improvement into six steps by adding two more steps: 1. determination of methods of reaching the goals and 2. The engagement in education and training of personnel. He emphasized the importance of the human aspect of quality improvement and believed that all employees should be included in the concept of full quality control (Ishikawa, 2019). He pointed out the importance of structuring companies' quality training plan for all levels of organization, whose objectives must correspond to the strategic objectives of the organization (Ishikawa, 2019).

In addition, one of his most known contributions is Ishikawa Diagram. It was designed for the identification of potential causes affecting the quality defect. The model contains graphics and is shown below in Figure 1.1. The causes or problems are classified into the categories showed as the fish bones, while the main problem or phenomena (defect) represents the fish's head.

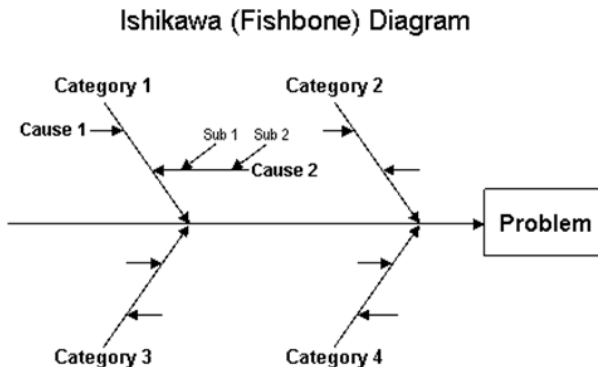


Figure 1.1 Ishikawa (Fishbone) Diagram

Source: Cause and Effect Diagram / Fishbone Diagram (Kaoru Ishikawa), https://www.12manage.com/methods_ishikawa_cause_effect_diagram.html

The Ishikawa Diagram is also called a *fishbone diagram*, *herringbone diagrams*, *cause-and-effect diagrams*, or *Fishikawa diagram*. The model is universal; it is applicable in many areas of work. It can help develop actions for the corrections or preventions of the

defects. A fishbone diagram can be helpful in identifying possible causes for a problem that might not otherwise be considered by directing the team members who have personal knowledge of the processes and systems involved in the problem or event to be investigated to look at the categories and think of alternative causes (Ishikawa, 1990; Ishikawa, 1985).

In 1952, the first company that applied it was the Kawasaki Iron Fukiai Works, in 1952. After their success, many companies that began to implement it improved their profitability and some overcame deep structural and financial problems (Ishikawa, 2018).

Coccia (2017) states that the Fishbone Diagram can be a comprehensive theoretical framework to represent and analyse the sources of innovation.

In addition, we would like to present revised Ishikawa's diagram with the head on the left side.

During the first steps of innovating processes analysis of problems is crucial. In analytical processes vertical type of thinking common in western European countries starts from left to right. Also, problem-solving is more efficient when more critical causes are lined next to the head, and less important causes are positioned closer to the tail.

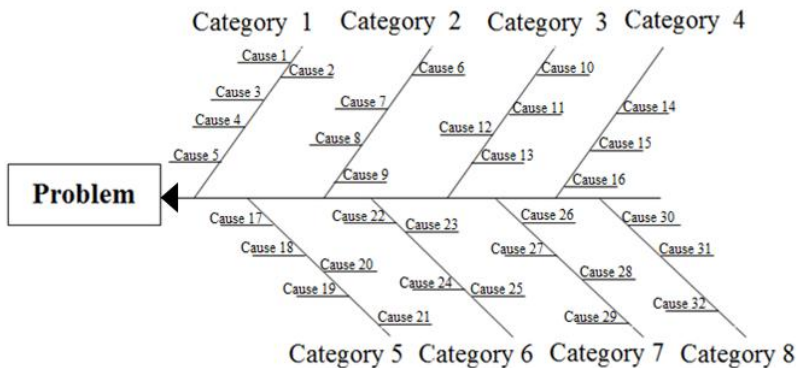


Figure 1.2 Ishikawa's diagram with head on the left side

Source: developed by authors

Another of his great contributions is the Quality Circle presented in Japan during the 1960s. Quality Circle is a practice which includes a group of workers (team) in the organization from any area (who do the same or similar work) of the company to meet together and find

solutions to problems detected or to discuss to improve some aspect of the workplace. The workers are led by supervisors and present the solutions to the management. This practice of Quality Circle is based on participative management, where workers receive greater importance, regardless of their position, in the company they participate in the decision-making and problem-solving processes (Quality Circles, 2019).

Also, this practice has numerous advantages. It changed the workers' perception of the company. They become more motivated and responsible contributions to the improvement of the quality, and at the same time increasing productivity. Ishikawa stated that the purpose of Quality Circle was to support the improvement and development of the company by respecting human relations in the workplace, increasing job satisfaction and drawing out employee potential (Syla & Rexhepi, 2013).

Ishikawa's goal was to produce what he called *thought revolution* - the new ideas about the quality that could revitalize the industry. Widely accepted, recognised and applicable Ishikawa's philosophy and the numerous honors from around the world show how successful his work has been (Ishikawa – Developing a specifically Japanese quality strategy, 2019).

8. Conclusion

As mentioned at the beginning, innovation is a process, which solves a problem in a new way and creates the change - a value in society. Also, it is a result of the cooperation of different individuals with the specific knowledge and experience led by the innovation managers to develop new solutions into by potential users recognized beneficial novelties - innovations.

As a science discipline Innovation management, its fundamental principles, derives from the theories of management developed in the early 20th century in the USA. In the first part of this chapter we presented the management theories of the particular authors who emphasized the importance of the workers' potential in solving problems from an innovation manager's viewpoint and made some contributions in the field of management, which are beneficially used today or like a foundation for today's innovative approaches in managing the business processes.

In the first part of the chapter, we introduced some concepts developed by Frederic Winslow Taylor, Alan Morgensen and W.

Edwards Deming. While Deming was working in the post war Japan, engineers and quality managers willingly participated and adopted new approaches in improving industrial processes. His ideas were not only supported and accepted in industry, also two more quality experts and scientists joined his direction to improve the production processes, namely Joseph Juran and Kaoru Ishikawa.

Juran believed that the top management is mostly responsible for quality problems and providing the training for them would improve quality and reduce expenses. His quality trilogy concept of managing the quality is an example of cause and effect relationships and represents the universal thought process of managing the quality, orientated on the three basic quality processes: quality planning, quality control, and quality improvement. On the other hand, Ishikawa emphasizes also the importance of the human aspect of quality improvement and believed that all employees should be included in the concept of full quality control. Thus, he introduced the practice of Quality Circle which is based on participative management, where workers receive greater importance, regardless of their position, in the company. Also, his other great contribution is a fishbone diagram which can be very helpful in identifying possible causes for problems to be investigated that might not otherwise be considered by the team members.

Deming's approach was more concerned with developing a systematic concept of quality improvement. Mogensen, Juran and Ishikawa's approaches were more practical. They share some common approaches in management and their business philosophies are now embedded in American and Japanese innovation management. Their contribution is not only theoretical. In managing creative processes and other processes in innovating we can use and combine methods like Work simplification, Six Sigma, Kaizen - change for better; 5 Whys, 20 Keys, Pareto Principle, Quality Circle, Fishbone and other.

References:

1. *Cause and Effect Diagram / Fishbone Diagram (Kaoru Ishikawa)*, https://www.12manage.com/methods_ishikawa_cause_effect_diagram.html
2. Coccia, M. (2018). *The Fishbone diagram to identify, systematize and analyze the sources of general purpose Technologies. Journal of Social and Administrative Sciences*, 4(4), 291-303.
3. Deming, Edwards W. (1995). *Out of the crisis. Massachusetts Institute of Technology. Boston, MA*.

4. Freedman, David H. (1992). *Is Management Still a Science?* Harvard Business Review. Nov-Dec Issue, <https://hbr.org/1992/11/is-management-still-a-science#>
5. Fishbone (Ishikawa) Diagram, <https://asq.org/quality-resources/fishbone>
6. Godfrey, A. B., & Kenett, R. S. (2007). Joseph M. Juran, a perspective on past contributions and future impact. *Quality and Reliability Engineering International*, 23(6), 653-663.
7. Graham, Ben S. (1950). *Paperwork Simplification*. Industrial Management Institute.
8. Haldane M. F. Duncan (2016). *The Nobel Prize in Physics. Facts*, <https://www.nobelprize.org/prizes/physics/2016/haldane/biographical/>
9. Ishikawa, Kaoru (1990). (Translator: J.H. Loftus); *Introduction to Quality Control*; Taylor and Francis.
10. Ishikawa, Kaoru (1985). [First published in Japanese 1981]. *What is Total Quality Control? The Japanese Way* [Originally titled: *TQC towa Nanika—Nipponteki Hinshitsu Kanri*]. D. J. Lu (trans.). New Jersey: Prentice Hall. ISBN 0-13-952433-9.
11. Ishikawa, Kaoru – *Developing a specifically Japanese quality strategy*, <https://asq.org/about-asq/honorary-members/ishikawa>
12. Ishikawa, Kaoru, (2018). *History and Biography*, <https://history-biography.com/kaoru-ishikawa/>
13. Ishikawa, Kaoru, (2019). *One Step Further*, <http://www.skymark.com/resources/leaders/ishikawa.asp>
14. Jaklič, Tanja. (2019). *Slovenija ima Nobelovo nagrado*, <https://www.delo.si/novice/slovenija/slovenija-dobila-nobelovca-164165.html>
15. Juran, (2019). *A Guide to the Pareto Principle (80/20 Rule) & Pareto Analysis*, <https://www.juran.com/blog/a-guide-to-the-pareto-principle-80-20-rule-pareto-analysis/>
16. Juran, <https://www.juran.com/>
17. Juran, J. M. (1986). *The quality trilogy*. *Quality progress*, 19(8), 19-24.
18. Juran, J. M., Gryna, F. M., & Bingham, R. S. (1951). *Quality control handbook* (Vol. 3). New York: McGraw-Hill.
19. Landesberg, P. (1999). *In the beginning there were Deming and Juran*. *Journal for Quality and Participation*, 59-61.
20. *Lean manufacturing*, <http://www.businessdictionary.com/definition/lean-manufacturing.html>
21. Maslow, Abraham M. (1970). *Motivation and Personality*. AddisonWesley Educational Publishers Inc. New York.
22. Mogensen Allan H. (1949.) *"Carry Out a Methods Improvement*

- Program". In: Factory Management and Maintenance, July, 1949, p. 66-88*
23. Mogensen, Allan H. (1932). *Common Sense Applied to Motion and Time Study*. McGraw-Hill Book Company Inc., New York.
 24. Mogensen, Allan H., Rosario `Zip´ Rausa. (1989). *Mogy: An Autobiography*. Idea Associates, Chesapeake, VA.
 25. National Science Foundation, *Where discoveries begin. Science of innovation*. https://www.nsf.gov/news/special_reports/innovation
 26. Pareto Principle, <https://www.investopedia.com/terms/p/paretoprinciple.asp>
 27. Lopresti, J. (2018). *Remembering Joseph Juran And His Lasting Impact on Quality Improvement*, <https://www.sixsigmadaily.com/remembering-joseph-juran-quality-improvement/>
 28. Ross, T. Joel. (2009). *Total quality management*, <https://totalqualitymanagement.wordpress.com/2009/06/07/dr-joseph-juran/>
 29. *Quality Circles*, <https://www.inc.com/encyclopedia/quality-circles.html>
 30. Sylva, S., & Rexhepi, G. (2013). *Quality circles: what do they mean and how to implement them? International Journal of Academic Research in Business and Social Sciences*, 3(12)
 31. Taylor, Frederick Winslow. (1911). *The principles of scientific management*. New York: Harper & Brothers.
 32. Vijayan V. & Ramakrishnan H. (2014). *Total Quality Management (For Tamil Nadu Universities)*
 33. Walton, Mary. (1991). *Deming Management at Work*. Perigee Books. Putnam Publishing Group. New York.
 34. Yangfei, Zhang. (2018). *Start science education early: Nobel, scientist*. [China Daily.com.cn, http://www.chinadaily.com.cn/a/201809/17/WS5b9f9754a31033b4f4656826.html](http://www.chinadaily.com.cn/a/201809/17/WS5b9f9754a31033b4f4656826.html)
 35. Zenko, Zdenka. (1999). *Comparative Analysis of management models in Japan, United States of America, and Western Europe*. PhD.Diss. University of Maribor, Maribor.

Zorkóciová Oľília

PhD. in Economics,

Associate Professor

Palušková Hana

Internal PhD. Student

Nogová Kristína

Graduate

Department of International Trade

Faculty of Commerce

University of Economics in Bratislava

(Bratislava, Slovak Republic)

THE GROWING IMPORTANCE OF STARTUPS IN THE COMPETITIVE ENVIRONMENT OF INTERNATIONAL MARKETS

1. Introduction

Innovations are the driving force of all levels of the economy, businesses or organizations. Because of the high risk during creating new products and services, they are being commercialized through isolated formal services, called startups. Currently, they are referred to as the main drivers of technological innovation and they're causing a dynamic growth of a competition in innovative industries. Thanks to this effect, the volume of innovations increases extremely every year, along with the global living standard of the population.

According to GEM (Global Entrepreneurship Monitor) researches, a globally active entrepreneur with high innovation potential creates up to 15 times more jobs than a low-innovation entrepreneur. Only 4% of businesses with such potential may belong to the group of dynamically developing entrepreneurs, whose incomes grow by 20% annually. In addition, they create up to 38% of new jobs, contributing to the economic growth to a large extent. (YAN - GUAN, online, 2018)

The origins of startups are undoubtedly linked to the development of ICT (Information and Communication Technologies). This concept appeared back in 1980 and since then its popularity has been increasing. ICT has had a particularly strong boom in the late 1990s accompanied by the so-called dot-com bubble burst.

The name itself comes from the fact that there has been an enormous increase in newly established Internet companies during this period. Many entrepreneurs were willing to overlook various issues due to the then rising stock prices, good availability of venture capital, great

interest, and market confidence. However, this has resulted in one of the world's biggest collapses in the form of failing companies and their investors. Almost every ICT-branded ".com" and "e-" company has attracted a large number of investors, and so did the stock price. More than 70% of these businesses were not successful in the long-time market, and since their characteristics are very similar to those of current startups, they are known by many experts as first startups (PYTCHON, online, 2017)

In fact, startups are much older. Their development dates back to the 1920s and is associated with the emergence of Silicon Valley. The first successful startups were companies such as IBM, Apple, Google, Microsoft, and others.

The expansion of startups was influenced by several factors of the business environment. One of the strongest phenomena was unequivocally globalization, which has pushed startups to a completely different level than they were in the past. Through this, various market trends and innovations are being shifted, to the transfer of funds, human brains, explosions of knowledge, rapid dissemination of information, deepening mutual assistance between countries etc. All these trends have positively influenced the development of startups and created a natural global environment for them.

Globalization has made startups' financial, knowledgeable and innovation possibilities almost unlimited. The results are internationalized products facing global competition. According to Wells (2001), globalization means a rapid move towards international economic integration, a consensus of political values, processes and principles, and a revolution in Information and Communication Technologies.

Innovation is the core characteristic of startups and globalization is accelerating their growth by creating the right business background for their emergence. Innovation consists of creating a new idea and introducing it into a new product, process or service, leading to the dynamic growth of the national economy and increasing employment, as well as creating a net profit for an innovative enterprise. Innovation is never a one-time phenomenon, but a long and cumulative process of many organizational decision-making processes. (URABE, 2011)

Startups and innovations are mutually supportive and cannot exist one without the other. Ultimately, it could be noted that there would be no startup without innovations.

The aim of our scientific treatise is to emphasize the ever-increasing importance of startups not only for socio-economic development at national levels but with the increasing impact of globalization on the international level as well. Despite all the positive features that characterize a startup company, they are often very "fragile" entities with considerable risks in their business. Because of that, we mention the most important ones with potential elimination. We are also analyzing what inheres at the core of their competitiveness and how it can be strengthened further, pointing to the EU's and Slovak Republic initiatives in terms of helping and strengthening startup companies' positions in the tough competitive environment of international markets.

2. Problem Formulation

A startup can be defined as "a human institution created to deliver a new product or service under extreme uncertainty." (REIS, 2011) This is a type of business that creates an immediately innovative product, most often the technology and is associated with a high degree of uncertainty. To develop a particular form of primordial unique vision requires a long-lasting effort, where the result is uncertain. Their international operating's showing an extremely fast growth due to innovations as the main building element of the company. The size of international competition has been growing and the competitive advantages in different areas can provide a unique value for both the customer and the business inside.

In general, a startup can be seen as a company in the early stages of its business activity or a newly established business that seeks to push its product into the market and ensure its smooth operation in the future. Since a startup is not every newly established business subject, the true meaning of this word is significantly different from the literal translation. A startup requires a prompt connection with excellence and innovation. Information, knowledge, and creativity are the integral parts of it.

Even though many global experts and organizations have defined the concept of a startup business, they have not yet been consolidated and there is no official definition. Thus, its characteristics are slightly different depending on the authors:

- *"Startup is the early stage in the life cycle of an enterprise where the entrepreneur moves from the idea stage to securing financing, laying down the basic structure of the business, and initiating*

operations or trading." (BUSINESS DICTIONARY, 2017)

- Startups are entrepreneurial initiatives with high growth and innovation potential that can boost and sustain smart and inclusive economic growth and also attract foreign long-term investment. They contribute to the development of sectors with high added value, regional and global competitiveness and employment creation of skilled labour. They also make a significant contribution to building Slovakia's image as an innovative economy abroad. (STARTUP 4 DUMMIES, Digital Visions, 2015)

- According to Farlex Financial Dictionary (2017) is startup a starting company focusing on product development and capital accumulation. At least initially almost all startup companies work a deficit. Some of them go through a period when they have no income. Startups spend their time improving their business plans and developing products that will eventually be sold on the open market. Most startups rely on venture capital or loans to continue their business. Also, a startup is an activity or process of putting something into motion and newly established business. It is a problem-solving company where a solution is invisible, and success is not guaranteed. (FARLEX FINANCIAL DICTIONARY, 2017)

The notable American entrepreneur Erik Reis from Silicon Valley has divided the definition of a startup into 3 following statements (Figure 1.3).

As a general rule, a startup is not and cannot be every business. This kind of company must meet certain characteristics that distinguish it from other businesses. Main characteristics are (GRANDO, online, 2017):

1. *Company* - new, recently created.
2. *Innovation* - their product is a unique invention or improved existing product.
3. *Growth* - startups need to grow fast.
4. *Product* - the company's activities are focused on one single product or service.
5. *Team* - the business environment requires a small team that usually includes some recent graduates with little experience, but creative thinking, skills, speed, and the ability to work usually under pressure.
6. *Structure* - at the beginning of the business is experimentating and learning with an unstructured organization and practically without hierarchy and managers.

Startups are bureaucratic institutions, whether they like it or not.

- They develop the process of recruiting of new creative employees to better coordinate their activities, they develop the product itself and also they realize other activities related to reach the final result.

Startups focus on creating new products and services.

- They include the conduct of scientific research, the creation of new technologies and the search for new opportunities to use existing technologies. They also focus on creating innovative business models that open hidden added value, they find a new environment for existing products or services which direct them to a new group of customers.

Uncertainty is an essential part of startups.

- In general, startup is a huge business challenge and the reason is the malfunctioning standard management tools. The most of them work without basic management tools such as forecasting, annual budget, detailed business plans and much more. In order to avoid extreme uncertainty about how to run a business, they need to create their own customized tools for a specific product of theirs.

Figure 1.3 Startup definitions according to Reisa, E.:

Source: Reis, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovations to Create Radically Successful Businesses*. New York: Random House. 228 p. ISBN 978-03-078-8789-8.

7. *Resources* - In the emerging economic (human and physical) resources are usually very limited. In general, they need financial support from investors and without them, it is not possible to ensure their functioning.
8. *Partnerships* - by careful presentation of the company's product, it's needed to convince third parties to offer product-building components: platforms, API¹, open source software outsourcing of some activities and more.
9. *Uncertainties* - their success is never certain and a high percentage of them will not overcome even the early stages of development.

¹ Application Programming Interface

10. *High risk* - linked mainly to uncertainties that can be eliminated through quality risk management.
11. *Adaptability* - startups are very dynamic and able to respond quickly to market changes with new technologies and competitive products.

3. Methodology

Innovation development is one of the characteristic features of developed economies. In today's globalized world, where the speed of information often exceeds the capabilities of businesses, the startup has the extremely strong competition. The so-called hyper-competition causes several interacting factors that affect all market players. The main consequence of this trend is a growing and increasingly high-quality product range due to increased demand and living standards growth. Considerable attention has also been paid to environmental issues in recent years. The highest competition in the mentioned area is observable among the startups, as they are the main producers of eco-innovations.

In a knowledge-based and borderless innovation environment, competitiveness is a prerequisite for business survival. If a startup fails to cope with the competition, it may not have reached its expansion phase.

Assessing Competitive Advantage (Competitiveness) in Innovative Enterprises by IEEE Model

At the same time, the competitive advantage of startups is created by simultaneously acting and interacting with internal resources. Together, they lead to a competitive position and improve business performance. In addition to physical resources, we also include personal resources - the skills and knowledge of employees and other actors involved in the business. Marketing and technology skills make it possible to use them properly and efficiently.

In 2010, IEEE experts (BENEDETTO, Di at all., Online, 2010), the world's largest technical organization, created a competitive advantage model to study the development of the first product of the new enterprise. They identified and explored the capabilities, resources, and knowledge needed to achieve advanced market positioning as well as the successful development of the first product. By professional

questioning from the Chinese market, they expressed an approximate level of competitiveness based on individual responses and set the general recommendations for new businesses.

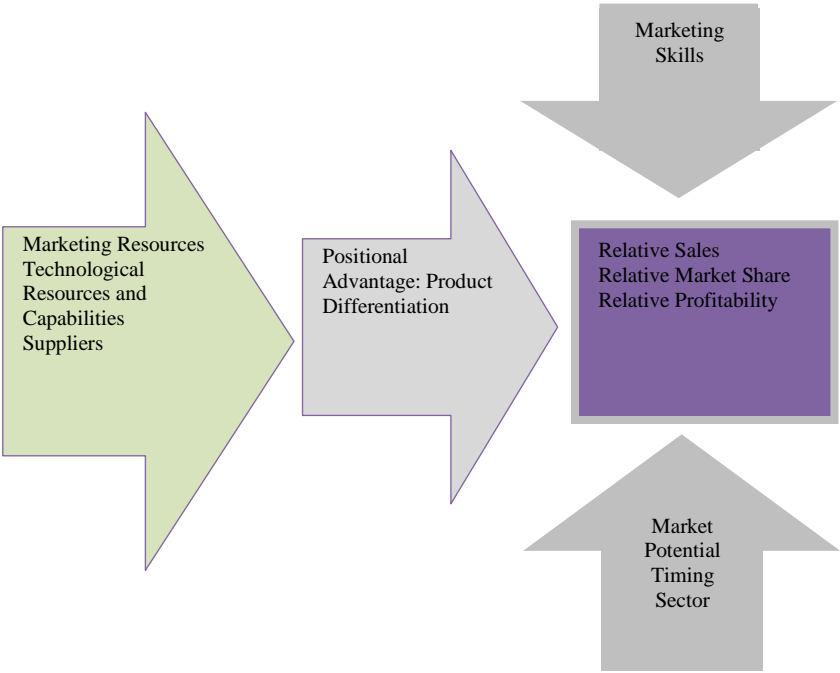


Figure 1.4 Potential sources interconnection of competitive advantage

Source: own processing according to: Benedetto, D. at all. (2010). *Competitive Advantages in the First Product of New Venture*. IEEE [online]. Available at: https://www.vcexperts.com/buzz_articles/664

Research has focused on 3 core groups of resources that could potentially provide a competitive advantage in newly established businesses (BENEDETTO, Di at all., Online, 2010):

Potential sources of positional competitive advantage

Several global experts define key marketing activities that enable businesses to achieve competitive advantages. It includes not only advertising and overall communication, but also a thorough forecast of

sales volume, marketing plan development, marketing research, distribution, and purchasing power. (SONG, 2008)

As startups directly produce innovations and inventions, technological resources and capabilities are their fundamental components. Ultimately, they create the final product and are helping the company to create its first uniqueness. Supporting activities related to the main product, such as product research and development, the development of a prototype and the full use of production resources, also bring significant value.

Marketing and technology resources and capabilities give the company the power to develop a sufficient level of product differentiation to best meet customers' needs. The tech stuff doesn't have enough information for the best feedback possible for costumes without marketing sources.

The market advantage of the product is significantly influenced by suppliers and their capabilities. The scale of their impact depends on the quality of the partnership with the new enterprise and on the extent of involvement (including investment) in the product development process. Research has shown that the greater its involvement in these processes, the higher is the uniqueness of the product. The new company always has a sufficient amount of material, tools, and equipment to distinguish itself and last but not least, can gain extremely valuable information about its competitors on the market. This effect is multiplied if the supplier is a major startup investor.

Positional advantage through product differentiation

The positional advantage is usually defined through the corporate value chain. This includes creating value through product design activities, marketing, support activities (such as procurement), management, and system infrastructure. The most important elements are those which directly affect product differentiation and thus lead to customer loyalty and satisfaction. Research has also shown a positive relationship between product differentiation and product success or between new product projects on the market.

According to several experts, product differentiation is considered to be the most important source of competitive advantage. It has an extremely positive impact on the customer, which ultimately determines the positive state of the underlying financial indicators determining the success as well as the very existence of the business.

These factors are also influenced by marketing resources and capabilities, in particular, the provision of the right distributor and the creation of excellent marketing communications.

Control variables as base of competitive advantage

The market potential is defined by the attractiveness of the target market for the customer, the size of the market and the rate of market growth. It is based on the recognizable customer needs, market potential, the timing of product placement on the market and current sectors' position. As one of the sources of competitive advantage, it can indirectly affect sales, market share, and profit.

The timing of product placement and the complex nature of the industry also make great sense in terms of competitive advantage. The market situation is not always favourable for the new product and many times it is the cause of startup failures on the market. However, markets are changing dynamically that's why correct timing is needed.

4. Problem solution

Startup differences compared to conventional businesses

As we mentioned before, intellectual sources represent a fundamental aspect of success, they can take different forms and play a different role depending on the type of business. Just access to R&D (Research and Development) and the total amount of investment in intellectual resources and innovations are one of the key factors by which a startup can be distinguished from a conventional enterprise.

In practice, we can picture the final product as the fundamental difference between these two types of companies. A conventional company is operating in the market for well-known products. That means its final product/service is already available on the market and the company merely adapts it to the wishes and needs of the consumer.

In the case of a startup, the main product or service is something that has not yet been invented. Such product is an immediate invention and often the result of long-term brainstorming, market research, and consumer welfare research. In promoting its products and services, the intellectual society is at greater risk than conventional. There is a risk that the target market may not accept the invention and consumers will not guarantee the company sufficient returns.

Table 1.1

Intellectual Resources in Conventional and Intelligent Society

Intellectual Resources	CONVENTIONAL SOCIETY	INTELLIGENT SOCIETY
<i>Knowledge Patent</i>	Strength / Result of R&D Activity	Potential of value added / starting point of technology-driven innovation
<i>Market Research</i>	The basis for developing a new product	The starting point for innovative brainstorming
<i>Databases</i>	Individual support tool, control mechanism	High-level organizational and distribution knowledge
<i>Workshop</i>	Exchange of experiences and information	Product development and services
<i>Library, archive</i>	Physical - Collection of documents, books and journals	Virtual - a place for inspiration, informations and their exchange

Source: own processing according to: Boutellier, R. at all. (2000). Managing Global Innovation: Uncovering the Secrets of Future Competitiveness. Tokyo: Springer. 621 p. ISBN 978-3-662-042526.

As conventional businesses are increasingly innovating their products to differentiate their product range from other products of the same type, they invest significant resources in R&D. According to CRADA, firms in the US market have invested an average of \$ 5 billion in research and development, predominantly outside their company. Already in 1994 and 1995, the total number of new corporate R&D agreements was 50% larger than in the previous two years. Since then, the quantity has increased every year. (BOUTELLIER, 2000)

The basic product of smart enterprises is a unique newly created product of mostly technological character. Many experts say that if it is not a technological product, the company cannot be called a startup. Such an "invention" must be preceded by smaller research, which is aimed in particular at the potential interest of consumers in the product, as well as the exploration of proposals for its improvement. In this case, the development and research are the result of a creative individual or a smaller group of people, which does not fall under the cost of the enterprise. When a product or service is created, an intelligent enterprise is established to fight for market penetration. R&D costs have a very different dimension in startups and conventional businesses, especially

in the developing phase.

Starter Alex Loddengaard briefly described the biggest differences between a startup and a large conventional enterprise: (LODDENGAARD, online, 2011)

1. *Responsibility and influence:* startups are characterized by significantly higher responsibilities, but also by great potential for gaining significant influence and financial earnings. On the other hand, they are extremely fragile and if only one *member makes a mistake, the whole organization will pay for it.*
2. *Risk:* extremely high. The period of training and starting is 12-18 months and no profit is generated during that period. If a company has high-quality risk management and prosperity, the CEO will hire new employees who receive a regular salary. However, if the situation is reversed, redundancies occur as a result of saving. Putting into the operation itself is the riskiest because the startup is creating something out of nothing.
3. *Opportunities for general employees:* in large and well-established companies, employees have the opportunity to appreciate and slow down gradual promotion within their specialization. As an example, startup workers could be rewarded with the day-to-day promotion for innovative work performance. Thanks to their general focus they have significantly more opportunities.
4. *Ownership and leadership:* in a large company, it is necessary to wait a few years to become an actual leader with a bulky property. The only way to make significant ownership and management is to start a business. An innovative startup employee goes a lot faster and gets a lot of money if he decides to sell the firm off.
5. *Transparency:* unlike large businesses, most startup information is transparent (as the company grows, why decisions have been made and how the company responds to competition and business plan changes). Certain information remains shared, such as wage and equity compensation, board meetings or investor-sensitive information.
6. *Culture of society:* in both cases, it is created by expanding the characteristics of the founder. The creator of the company has the greatest impact in the early stages of defining the company-wide goals and vision that follows. In startups, creating a culture is a bit easier for business creators, as it is usually a

member of the company that spends most of their free time doing business.

7. *Recruiting of employees:* large companies conduct interviews for a specific specialized position while a creative employee with a general focus is sought after in startups. Because of that, startups generally carry out a larger number of interviews in order to hire someone "exceptional". Long-term experience is not required, it is enough to prove effort, aggressiveness and innovative character.
8. *Financial incentive:* In large companies, the employee will receive instant spreadsheet income. At the starting phase, a startup can only offer employees an ownership interest in the business that will yield high returns in the event of future success. The larger the company, the higher the salary of the employee and the smaller the share of the property. Equity has a "long tail" and this means that the first 5-10 employees will receive substantially higher capital than the remaining employees.

International risks for startup companies and possibilities for their elimination

With the emerging market and the growing demands of consumers, business areas are constantly changing in which startups can significantly increase their potential. Although current market gaps are diminishing, new ones are emerging every day. It is a startup that are the basic means of creating these gaps, which at the same time fill themselves. It can be said that their business opportunities are unlimited as long as they fulfill the essential condition of product uniqueness. Young Business Expert Scott Gerber has contacted several successful startups to create a list of areas with the greatest potential for innovative business, including: (GERBER, online, 2016)

1. *Matching data with mobile content*
2. *Bioenergetics*
3. *Portable technologies*
4. *Marketing*
5. *Health services, robotics*
6. *Strategic partnerships*
7. *Intelligent counterterrorism technologies*
8. *Mobile money*

9. Boring but inevitable markets

10. Non-profit organizations

11. Fitness and gaming

As we have already mentioned, startups have a very high potential for success. If the founders do all the right moves and manage to overcome the initial problematic stages, the company can achieve unprecedented successes and bring the founders significant profits and often fame. During their existence, startups must face various pitfalls and challenges, the most important of which are risks.

If an enterprise is unable to deal with the risks and manage them properly, there is a high probability that it will not even reach the stage of launching the product. According to the Small Business Administration, half of all startups fail within the first five years. But their actual amount is even higher. In 1998, already only 44% of such businesses operated 4 years after their establishment.

Table 1.2

New, Terminated and Bankruptcy Markets in US Markets in 2006-2014

CATEGORY (in millions USD)	YEAR								
	2006	2007	2008	2009	2010	2011	2012	2013	2014
New businesses	670,1	668,4	626,4	552,6	563,4	520,8	518,2	502,1	514,3
Terminated business	599,3	592,4	663,9	660,9	675,1	621,1	605,2	593,2	548,2
Bankruptcy Business	19,7	28,3	43,5	60,8	65,2	61,2	60,3	59,2	55,2

Source: own processing according to: US Department of Commerce. (2014). Firm Employment data. Washington DC : U.S. Census Bureau. [online]. Available at: <https://www.commerce.gov/categories/data>

According to research by the US Chamber of Commerce shown in Table 1.2, the number of new employers had decreased from 2006 to 2014. By contrast, the number of bankruptcies has risen significantly and together with discontinued operations has reached its highest levels in 2008-2010 due to the global financial crisis. Research has also shown that the largest number of terminated and bankruptcy business has caused unforeseen events for which they have not been prepared. (US DEPARTMENT OF COMMERCE, 2014)

A startup risk management expert Sreekanth Ravi has identified five keys risks along with the possibilities for eliminating them, which every innovative business must face:

1. *Product risk.* The founder of the startup must always be convinced that his product is the right one and to convince the investors and later the customers as well.

- *Elimination:* Founders must ensure that the product is able to be deployed on a sufficiently large market, take advantage of the opportunities in this market and all at the right time. It is essential to carry out thorough research, know the country and at the same time be able to clearly define how business fits into the country's market context.

2. *Market risk.* The customer's immediate knowledge can be the most important risk factor to consider before the product is placed on the market.

- *Elimination:* The risk can be eliminated by precise market research and consumer needs so the startup can perfectly meet their needs. Early identification of their potential interest can easily create the conditions for a successful business.

3. *Financial risk.* Nowadays, startups can use various financial instruments such as Kickstarter and Indiegogo, which allow them to obtain funding from the bank. In addition, friends and family called "angel investors" and traditional venture capital are also a major source of their finance.

- *Elimination:* Key business milestones and plans need to be thoroughly identified in time periods when the capital or debt investments are needed to achieve another significant goal.

4. *Team risk.* Teamwork and absolute unity of all, mostly founding members are needed in startups. If the company does not think together and each member pursues its own goals, the startup cannot be successful.

- *Elimination:* A great team and mentor are the solutions to company affiliation. All necessary ways of communication, discussion and brainstorming should be used. Investing in people who believe the product stimulates a sense of trust. (RAYMOND, 2015)

5. *Implementation risk.* Many entrepreneurs devote too much attention to detail and completely lose sight of the company's overall trajectory and strategy. Some company founders are superficial and overlook the important details that lead to serious problems.

- *Elimination*: Particularly in the early stages of development a dichotomous approach to detail is important, along with a focus on overall business implementation. (ZWILLING, online, 2013)

In addition to the listed risks, startups are facing political, tax, economic, environmental, cultural, competition, operational, technological, strategic, market entry and many other risks.

The competitiveness of innovative firms in international markets and the possibility of their strengthening

In a knowledge-based and borderless innovation environment, competitiveness is a prerequisite for business survival. If a startup fails to deal with the competition, it may happen that it does not reach its development phase.

Due to the massive concentration of startups, hyper-competition achieves extreme values in several territories around the world, with Silicon Valley undoubtedly ranking first. Other American cities include Salt Lake City, Tampa in Florida or Huntsville in Alabama. Among the European startup centres: London, Berlin, Paris, Amsterdam, and Barcelona stand out.

Basically, it is possible to understand competitiveness as the ability of companies to survive in the external environment alongside other companies operating in the same sphere. This means that competing companies produce the same or related products, which may not be the case for innovative businesses. Their main product is a new technology or service and therefore, in rare cases, two or more startups are fighting the same product on the market. However, if such a situation occurs, the fight between startups is much more intense than between two ordinary businesses.

Another common problem in startup competition is the promotion of related products or similar technologies. At that time competition among startups is comparable to one of an ordinary business on the market.

To be competitive a company must have one or more *competitive advantages*.

As with ordinary businesses the needs and interests of the consumer are paramount even in startups. Their product should be from the initial to the final phase in accordance with the requirements and ideas of the future and thus potential consumers. This condition can be met through in-depth market research to discover and fill the market gap, but also by

creating a complementary product that will greatly increase the added value of an existing product. The better the product is adapted to the market and to the consumer, the higher the competitive advantage it has on the market.

According to Porter, every business can have a sustainable competitive advantage in the following two areas: (PORTER, 2008)

1. *Product differentiation*

Product differentiation is an absolute priority for startups and is an innovative or improved already existing product. However, no innovation lasts forever and sooner or later will be duplicated or imitated by competition. Therefore, the uniqueness of the product must be constantly increased, supplemented and new if the previously added value is lost.

2. *Low cost*

They consist of giving the consumer the same value at a lower price. If the startup understands the possibilities of minimizing costs in relation to the competition and thus applies an innovative way of management, it will create a competitive advantage. A breakthrough in (patented) production technology or a new revenue model can lead to an efficient cost reduction over competitors. In a small and medium-sized business environment, this journey is much more difficult and riskier than the differentiation of large company products.

An effective strategy to ensure these two competitive advantages is: "*Don't sell the price but sell the value.*" (MYKHOPARKINA, ONLINE, 2017) Consumers along with the product also buy a story that is hidden in it - different feelings, possible solutions to their problems, better models of themselves. Innovative businesses should only consider a lower price for their products as a temporary competitive advantage compared to their competitors because it is very difficult to maintain.

Other major areas where startups are competitive are: (TUNGUZ, online, 2016)

- a) *Intellectual property* is currently the best competitive advantage and at the same time is a separate competitive advantage. It can take several forms of varying intensity, for example, patent, trademark, trade secret, unique domain name, long term partnership agreement, copyright.
- b) *Location and brand*. So-called "*positioning*" is very closely related to product differentiation and increases its effect. It is

about creating some imaginary, special value of a product that impresses consumers' thoughts. (TRIVIKRAM, online, 2016) Brand and its value or premium design in line with the creation of individual categories within it are one of the potential competitive advantages, but especially for larger or already running startups.

- c) *The benefits of competitive distribution* are rare for startups, unlike ordinary businesses. They are predominantly in the field of e-commerce services, the distribution of mobile applications, business applications, key distribution relationships and the distribution of new marketing tactics. All the benefits of distribution place the launcher in a scalable and cost-effective position and ultimately lead to customer benefits. Therefore, it is very difficult to emulate and sustain them in the long term.
- d) *Man, his knowledge, abilities and thoughts* as a result of globalized information time. Thanks to these aspects, the human aspect has an important place in innovation process. This aspect is the base, the creator, and the brain. The thought or the idea of a person is more valuable than the whole business. A startup operates only with a small number of employees which make a team. The gist is sharing of ideas about the future goals, same values, mutual trust, and last but not least personal relationships. Moreover, the team must endure without salary at the beginning.

Only one or two competitive advantages suffice for a startup to achieve competitiveness. These areas are among the strongest. Oftentimes, businesses are trying to provide as many competitive advantages as possible, which may not be productive. There is an effect where particular attention is paid to obtaining benefits instead of focusing on business and product development.

Although it is difficult to create a competitive advantage the most startups are able to do the right combination of unique business characteristics. However, there can be a critical moment when a business ceases to focus on improving itself and just keeping activities concentrated on other activities. In order to maintain its persistence and long-term effect of its competitive advantage, it is necessary to continuously increase its effect and to answer the questions:

- How can I distinguish myself from my opponents?
- What unique value can I offer to customers?

- How can I make myself visible compared to my competitors?

When responses to the above questions are created, it is possible to determine the desired market position. If a startup defines itself as an expert, a leading authority or a specialist in the business and adapts all its strategic activities, this awareness will also be passed on to potential customers. The product/service will begin to be perceived as a unit on the market and consumers will seek it out for themselves.

This approach can replace marketing itself and create a stable customer base. Loyal customers (*product fans and promoters*) are valuable advertising.

The definition of *mission, vision, and logo* has great importance for efficient product placement. Together, they are able to change the meaning and purpose of using the product. Through these tools, Subway has created "*Food Full of Health*". Another excellent example is also a Disney company with the logo "*Company in where dreams come true*".

Every business learns from its own mistakes, but it can also be inspired by the successes and failures of other businesses. Several prosperous startups are now well-known, as are the paths and ways they have reached the top. If their strategies and methods take over the new startup, the result can be substantial time savings.

Even the best team cannot function properly without a great leader and motivator. Unfortunately, this task cannot be accomplished by everyone and if the product creator does not have the ability to do so, it is not a shame to have it consulted. If the team is happy and satisfied, productivity is growing.

EU main initiatives aimed at increasing the competitiveness of startups with specificity in Slovakia

Of course, in addition to the startups' internal business activities, environmental factors are also important to increase their market competitiveness, even for many businesses these are more important than inside business. All the factors and motives that come from outside the business and give it some added value are considered to be an external source of support.

Most often, it is a financial aid that helps businesses secure the aforementioned key activities such as research and development or product launch. In non-financial assistance, counselling, mentoring and training activities are the most common type of support as well as providing space for development and initial business activities, favoured

partnerships, providing marketing activities or general market support.

Small and Medium-sized Enterprises (SMEs) account for 99% of all European businesses and have created 85% of new jobs over the last 5 years. That is why the European Union is constantly developing new instruments to support them, which according to many experts are still insufficient.

The European Union's main priorities for supporting SMEs include: (EUROPEAN COMMISSION, online, 2017)

- Creating a friendly business environment
- Business support
- Improving access to new markets and helping with internationalization
- Simplifying access to finance
- Promoting SMEs' competitiveness and innovation
- Providing key support networks and information for SMEs
- Supporting individual components of their scalable development

The basic form of European Union aid for SMEs is created through the *Small Business Act*. This constitutes the basic framework for the European Union's policy of helping small businesses. It was adopted in February 2011 in line with the Europe 2020 strategy. Its aim is to improve access to entrepreneurship in Europe, to simplify the regulatory and political environment for SMEs and to remove remaining barriers to their development. It consists of the following priorities: (EUROPEAN COMMISSION, online, 2017)

1. Promoting entrepreneurship
2. Lower regulatory burden
3. Better access to finance
4. Better market access and internationalization
5. Access to the full text of the Small Business Act.

All the SME-related agenda is carried out within the *Executive Agency for SMEs*, which is covered by the European Commission. The above priorities are supported through multiple networks, initiatives, and funds.

The Slovak Republic is one of the European countries with the most open economy. In addition, more and more innovative businesses and successful ideas worldwide are being created every year inside its economy.

The European Union's support for innovative companies in Slovakia (or in other EU countries) could be characterized by several initiatives,

the most important of which are:

Support Network “Small Enterprise Europe”

It consists of nearly 6,000 organizations in more than fifty countries that work together to promote the above-mentioned priorities. Primarily, the initiative is controlled, conducted and supported by the European Commission. (EUROPA, online, 2017)

The initiative is aimed at helping SMEs to exploit opportunities from the outside, as only 25% of European MPS export their products to other countries. It helps to gain market information, overcome legal barriers and identify the right partners for the type of business. It also provides practical information on the environment in the European Union, links it with national rules, offices, helpdesks and support services. It implements various types of intellectual property consulting services and the use of available financial and other resources.

The initiative “Your European Business”

This internet portal helps companies expand into European markets by providing practical information on the rules and support options of the European Union. (EUROPA, online, 2017)

Intellectual property support

The intellectual property strongly supports the competitiveness of innovative businesses. The problem is the lack of information on the possibility of its implementation and the rights that businesses have in its use. The European Union provides such information free of charge through this program. (EUROPEAN COMMISSION, online, 2017)

Activities of the European Investment Bank

The European Investment Bank is working with the European Commission to support SMEs. Its main concern is to ensure the best possible access to finance and to simplify the process of their availability. In this context, its activities are as follows: (EUROPEAN INVESTMENT BANK, online, 2013)

1. Available loans for SMEs - mainly through low- interest rates and better transparency.

2. Operation of the European Investment Fund - a specialized risk finance facility. It also provides advice and solutions for growth capital and is a major lender.

3. Activities managed by the European Commission:

a. Competitiveness and Innovation Program

b. Risk sharing tools

c. Fund of the so-called European Investment Angels

European Union program to promote business competitiveness and SMEs (COSME)

The program has been operational since 2014 and is scheduled for completion in 2020. The focus is on improving access to finance, opening markets, supporting entrepreneurs and overall improving business conditions. (EUROPA, online, 2017)

In addition to the aforementioned European Union initiatives, several states but also private funds have been introduced in the Slovak Republic to support Small and Medium-sized Enterprises.

In Slovakia, for example, funding from support organizations and initiatives such as Horizon 2020, Innov Fin, European Union Structural Funds, Employment, and Social Innovation Program and others are used to support SMEs' development.

In Slovakia, state support is mainly implemented through central state administration bodies, specialized agencies, banking institutions and funds, interest and professional associations or professional organizations.

Besides them, co-working centers, business incubators, and accelerators are also important means of state support for startups. They are often the result of a private effort to support their initial development (usually a successful startup). They are particularly helpful in the initial development of the company and according to Eurostat research, reduce their failure rate by up to three years by 40%.

The function of these aid tools differs slightly in the period or phase of use of the resource by the startup. The accelerator is mainly used at an early stage of development and serves to attract major investors:

"Business accelerator is an intense (usually three-month) business program that includes mentoring, education, networking, and focuses on fast-growing businesses that present their ideas to investors at the end of the program." (SLÁVIK, 2016)

The incubator focuses on businesses with high success potential and helps them grow successfully. According to the European Court of Auditors (2017), the business incubator is an organization designed to support the successful establishment and further development of businesses. It often offers access to physical business infrastructure, individually tailored business support services, and networking opportunities.

A particularly important source of funding is the so-called angel investors, who put their private capital into interesting projects, from which they expect future returns at a fixed rate.

Startups can also be easily visualized through various startup competitions, workshops, and conferences. Their advantage lies in the possibility of gaining extensive experience in different areas of business. Sometimes the organizers are directly involved in creating a project, assisting in its presentation, acquainting themselves with funding opportunities and looking for investors for the project. However, despite the aforementioned initiatives, startup support in Slovakia is still being scarce.

Conclusion

In an international business environment, it is becoming increasingly difficult for startups to face increasingly dynamic competition. It is necessary to have one or more competitive advantages based on which the startup will gain specific added value over others. However, these innovative businesses face a high risk of failure and the possibility of serious financial problems. Now, they are a fundamental generator of the growth of national economies and that is why the state should largely support their activities. Despite the small size of Slovakia, many startups achieving international success are developing in its environment. If the government is able to improve the conditions for their development and expansion into foreign markets, it can contribute to ensuring the competitiveness of the whole economy.

In the Slovak Republic, there are several state organizations, initiatives and private individuals assisting the development of startups. The results of the analysis of available resources to support them show a growing trend of these activities. But compared to other European Union countries or the U.S.A. we consider this support to be inadequate and it is necessary to reassess it both in terms of supporters and resources. Slovakia is a relatively small country, but there is a growing

number of startups in its environment, whose products operate almost all over the world. Their biggest problem so far is the already mentioned financial support from the state, which the state implements at the regional level through low contributions. Other shortcomings in supporting startups in Slovakia include the low number of so-called "business angels". However, we believe that the trend of ever-increasing financial but also other forms of support for new innovative enterprises in the Slovak Republic will have a continually growing tendency mainly from government and state institutions, but also from the private sector in the form of "business angels".

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References:

1. *Benedetto, D. at all. (2010). Competitive Advantages in the First Product of New Venture. IEEE [online]. Available at: https://www.vcexperts.com/buzz_articles/664*
2. *Boutellier, R. at all. (2000). Managing Global Innovation: Uncovering the Secrets of Future Competitiveness. Tokyo: Springer. 621 p. ISBN 978-3-662-042526.*
3. *Business Dictionary. (2017). Startup definition [online]. Available at: <http://www.businessdictionary.com/definition/startup.html>*
4. *European Commission. (2017). COSME. Europa [online]. Available at: https://ec.europa.eu/growth/smes/cosme_sk*
5. *European Commission. (2017). Enterprise Europe Network. Europa [online]. Available at: < <https://een.ec.europa.eu/>>*
6. *European Commission. (2017). Entrepreneurship and Small and medium-sized enterprises (SMEs). Europa [online]. Available at: https://ec.europa.eu/growth/smes_sk*
7. *European Commission. (2017). Executive agency for SMEs . Europa [online]. Available at: <https://ec.europa.eu/easme/en/about-easme>*
8. *European Commission. (2017). The Small Business Act for Europe . Europa [online]. Available at: <https://een.ec.europa.eu/>*
9. *European Investment Bank. (2013). Supporting small and medium-sized enterprises in 2012: A joint report of the European Commission and the European Investment Bank Group [online]. Available at: http://www.eib.org/attachments/documents/sme_joint_report_2012_en.pdf*

10. Európsky dvor audítorov. *Bola podpora rozvoja podnikateľských inkubátorov z EFRR úspešná?* 152 p. ISBN 978-92-872-0135-5.
11. Farlex Financial Dictionary. (2017). *Startup definition* [online]. Available at : <http://www.businessdictionary.com/definition/startup.html>
12. Gerber, S. (2016). *11 promising opportunities for startups that want to make a big impact. The next web* [online]. Available at: https://thenextweb.com/entrepreneur/2016/08/11/11-promising-opportunities-startups-want-make-big-impact/#.tnw_2oy7nsos
13. Grando, N. (2017). *What are the characteristics of a startup company?* Quora. [online]. Available at: <https://www.quora.com/What-are-the-characteristics-of-a-startup-company>
14. Loddengaard, A. (2001). *10 Facts About Working at a Startup vs. a Big Company.* Alexlog startup blog [online]. Available at: <http://alexlod.com/2012/03/12/10-facts-about-working-at-a-startup-vs-a-big-company//>
15. Pásztorová, J. (2018). *Digitalization and Changes in Banking Business Models.* In *ITEMA 2018: Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture. Proceedings of Second International Scientific Conference.* Graz University of Technology, (Graz, Austria). - Belgrade: Association of Economists and Managers of the Balkans. ISBN 978-86-80194-13-4, 633-639 p.
16. Porter, M. (2008). *Competitive advantage: Creating and Sustaining Superior Performance.* New Yourk: Simon and Schuster. 592 p. SBN-13: 978-0-684-8414-65.
17. Pytchon, T. (2017). *What is a Startup? The Historical Background.* Growly [online]. Available at: <https://www.growly.io/what-is-a-startup-the-historical-background/>
18. Raymond, W. (2015). *How To Raise Collaborative Angel CAPITAL For Internet Business Startup: Entice the Funding Crowd.* Budapest: PublishDrive. 140 p. ISBN-13: 978-8-892-5096-89.
19. Reis, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovations to Create Radicallz Successfuk Businesses.* New York: Random House. 228 p. ISBN 978-03-078-8789-8.
20. Slávik, Š. (2016). *Podnikateľské modely a podnikateľské stratégie startupov II.* Bratislava: Ekonóm. 144 p. ISBN 978-80-225-43-28-6.
21. Song, M. at all. (2008). *Supplier's involvement and success of radical new product development in new ventures.* Journal Operational management. Vol.26., 1–22 p. ISSN: 0272-6963
22. *Startup 4 Dummies.* (2015). *Koncepcia pre podporu startupov a rozvoj startupového ekosystému v SR.* Digitl Visions. ISBN 978-80-971112-3-6.

23. Trivikram, S. (2016). *Brand Strategy and Competitive Advantage*. My Venture Pad blog [online]. Available at:
<http://myventurepad.com/brand-strategy-competitive-advantage/>
24. Tunguz, T. (2016). *Your Startup's Competitive Advantage*. Tom Tunguz Official blog [online]. Available at: <http://tomtunguz.com/your-startups-competitive-advantage/>
25. Urabe, K. at all. (1988). *Innovation and Management – International Comparison*. Berlin: De Gruyter. 223p. ISBN 3-11-011007-5
26. US Department of Commerce. (2014). *Firm Employment data*. Washington DC : U.S. Census Bureau. [online]. Available at:
<https://www.commerce.gov/categories/data>
27. Wells, G. at all. (2001). *Globalization*. New York: Nova Publisher. 211 p. ISBN 1-59033-128-1.
28. Yan Y., Guan, J. (2003). *Entrepreneurial ecosystem, entrepreneurial rate and innovation: the moderating role of internet attention*. *International Entrepreneurship and Management Journal*. [online]. Available at: <http://www.gemconsortium.org/research-papers>
29. Zorkóciová, O., - Škodová, L., Petriková, H. (2017). *Selected models of excellence from the aspect of increasing the competitiveness of firms. Ekonomika cestovného ruchu a podnikanie: vedecký časopis Obchodnej fakulty Ekonomickej univerzity v Bratislave. - Bratislava: Katedra služieb a cestovného ruchu OBF EU, ISSN 1337-9313, 2017, Vol. 9, Issue 1, 58-71p.*
30. Zorkóciová, O., Vanková, L. (2016). *The Phenomenon of social networks and effectiveness of Facebook page measuring (the case of Slovakia)*. *Economic annals-XXI*. - Kiev : Institute of Society Transformation, ISSN 1728-6239, 2016, Vol. 160, Issue7-8, 83-87 p.
31. Zorkóciová, O., Vanková, L., Pospíšilová, J. (2016). *Soziale Netzwerke – Medien, die interkulturelle Kommunikation stürzen. Interkulturelle Kommunikation im Wandel der Zeit : Stellungnahmen zu gegenwärtigen Problemen Europas aus Sicht unterschiedlicher wissenschaftlicher Disziplinen*. - Hamburg : Verlag Dr. Kovač, ISBN 978-3-8300-9134-9, 151-166 p.
32. Zwillig, M. (2013). *10 Key Risk Factors to Minimize for Startup Success*. *Startupprofessional* [online]. Available at:
<http://blog.startupprofessionals.com/2013/04/10key-risk-factors-to-minimize-for.html>

Chapter 2

MECHANISMS MANAGEMENT THE INNOVATION PROCESS OF ECONOMIC ENTITIES

Antalová Mária

Asiss. Prof. PhDr., PhD.

*Department of Social
Development and Labour*

Faculty of National Economy

Labudová Viera

Asiss. Prof. RnDr., PhD.

Department of Statistics

Faculty of Economic Informatics

University of Economics in Bratislava

(Bratislava, Slovakia)

QUANTIFICATION METHODOLOGY OF THE SOCIAL INNOVATIONS

Slovakia, like all EU countries, is undergoing a transformation that is associated with searching for the new models that correspond to current but mainly the future needs of human co-existence.

These new models take on different forms of the social innovations, which have become the centre of attention of scientists nowadays. Although their added value for the development of society is unquestionable, but in the scientific approach, they present many dilemmas in all three areas: theoretical, methodological, and empirical.

The existing state evoked in us the effort to elaborate this topic with purpose to summarize the basic information about innovations, to point out the significant contribution of the social innovations in process of social changes and to create a basic framework of methodology for their quantification.

1. Innovations and Social Innovations

The founder of innovations is the Austrian economist J. Schumpeter, who in 1911 formulated the combinations of evolutionary changes that he

understood as exceeding the recovery of systems and processes in a closed circle. According to him, the renewal overrun can be perceived as:

- using of new technology, production processes and the production marketing,
- introduction of new products, respectively, the original products with new features,
- using of new sources and materials,
- changes in organization of production, distribution and sales,
- new markets or changing structure of market (5, p. 84-100).

J. Schumpeter considered innovations only the first introduction of a new product, raw material or process. He called other producers imitators.

He emphasized that innovation must be distinguished from inventiveness, which represents the ability to find new knowledge and to see the usefulness of change. The result of invention can be innovation if the inventiveness becomes a phase of implementation (5, 84-100).

Innovation is often seen as introducing/implementation of a new or significantly improved product (product or service) or process, a new marketing method, or a new organizational method in business practice, work organization, or external relations (3, 3).

Since 1911, many authors have dedicated themselves to innovations. For the overview we will present the most important ones, from which many researches are based. In the Oslo 2005 Manual, we found that innovation can be defined as "a set of scientific, technological, organizational, financial and commercial practices that have or should have result in realization of new or improved technological products or means" (4).

Innovations are also seen as a renewal and extension of the range of products and services and their associated markets, as creating new methods of production, supply and distribution, to introduce management changes, work organization, working conditions and workforce qualifications. It is a "change that accelerates the way, by which we come to think, to create, to produce and reach new products, the industrial processes and services." These are changes that create more jobs, improve people's lives and build a better society" (4).

The OECD Manual defines four types of innovations that include a wide range of changes. They are:

- product innovations
- process innovations

- organizational innovations,
- marketing innovations (4).

In the Slovak Republic, we proceed from Act no. 172/2005 Z.z. about Organization of State Support for Research and Development and Completion to Act no. 575/2001 Z.z. about Organization of Government Activities and Organization of Central State Administration as amended. In this document innovation is:

- a) a new or improved product or new or improved service which is applicable on the market and based on the results of research and development or business;
- b) a new or improved production process or distribution method, including substantial changes of technique, equipment or software;
- c) a new way of organizing the business practice of the undertaking, organization of the workplace or external relations;
- d) transfer of science and technology knowledge into practice
- e) the summary of production and technical know-how, the acquisition and rental of rights under license agreements;
- f) introduction of the modern methods in pre-production stages and in organization of work
- g) improvement of control and test methods in the production and service process;
- h) improving the quality of work and safety at work,
- i) reducing the negative impact on the environment,
- j) more efficient using of natural sources and energy (7).

According to the Statistical Office of the Slovak Republic, innovations include technological and non-technological innovations. The technological innovations represent product innovation, for example, a new or significantly improved product (product, service) introduced in the market or process innovation, as a new or significantly improved business process. Non-technological innovations include organizational innovations and marketing innovations.

The product innovation is the placing on the market of a new product (product or service) whose characteristics or intended using are differ significantly from previous products. There are including new or significant changes of the technical specifications, components and materials, incorporated software, user acceptability (accessibility) or other functional characteristics.

The process innovation is implementation of a new or improved production method, logistics, supplied and distribution systems. This includes significant changes of the specific techniques, equipment or

software, intended for improving the quality, efficiency, or flexibility of production or supplier activities, with purpose to reduce the environmental or security risks.

The organisational innovation represents implementation of the significant changes into practice, it means in organisation of work responsibilities and in decision-making, which includes training or education for increasing skills; and in organizing the external relations with other companies or public institutions (1). Their aim is to improve the company's innovative capacity or performance characteristics such as quality and efficiency of workflows. Organizational innovations usually involve changes in more than one part of the company's supply chain and are less dependent from technology than innovations of process.

The marketing innovation is a significant change in the way of goods and services includes design and packaging. Many of these are only for the first using, for example, the first using of the Internet for product placement is also innovation, but the second using of other products is not innovation (8).

The measurement of innovation by the Statistical Office of the Slovak Republic is carried out by assessing the innovation activity of enterprises and by creating their typology, in which we distinguish the following indicators:

- companies with innovative activity, which have at least one of the innovation activities during the period under review, it means that they have introduced a new or significantly improved product or process, or have unfinished or suspended innovation activities related to product and process innovation, or having organizational innovation or marketing innovation;
- successfully innovating companies are those that have implemented product or process innovation;
- the intensity of business innovation, which represents the share of innovation expenditures from the company's total revenue (8).

Based on the study of different approaches to innovations, we can conclude that the theoretical framework of the term, from its creation to the present time, is very rich, in terms of both its various forms of identification and the methodological procedures of quantification. By evolution, the operationalization procedures were created to allow a deeper understanding at this phenomenon, marked by the impact of the scientific and technical progress itself. This process also determined the emergence of a new form of innovation, which is the social innovation.

This is a relatively new term, although the social innovation itself is not new. In general, it is defined as the development and implementation of new ideas (products, services and models) serving to the social needs.

The European Commission considers it as "a new idea (products, services or models) that supports process of saturation of the social needs and creates the new social relations and cooperation" (1). New ideas about the social systems and the social interactions to meet common goals" is understanding by M. D. Mumford (2, 253-266).

The Center of Social Innovation defines this category as "a new solution of the social problems that is more effective, more efficient and longer-term, or the existing solutions whose value has been created for society and not for private entrepreneurs or individuals" (9).

The Social Innovation Institute of SR, specifies social innovation "as all new strategies, concepts, ideas and organizations that broaden and support improvement of functioning of the civil society" (10).

In general, these are all activities that have consequences in the qualitative changes in the fundamental social structures of society, or that have a targeted social impact.

We find that there are now the countless definitions that highlight the various aspects of the social innovations, such as new ideas, models or technologies, also the saturation process of people's needs.

By summarizing and analyzing the content, we concluded that they:

- represent something new or something known but applied by a new way,
- describe a new way of implementation and application,
- satisfy people's social needs,
- are more effective than existing solutions, create improved measurable outputs,
- provide new opportunities for using of resources.

We did not find any information about the method of their quantification in the existing literature. Their quantification is also as important as their implementation in terms of gradual and harmonious formation of societal processes of the present society.

2. Quantitative Framework of Social Innovations

The problems of quantifying of the social innovations need to be seen in the fact, that there are uncountable forms of the social innovations with different impacts on social reality. Also, in fact, that it is very problematic to assess or quantify their effectiveness. We

consider, our design of monitoring, as an inspiring idea how to proceed, or how to manage so complicated process at regional or national level. In any case, it is not the final solution.

Our view is based on the following forms of identification:

- identification of the problem in the specific socio-economic and environmental conditions of the region and country,
- identification of the social innovation itself, its originality and type,
- identification of monitoring ways and impact assessment,
- identifying the relationship to the region's strategy and to the community development,
- identifying ways of dissemination.

These forms of identification are creating the core of our considerations and other recommended methodological procedures, which are:

- selection of access,
- selection of methodology,
- selection of methods,
- selection of technique,
- selection of tools.

In the first step, we need to choose an approach, what we want to quantify and how. In our case, it will be a quantification of a selected range of the social innovations that have been implemented through projects. This means, that their quantification is possible only with the project agencies cooperation.

The second step is to develop a methodology that lies in choice of methods, techniques, and tools by which we could quantify the social innovations implemented through project management and assess their impact on community and environment. This part is the most problematic because the nature of the innovations and their impact is mainly expressed in qualitative form.

All these forms of quantification have been outlined in Figure 2.1, which consists from indicator, its description and quantitative expression. A specific mathematical procedure is needed to adapt to the type of innovation, because each solves a specific field of social reality.

As far as the management process is concerned, we recommend including the indicators into project documentation, which would be obligatory for each project leader. An agency employee would transfer the acquired social innovation data to a database available for further processing at regional or national level.

Indicator	Description	Index
Inventiveness Creativity	Number of accepted and implemented projects for a certain period of time	Regional Creativity Index (number of projects by number of population in region)
Social Innovations		
Innovator Characteristics	Name, organisation, region, country	Approved Project Index (relative number over a period)
Problem identification	Solution Importance Index
Field of Social Innovation	Education, social inclusion, social cohesion, infrastructure	Field Innovation Index
Typology of Social Innovation	New idea, new methodology, new procedure, new way of implementation, new way of dissemination	Typology Innovation Index Number of innovation types by maximum number in scale
Mission	Values, solidarity, humanisation	Mission Innovation Index
Extensions of Social Innovation	Regional, national, cross-border cooperation	Extensibility Innovation Index
Quantitative Scope of Change	Number of participants affected by change and their specification: Roma, patients, women, volunteers, unemployed, children, young people businessmen, farmers, families ...	Quantitative Scope Index
Qualitative Scope of Change	Number of areas affected by change	Qualitative Scope Index
Impact of Social Innovation	Political impact, social impact, economic impact, environmental impact, impact on community	Impact Index
Partnerships	Institutional relations within region, between regions, countries ...	Partnership Index
Dissemination	Assessing opportunities within region, country	Dissemination Index
Support of Region Strategy	Assessing support for region strategy	Support Strategy Index
Project Social Innovation Globally	Summarizing of partial indexes	Global Innovation Index

Figure 2.1 Quantification of Social Innovations through Projects

Source: Own processing.

References:

1. *Guide to Social Innovation*. Brussels: The European Commission. Available at: http://ec.europa.eu/regional_policy/sources/docgener/presenta/social_innovation/social_innovation_2013.pdf
2. Mumford, M. D. (2002). *Social Innovation: Ten Cases from Benjamin Franklin*. In *Creativity Research Journal*, vol. 14/2, pp. 253–266.
3. Murray, R. – Caulier-Grice, J. – Mulgan, G. (2010). *The Open Book of Social Innovation*. London: NESTA, Young Foundation.
4. *Oslo Manual. The Measurement of Scientific and Technological Activities. Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*. European Commission, Eurostat, OECD. Available at: <http://www.oecd.org/science/inno/2367580.pdf>
5. Schumpeter, J. A. (1939). *Business cycles. A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. New York and London, McGraw-Hill.
6. Zákon č. 172/2005 Z. z. o organizácii štátnej podpory výskumu a vývoja a o doplnení zákona č. 575/2001 Z. z. o organizácii činnosti vlády a organizácii ústrednej štátnej správy v znení neskorších predpisov.
7. Štatistický úrad SR. *Veda, technika a inovácie. Metodické vysvetlivky – vybrané ukazovatele*. Available at: www.statistics.sk/wps/portalPext/themes/multi/science.
8. *Center for Social Innovation. Stanford Business*. Available at: <http://csi.gsb.stanford.edu/social-innovation>
9. *Inštitút sociálnych inovácií SR*. Available at: <http://www.socialneinovacie.sk/onas>
10. <http://faculty.utep.edu/Portals/167/65%20Human%20Capital,%20Socil%20capital%20and%20innovation%20a%20country%20study.pdf>
11. http://www.euractiv.sk/lisabonska-strategia/zoznam_liniek/inovacia-v-unii-000284#sthash.EMuGvljV.dpuf

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Meidutė-Kavaliauskienė Ieva

*PhD in Technological Sciences,
Associate Professor*

Vasilis Vasiliauskas Aidas

*PhD in Technological Sciences,
Associate Professor*

Vasilienė-Vasiliauskienė Virgilija

*PHD in Management Sciences,
Associate Professor*

*General Jonas Žemaitis Military
Academy of Lithuania
(Vilnius, Lithuania)*

INTEGRATION ASPECTS OF RFID INNOVATIONS IN THE SUPPLY SYSTEM

One part of the supply chain is the distribution system typically linked to wholesale and retail businesses. Rarely can a manufacturer distribute production without deploying wholesale and retail business networks. For a production to be successfully distributed, an efficient distribution is required. Thus, implementation of *technological innovations* corresponding to business demands is one of the most important solutions to obtain and maintain the competitive advantage. Moreover, implementing technological innovations may substantially increase the efficiency levels of distribution system.

Kapoor *et al.* (2009), Sagbansua and Alabay (2010), Tao *et al.* (2017) claim that technologies provide more alternatives in creating a competitive environment since technologies are increasingly becoming a substantial part of everyday lives thus changing client demands, systems and making even greater demands. According to Arntzen *et al.* (1995) and Schmidt *et al.* (2013), the use of technology in supply/distribution chains is understood as an important competitive factor since it is independent of location, time and even product type. Thus, companies should change and improve the structure of their supply chains and associate it with ever-renewing technologies. Supply chains, which are a key price indicator in global business, and its flexible adaption to innovation, have become one of the company's most important functions. Prices for new supply chains that incorporate advanced technologies are lower than traditional ones due to these innovations.

Ambrosino and Scutella (2005) and Kelepouris *et al.* (2007) claim that one of the most successful factors in sales is an adequate

configuration of the supply/distribution system. While issues in the distribution channel are being dealt with effectively, the delivery of goods to the target market can be a cause of high costs. Hence, the task of supply chain management is to create a dynamic, reliable and well-functioning distribution system for companies operating in international markets. Therefore, most companies are trying to create alternative distribution channels where the most important tool is advanced technologies.

The need for modern supply chain optimization processes, its development can be understood as the use of algorithms, data development tools, and software capabilities (Tao *et al.*, 2017).

One of the alternatives to increase the efficiency of the supply system is Radio Frequency Identification (RFID) technology, which is understood as a convenient, wireless, recognition technology that enables the tracking of material flow and enhances its visibility throughout the supply chain. The deployment of RFID in the supply chain not only reduces the length of distribution procedures, but also minimizes the need for resources used in these procedures.

Nowadays RFID technologies are widely used in the area of logistics, and cover virtually all parts and stages of the supply chain, including warehousing, transportation and retail. Deployment of RFID technologies in production industries (for instance, automotive production) is still in progress. There is a great amount of research carried-out on RFID applications in developing and improving production management systems, especially in the following areas: automatic identification, manipulation and product-assembling on the production line; object real-time tracking in the production line; real-time tracking of production tool status; automated production management system and its integration into the factory information system (Kapoor *et. al.*, 2009, Wang *et al.*, 2010, Tao *et al.*, 2017).

Visich *et al.* (2009) stress that information and access to real-time information is increasingly important for supply chain integration and business efficiency. Gathering and processing of the information becomes more efficient and faster upon implementation of RFID technologies in a warehouse. At the end of the production process, a cargo marked with RFID tags is automatically tagged in a warehouse information system prior submitting the information to the warehouse management module. The information on cargo condition, sender and consignee, storage location and duration is already received. Such labelled cargo is automatically processed without employee

intervention. There are no temporary costs for automatically identifying and invoicing goods in the warehouse - goods are transported directly from production to storage or loading ramp. Once the product has been identified, the information management system determines whether the product is expected, its data is being checked. Real-time information is provided to the warehouse worker (using a hoist-mounted computer or LED display). In the event of an error in the labelling stage, this error is handled and removed in the next step – the receiving process, whilst in the case of manual operations this is to be done in the last stage – delivery to the customer (Schmidt *et al.*, 2013).

Goods assembling are one of the warehouse operations. Since each cargo or product is labelled, it is quite easy to assemble it into a single shipment by the means of the system. As errors are noticed immediately in the identification process at the warehouse, the likelihood of an error is reduced to a minimum as opposed to frequent occurrence of errors in assembling goods manually. The cost of such error is much lower since it is identified at the time of loading and is corrected immediately (Gundlach *et al.*, 2006).

Cargo loading is the final stage in the warehouse operations. Whilst this stage, an automatic loading control can be implemented by using radio frequency identification technology. Cargo tags are scanned during the loading process and the information on loaded and unloaded cargo is automatically visible. This eliminates the possibility of loading cargo to wrong recipient or loading just part of it. (Visich *et al.*, 2009).

Advantages of deploying RFID in a warehouse:

- Fast pace and accuracy of cargo receiving;
- Rapid preparation of cargo documentation;
- Rapid and accurate cargo assembling and sorting;
- Rapid, cheap and straightforward control;
- Fast and accurate order preparation;
- Less staff is required;
- Better use of warehouse space;
- Reducing errors to a minimum;
- Possibility to track cargo throughout the whole supply chain.

Despite short-term costs involved in the deployment of RFID system, many economic benefits are also emerging. RFID technologies can be applied in all parts of the supply chain. In the traditional supply chain, each member of the chain acts individually, and in cases where participants do not coordinate their actions with each other, the efficiency of the supply chain is negatively affected. In modern supply

chains, its members coordinate actions to maximize the potential of the supply chain. According to Kelepouris *et al.* (2007), to be able to do this, a single or partially integrated information system needs to be connected to RFID system in every part of the supply chain. RFID technology makes it possible to create a smart system of goods movement enabling to optimize the entire supply chain in real time, plan logistics operations and make certain decisions. This allows to establish a new flow management system (Mo *et al.*, 2009).

The RFID technology application model typically covers the following key elements:

1. When a certain number of products are sold in a retail store, the store's information system shows a shortage of goods. The Resource Management Information System (after receiving a signal from the RFID system) or the responsible employee informs the Distribution center.

2. In the distribution center, the RFID code determines the storage location of the required item, and then the box or pallet of goods is transported to the appropriate terminal. RFID readers at the terminal gate scan the RFID tag on the box or pallet and send a pre-notification to the store on loaded cargo or cargo ready to be sent. More advanced RFID systems may even determine the location of a pallet or box in a truck thus saving loading and unloading times should the very same truck transport several cargoes to different points. An inquiry is sent to the manufacturer if the required good is not found in the distribution center.

3. Having received the inquiry, the manufacturer places an order to his supplier.

4. Upon packing the materials, the supplier labels it with an RFID tag and scans the RFID code whilst loading it into vehicle. The manufacturer receives an automatic notification about incoming cargo.

5. When the goods are presented to the manufacturer and the RFID tag is scanned, the contents of the load and the fact of receipt itself are confirmed. RFID technology can be widely used in the production process, however it will be limited to only three stages in this work: cargo receipt, goods production, cargo shipment. The produced goods are packed into boxes and may be placed on the pallets. Each item separately, a box or pallets are labelled with the appropriate RFID tag indicating the destination distribution center. Then, after scanning the RFID tag and loading the cargo to the transport, the distribution center receives a message about the incoming cargo.

6. Distribution center receives cargo and warehouse management system may indicate cargo storage location after reading the RFID tag at the reception terminal. The goods are transported to corresponding location which is recorded in the distribution center information system. If goods are immediately transported to the store, they can be stored in a temporary storage location. Further on, the second step of this scheme is repeated.

Advanced RFID systems may alert employees about misplaced goods or signal about goods appearing in a wrong loading terminal. Once the goods are loaded onto the truck, the driver can get a summary of his goods, orders, destination delivery points and many other important information via the RFID system. These possibilities depend on the software installed. The product quantity in the distribution center may be regularly updated, thus due to the RFID and resource planning system one can plan the number of items stored locally. Most of these procedures can be performed automatically, i. e. using stationary or semi-stationary RFID readers or with the help of the staff.

The above model covers the entire supply chain. The widest use of RFID technologies may be detected in the production stage. According to García *et al.* (2003), another important aspect that determines the performance of the entire RFID system, both in the distribution center and in the entire supply chain, is the integration of RFID software into existing enterprise information systems.

Upon reading the RFID tag, the data travels via local network into RFID information system or EPCIS (Electronic Product Code Information System).

This system has to be integrated with the main three information systems of the company: ERM (Enterprise Resource Management), CRM (Customer Relationship Management), and SCM (Supply Chain Management). Integrating the RFID system into the above-mentioned information systems is necessary, otherwise the entire RFID system does not provide any benefit. The RFID system informs ERM and SCM systems about the incoming goods at the distribution centre. Orders are received via SCM or CRM system, while ERM system determines whether goods are ready to be sent to the client. Having received the cargo, the retailer scans its RFID tags and these data travel to ERM, SCM, CRM systems as well as SCM system of the distribution centre.

Another important aspect worth considering to ensure smooth operation of the RFID system, is the installation of RFID system. If a company is not newly established, there is a high probability that RFID

system will replace the existing system, i.e. barcode. Sudden changes in the company are often very costly and require a lot of material and human resources.

According to Nathanson and Wimmer (2010), the transition from the old system (barcodes, magnetic stripes, etc.) to RFID can be carried-out in the following three steps:

1. Technological migration – transition from barcode system to RFID technologies and back;

2. Integration/Hybridization – use of barcode and RFID tags at the same time, i.e. one item is marked with an RFID tag and a barcode. Both information systems are used;

3. Convergence –RFID and barcode are used interchangeably and both systems operate as one.

These are the stages after which the RFID system will completely disable the barcode system. However, the pause is frequently made at the stage 3 and both technologies are used since there is no economic incentive to relinquish the barcode system. Apart from that, a company may exploit the advantages provided by both systems.

Schmidt *et al.* (2013) developed a transition from barcode system to RFID system model comprising 4 stages:

1. Interface I: Object Level. Objects are identified via RFID and barcode. RFID and barcode are either integrated into the same RFID tags/barcode label or separately attached to the item. To apply RFID, it is necessary to ensure uniform coding standards. Gradually, bar codes can be replaced with RFID tags, or the company can use both systems.

2. Interface II: Device Level. Technical capability of handling both barcode and RFID data (reading and writing). Initially two separate readers are used. In the third stage, namely the convergence, if both systems are used, it is possible to switch to reading devices that can scan information from both barcodes and RFID. Special printers producing barcode stickers with RFID tags can also be used.

3. Interface III: Operational Level. This interface is linked to shipping and receipt of the goods. It is not just the technical reading of information that is important here, but the transmission of information to the information system. This level crosses company 's boundaries as information system may be integrated with systems of other companies. Therefore, it is necessary to gradually integrate the RFID system into existing information system whilst synchronizing actions with key partner actions and harmonizing all information systems. This is vital in order to avoid information incompatibility errors in the supply chain.

The hardest task – to obtain an appropriate level of harmonization to all parties.

4. Interface IV: Information Level. Ability to manage information obtained via barcodes and RFID. This information is required not only for tracking goods, but also for analysing and forecasting customer behaviour. Further on, information can be transferred through the supply chain.

To address RFID technologies in distribution systems, it is necessary to analyse the process of transition from old technology to RFID. According to the model proposed by Folinas and Patrikios (2007), RFID system installation is a cyclic process comprising four stages:

1. Business analysis. This stage should include:

- Assessment of existing business processes and business environment;
- Problems and the need for change are determined;
- RFID technologies are assessed as the solution method for these problems;
- A level (physical, financial, personnel, and IT) of preparation for RFID technologies is assessed;
- A project for RFID system deployment is determined;
- An executor for RFID system deployment is selected;
- An economic analysis is carried-out; the cost and return of the project are analysed; cost-benefit analysis is prepared;
- Preparation of a backup plan.

2. Testing. By testing the system, a company protects itself against greater losses should the system malfunctions. At this stage it is possible to simulate business environment, test diverse RFID tags and readers, various mounting methods, different temperatures, humidity, surfaces, etc. It is necessary to define which ways are the best to integrate RFID software into company's information system.

3. Pilot implementation. It is recommended companies to undertake a smaller scale system deployment prior full implementation of RFID system. This will help to identify problems that were not addressed in the first two stages. If a pilot implementation fails, the entire business process will proceed to its previous order without any disturbance.

4. Full deployment of RFID system. Once the pilot has run successfully, it is recommended to transit from pilot phase to full deployment. If the tests were organized on a flexible scale, thus implementing the full deployment is much easier. However, successful tests do not guarantee success as tests are carried-out in a controlled

environment. In this stage, personnel must understand the benefits of RFID and show the ability to operate this technology. It is necessary to gather all information about system performance (feedback, reporting, or survey method) and make sure there are no gaps left. If weaknesses are found, the gathered information can be used at the beginning of the new cycle to identify problems in the existing system.

After analysing effective operation principles of current supply chains, it is possible to claim that smooth flow of goods along the supply chain is particularly important. RFID technology is one of the alternatives that will ensure smooth, fast and less costly movement of goods. As mentioned earlier, RFID technology can help reduce costs (automated actions; reduced number of errors; minimized duration of procedures, etc.), optimize distribution operations, to create the image of an innovative company, etc.

An overview of theoretical RFID application models reveals that the deployment of RFID is a rather complicated and demanding process that needs to be carried out gradually, taking into account the corresponding application levels.

References:

1. Ambrosino, D., Scutellà, M., G. 2005. *Distribution network design: New problems and related models*, *European Journal of Operational Research* 165(3): pp. 610–624.
2. Arntzen, B. C.; Brown, G. G.; Harrison, T. P.; Trafton, L. L. 1995. *Global Supply Chain Management at Digital Equipment Corporation*, *Interfaces* 25(1): pp. 69–93.
3. Folinás, D.; Patrikios, N. 2007. *RFID implementation framework in supply chain*, *Handbook of Radio Frequency Identification (RFID) Technologies in Operations and Supply Chain Management: Research and Applications*, Erich Schmidt Verlag GmbH & Co, pp. 3 - 12, ISBN 978 - 350310088 - 08.
4. García, A.; McFarlane, D.; Thorne, A.; Fletcher, M. 2003. *The impact of Auto-ID technology in materials handling systems*, in *7th IFAC Workshop on Intelligent Manufacturing Systems IMS*, April 2003, Budapest, Hungary, 2003, pp. 187–192. ISBN: 0 08 044289 7.
5. Gundlach, G. C.; Bolumole, Y. A.; Eltantawy, R. A.; Frankel, R. 2006. *The changing landscape of supply chain management, marketing channels of distribution, logistics and purchasing*, *Journal of Business & Industrial Marketing* 7(21): p. 428–438.
6. Kapoor, G.; Zhou, W.; Piramuthu, S. 2009. *Challenges associated with RFID tag implementations in supply chains*, *European Journal of*

- Information Systems* 18: pp. 526-533.
7. Kelepouris, T.; Pramataris, K.; Doukidis, G. 2007. *RFID-enabled traceability in the food supply chain*, *Industrial Management & Data Systems* 107(2): pp. 183–200.
 8. Mo, J.; Gajzer, S.; Fane, F.; Wind, W.; Snioch, T.; Larnach, K.; Seitam, D.; Saito, H.; Brown, S.; Wilson, F.; Lérias, G. 2009. *Process integration for paperless delivery using EPC compliance technology*, *Journal of Manufacturing Technology Management* 20(6): p. 866–886.
 9. Nathanson, D.; Wimmer, T. 2010. *Barcode & RFID convergence: Enabling greater visibility through standards*. VDC Research Executive White Paper, November 2010.
 10. Sagbansua, L.; Alabay, N. M. 2010. *Distribution Network and the Role of Information and Communication Technologies (ICT)*, *Canadian Social Science* 6(4): pp. 1–11.
 11. Schmidt, M.; Thoroe, L.; Schumann, M. 2013. *RFID and Barcode in Manufacturing Logistics: Interface Concept for Concurrent Operation*, *Information Systems Management* 30: p. 100-115.
 12. Tao, F.; Fan, T.; Lai, K. K.; Li, L. 2017. *Impact of RFID technology on inventory control policy*, *Journal of the Operational Research Society* 68(2): pp.207-220.
 13. Visich J. K.; Li, S.; Khumawala, B. M.; Reyes, P. M. 2009. *Empirical evidence of RFID impacts on supply chain performance*, *International Journal of Operations & Production Management* 29(12): p. 1290–1315.
 14. Wang, J. H.; Luo, Z.W.; Wong, E.C. 2010. *RFID-enabled tracking in flexible assembly line*, *The International Journal of Advanced Manufacturing Technology* 46: pp. 351–360.

In the last decade, a growing number of countries have implemented different policies to promote the renewable energy (RE) sector. The policies with a wide range of positive outcomes, and some advocate that more countries around the world should introduce similar schemes. Germany has seen tremendous growth in renewable power generation capacity. For many years, the policy instrument of choice was a feed-in tariff (FiT), but the country is now moving to introduce new instruments, including feed-in premium payments and an auctioning system. In the power sector, the development of RE (RE) has diversified the energy mix, changed ownership structures and reduced Germany's dependence on fossil fuel imports. In addition, the renewables industry has built up a workforce of over 371 000. Germany's renewable power share reached more than 25% in 2014, and it exceeded 30% in the first half of 2016. The country has shown the world that such a high level of renewables can be integrated without systemic problems, thanks to strong grid infrastructure and cross-border exchange links. As Germany transitions to ever-higher shares of renewable power, beyond 50% and even higher by 2030, important grid and sector-coupling options must be considered².

Germany like many other countries which are still highly dependent on fossil fuels. The Fukushima nuclear disaster in 2011 has proven the advocates of nuclear power wrong. The dangers of this technology are simply too high and the waste problem has never been resolved. This catastrophe has led German politicians to pass a law that all remaining nuclear power plants have to be shut down by 2022. Detractors of renewables often state that by shutting down coal and nuclear power plants, etc. many will lose their jobs and create high economic losses. Many studies have proven them wrong. Now Germany is already one of the world leaders in wind, solar so they have a potential and the need of

² *Sonnenschein J. and Hennicke P., (2015), The German Energiewende: A transition towards an efficient, sufficient Green Energy Economy, Lund University, Lund..*

becoming a leading market in RE industry³.

Literature Review

The theoretical literature suggests that government intervention in terms of regulation and implementing environmental and energy policies is necessary in order to correct for externalities. In this context, market failures are understood to be deviations from perfectly functioning markets under neo-classical assumptions. Pricing mechanisms are incomplete as either consumption cannot be restricted or costs cannot be completely internalised⁴. Market barriers can be defined as any disincentive discouraging market entrance or participation and the use or adoption of a good. This is not necessarily linked to the functioning of the market as such⁵.

Conducting an overview of the proper literature many experts consider Energiewende as the transformation of Germany's energy supply system to renewables or just phasing out of nuclear energy. In this paper we will stick to the more broad definition as Energiewende comprises energy efficiency, nuclear phase out and environmental targets and switch to renewables.

Although the German Energiewende is commonly associated with the country's post Fukushima national energy policy, the notion of energy transition and the term "Energiewende" (can be translated as energy transition), dates back to nuclear opponents in the 1970s aiming to demonstrate alternative energy scenarios. After German reunification in 1990, Germany, being of the few countries at that time pursuing renewable energy, reaffirmed its course on the sustainable development of clean renewable energy. This process has been known as an "Energiewende" as Germany has become the global leader in this industry and is in the pole position to abandon conventional energy⁶.

In order to understand more the process of the Energiewende it is

³ Rodrigues S., Torabikalaki R., Faria, F., Cafôfo N., Chen,X., Ramezani, Ivaki A., Mata-Lima H. i Morgado-Dias F. (June 2016). *Economic feasibility analysis of small scale PV systems in different countries. Solar Energy Volume 131*.

⁴ Brown, M. (2011) *Market failures and barriers as a basis for clean energy policy, Energy Policy* 29(14).

⁵ Jacobson, M., Delucchi J. (2011). "Providing all global energy with wind, water, and solar power, part II: reliability, system and transmission costs, and policies." *Energy Policy* 39.

⁶ Kuittinen H. (2018) and D. Velte, *Case Study Report Energiewende, EC*.

important to mention about its targets, Category Medium-term-objectives Long-term-objectives GHG Emission Reduction by 40% by 2020 (base year 1990). Reduction of at least 80% by 2050 (base year 1990). Renewables (all sectors) By 2020 renewable energy are to account for 18% of gross final energy consumption. Increase to 30% by 2030, 45% by 2040 and 60% by 2050. Renewables (electricity) By 2020 electricity generated from renewable energy sources is to account for 35% of gross electricity consumption. Increase to 50% by 2030, 65% by 2040 and 80% by 2050. Efficiency Decrease primary energy consumption by 20% by 2020. Decrease electricity consumption by around 10% by 2020. (base year for both 2008) Decrease primary energy consumption by 50% by 2050. Decrease electricity consumption by around 25% by 2050. (base year for both 2008) Nuclear Power 2010 decision (pre Fukushima incident): The operating lifetimes of the 17 nuclear power plants in Germany will be extended by an average of 12 years. In the case of nuclear power plants commissioned up to and including 1980 there will be an extension of 8 years. For plants commissioned after 1980 there will be an extension of 14 years. Long-term nuclear phase-out is confirmed as there is only mentioning of a „limited extension“. The role assigned to nuclear power in the energy concept was reassessed and the seven oldest nuclear power plants and the one at Krümmel were shut down permanently. Phase-out operation of the remaining nine nuclear power plants by 2022⁷.

Between 2005 and 2015, investors poured over €150 billion into RE in Germany. Energy companies and utilities, households, farmers, energy co-operatives, municipalities, banks, and institutional investors all provided capital to RE projects, relying upon policy that provided reliable revenues, attractive returns and certainty. Since the cost of RE was often higher than energy from more conventional energy sources, policy was needed to plug the gap between RE costs and the prevailing market price for electricity⁸.

Due to economy of scale and technological innovations which led to higher efficiencies and improved production processes, the cost of RE technologies decreased; consequently, electricity generated by renewable energies could theoretically have become as competitive as

⁷ FEDERAL MINISTRY FOR ECONOMIC AFFAIRS AND ENERGY (2011), *The Federal Government's energy concept of 2010 and the transformation of the energy system of 2011*.

⁸ Bundesverband Erneuerbare Energie (2014) *Hintergrundpapier zur EEG-Umlage* (2014), BMWi Congressional Research Service.

power generated in fossil fuel power plants. Because the marginal costs associated with RE generation - especially wind and solar energy - are very low, an increase in RE on the spot market lowers the average spot market price, displacing more expensive energy plants. Furthermore decreasing wholesale market prices lower investment incentives of all generation technologies. On the contrary, a further reduction of power prices increases incentives of marketing-strategies for renewable energies outside the wholesale power market, e.g. by local/regional direct marketing. But due to the EEG mechanism which guarantees fixed feed-in tariffs, the majority of producers of electricity generated in RE power plants do not act as real market actors. As a result, common market mechanisms such as demand-oriented electricity generation do not affect the behaviour of RE producers: even when market prices are very low, they produce and feed in electricity; as one consequence the EEG surcharge has risen in recent years. Furthermore there is the threat that an increasing supply of electricity generated in RE power plants might cause overproduction during off-peak hours⁹.

Germany's wind power and solar support programs have led to Germany increasing the share of solar PV and wind in its energy mix significantly, putting the country on a path towards a broadly supported transition towards an electricity system primarily powered by RE. This transition involved new technologies, and as was the case for previous (and now conventional) forms of energy, the development of these technologies required public support – the levels of which are in line with cumulative levels previously provided to other forms of energy. The total level of support has remained low enough that Germany's economy has continued to perform well – in part due to the (partial) exemption of certain industries, which, while unpopular, is likely a reasonable measure to assure that German companies in energy – intensive and trade-exposed sectors do not suffer an unfair disadvantage. As the recent Ukraine crisis has shown, the transition has also helped reduce the exposure of Germany to potentially volatile input prices to the traditional power system, a benefit that has largely remained unquantified, but could prove significant in the future¹⁰.

As a member of the European Union (EU), Germany also has to

⁹ Kalkuhl, M., Edenhofer, O., & Lessmann, K. (2013). *RE subsidies: Secondbest policy or fatal aberration for mitigation?* *Resource and Energy Economics*, 35(3).

¹⁰ Jacobson, M., Delucchi J. (2011). "Providing all global energy with wind, water, and solar power, part II: reliability, system and transmission costs, and policies." *Energy Policy* 39.

contribute to the EU energy efficiency targets. By 2020 the European Union has committed to reduce its primary energy consumption by 20% relative to a projected baseline. In October 2014, the European Council decided on a new 2030 Climate and Energy Policy Framework. With regard to energy efficiency, an indicative target at the EU level of at least 27 percent is set for improving energy efficiency in 2030 compared to the same projections as for the 2020 target¹¹.

Many analysts proclaim German RE policy an unequivocal success. Observers have reached this conclusion principally on the basis of the German government's adoption, over the course of a decade, of far-reaching energy and environmental laws and, consequently, the rapid deployment of wind power.

Feed-in-tariffs as the main instrument of RE policy in Germany

The structure of a feed-in tariff is relatively simple. In order to increase investment in technologies that have not advanced enough to become cost-efficient, in a FiT system, governments pay private firms a premium over market price for electricity generated renewably. The tariff generally has three provisions: the energy producer is guaranteed continued access to the grid, the purchase agreement exists over a long period of time (10-25 years) at stable prices, and the payment levels cover both the costs of generating the renewable electricity and a small premium to ensure profitability¹². Because investors are almost guaranteed to make a profit under this system, FITs have historically caused an explosion in renewable investment that has led to more advanced, efficient energy technology in the long term. Ideally, investments achieve "grid parity" at some point, meaning they become cost-competitive compared to other methods of electricity generation, and will be able to function with no additional government spending into the future.

FiTs have been introduced in Germany to encourage the use of new energy technologies such as wind power, biomass, hydropower, geothermal power and solar photovoltaics. Feed-in tariffs are a policy

¹¹ BMWi (Federal Ministry for Economics and Energy). (Accessed January 2016), *Making more out of energy: National Action Plan on Energy Efficiency*. Berlin, Available at: <http://www.bmw.de/EN/Topics/Energy/EnergyEfficiency/nape,did=680402.html>.

¹² Brown, M. (2011) *Market failures and barriers as a basis for clean energy policy*, *Energy Policy* 29(14).

mechanism designed to accelerate investment in RE technologies by providing them remuneration (a "tariff") above the retail or wholesale rates of electricity. The mechanism provides long-term security to RE producers, typically based on the cost of generation of each technology. Technologies such as wind power, for instance, are awarded a lower per-kWh price, while technologies such as solar PV and tidal power are offered a higher price, reflecting higher costs.

Using feed-in tariffs, Germany currently generates over 30 per cent of its electricity from renewable sources, while employing more than 300,000 people in the RE sector, according to the German Federal Ministry of Economics and Technology, and is on pace for 100 per cent by 2050. Feed-in tariffs are the most common policy for encouraging RE systems globally, in part because "feed-in mechanisms achieve larger deployment at lower costs" than other policy mechanisms such as quotas, direct incentives or voluntary goals (Stern Review on the economics of climate change)¹³.

Ultimately, as the scale and feasibility of RE grow and electricity generated through RE technologies becomes more competitive, support mechanisms such as the FiT will arguably become less and less relevant as an instrument to level the playing field vis-à-vis traditionally less expensive conventional electricity sources. The FiT is actually designed to make itself dispensable over time. To prepare REs for their participation in the market, in a first step, market premiums may be combined with FiT rates or replace them, and over time all incentives for RE may be phased out without slowing the further expansion of RE¹⁴.

So, by reviewing several researches, the benefits of FiT are as following¹⁵:

- Feed-in tariffs reward actual production, unlike capital subsidies which encourage installation but not necessarily operation.
- No bidding minimizes development investment risks.
- Long-term contracts facilitate access to financing.
- Feed-in tariffs encourage small, medium as well as large-scale producers.

¹³ Kalkuhl, M., Edenhofer, O., & Lessmann, K. (2013). *RE subsidies: Secondbest policy or fatal aberration for mitigation?* *Resource and Energy Economics*, 35(3).

¹⁴ *Ibidem*

¹⁵ Bundesverband Erneuerbare Energie (2014) *Hintergrundpapier zur EEG-Umlage* (2014), BMWi Congressional Research Service.

- Feed-in tariffs encourage community and local ownership and engagement, minimizing opposition to projects.
- Tariff rates encourage renewable power producers to use the most efficient technology, driving down costs by fostering industrial competition.
- Although overall electricity prices rise slightly in the short-term, in the longer term they stabilize as prices become increasingly independent of conventional fuel costs/risks.
- For anyone who generates power under a feed-in tariff program, the income more than offsets any electricity price increases.

Conclusion

Over the last decade, well-intentioned policymakers in Germany created RE policies with generous subsidies that have slowly revealed themselves to be unsustainable, resulting in profound, unintended consequences for all industry stakeholders. Uncertainty regarding economic benefits may also affect outcomes. As with carbon prices, the range between the minimum and maximum estimate is considerable, depending on the nature and duration of the jobs created. Differences in the type of technology deployed – in particular, whether systems are grouped in distributed or large centralized arrays – also greatly affects the estimates. Other uncertainties include the relative economic value of different jobs and the lack of distinction between a company's country of origin and location of manufacturing facilities.

References:

1. BMWi (Federal Ministry for Economics and Energy). (Accessed January 2016), *Making more out of energy: National Action Plan on Energy Efficiency*. Berlin, Available at: <http://www.bmw.de/EN/Topics/Energy/EnergyEfficiency/nape,did=680402.html>.
2. Brown, M. (2011), *Market failures and barriers as a basis for clean energy policy*, *Energy Policy* 29(14).
3. Bundesverband Erneuerbare Energie (2014), *Hintergrundpapier zur EEG-Umlage*, BMWi Congressional Research Service.
4. FEDERAL MINISTRY FOR ECONOMIC AFFAIRS AND ENERGY (2011), *The Federal Government's energy concept of 2010 and the transformation of the energy system of 2011*.
5. Jacobson, M., Delucchi J. (2011), "Providing all global energy with wind, water, and solar power, part II: reliability, system and

- transmission costs, and policies." *Energy Policy* 39.
6. Kalkuhl, M., Edenhofer, O., & Lessmann, K. (2013). *RE subsidies: Secondbest policy or fatal aberration for mitigation? Resource and Energy Economics*, 35(3).
 7. Kuittinen H. (2018) and D. Velte, *Case Study Report Energiewende*, EC.
 8. Radło M.J., (2010), *Wyzwania konkurencyjności. Strategia Lizbońska w poszerzonej Unii Europejskiej*, Instytut Spraw Publicznych, Warszawa..
 9. Ragwitz M., (2011), *RE-Shaping: Shaping an effective and efficient European renewable energy market*, Karlsruhe,.
 10. Ragwitz M., (2015), *Assessing the performance of renewable energy support policies with quantitative indicators - Update 2015*, MEV Verlag GmbH.
 11. *Renewables 2018 – Global Status Report*, REN21, Paris 2018, p. 25, access: http://www.ren21.net/Portals/0/documents/Resources/GSR/2013/GSR2013_lowres.pdf.
 12. *Renewables Information 2002 (with 2000 data)*. International Energy Agency. November.
 13. Resch G., Panzer C., Ortner A. (January 2014), *2030 RES targets for Europe - a brief pre-assessment of feasibility and impacts*, Vienna University of technology,.
 14. Rickerson W.H., Sawin J.L., Grace R., (2014), *If the Shoe FITs: Using Feed-In Tariffs to Meet U.S. Renewable Electricity Targets*, *The Electricity Journal*, p.4
 15. Rodrigues S., Torabikalaki R., Faria, F., Cafôfo N., Chen, X., Ramezani, Ivaki A., Mata-Lima H. i Morgado-Dias F. (June 2016). *Economic feasibility analysis of small scale PV systems in different countries*. *Solar Energy* Volume 131.
 16. Rudnick H.: (Sept/Oct. 2009), *Public Policy and Energy – alternative paths to supplies – Guest editorial*. *IEEE Power & Energy Magazine*, Vol 7, No 5.
 17. Sierra J., Arriaga J., (Sept/Oct. 2009), *Unity for All – Energy Policy in The European Union*. *IEEE Power & Energy Magazine*, Vol 7, No 5,
 18. Simpson J. and McNamara K., (2011), *Elements of Energy Policy, Global Energy Dialogue, Country Studies Division*” International Energy Agency.
 19. Sonnenschein J. and Hennicke P., (2015), *The German Energiewende: A transition towards an efficient, sufficient Green Energy Economy*, Lund University, Lund.
 20. Sun P.A., (2013), *Comparative study of renewable Energy Industry regulation on feedin tariff dbased on pricing strategy of value standard method*, *J Appl Math*; Article ID 368296.

21. *The Federal Ministry for Economic Affairs and Energy, (2017), Ready for the next phase of the energy transition, , Accessed at: <http://www.bmwi.de/Redaktion/EN/Dossier/energy-transition.html>.*
22. *Trela M., Dubel A., Efektywność ekonomiczna elektrowni fotowoltaicznych oraz uniknięte koszty zewnętrzne w wyniku ich funkcjonowania. [W:] Środowiskowe i finansowe uwarunkowania funkcjonowania podmiotów gospodarczych, red. M. Czyż i J. Dyduch, Kraków: Wydawnictwa AGH, 2014.*

Vaničková Radka

*Ph.D. in Business and Management,
Assistant Professor, Representative
professional qualifications Persona list
The Institute of Technology and
Business in České Budějovice, Faculty
of Corporate Strategy, Department of
Management
(České Budějovice, Czech Republic)*

NEW INDUSTRIAL REVOLUTION OF THE FOURTH GENERATION: COMPARATIVE CHANGES AND CHALLENGES IN SYSTEMS IN THE CZECH REPUBLIC

1. Introduction

The up-to-date need of complex solutions which exceeds the potential of one branch or process generates changes and movements that have not matched yet. Automation, robotization, digitization, cybernetics, mechatronics, technological and structural changes are reflected not only in industry but also in other government departments of given countries through science and research, ethics and the social code as they respond to innovative changes and challenges.

New technologies are rapidly changing the structure of our economy and social life. The Fourth Industrial Revolution does not bring fundamental changes only in the area of industrial production because its overlap is much wider, comment (Diez Olivan, Del Ser, Galar, et al., 2019). The new philosophy highlights a change across society that is reflected in the field of industry, technical standardization, security, educational system, legal framework, science and research, the labour market or the social system. The Czech Republic is one of the countries with the longest industrial tradition and its ambition is a secure future,

stability of development, image and goodwill. The Fourth Industrial Revolution brings a number of challenges but also opportunities to ensure the long-term competitiveness of the Czech Republic in a global international environment as we live in a material world of modern times that has an impact on the quality of life of an individual in a society of many generations. The Fourth Industrial Revolution was established in the world's most developed economies under various terminology names as an effort to maintain and strengthen competitiveness and technological advancement in developed countries' economies on world markets. The attempt to take better control over the value chain is to acquire a higher skilled labour force which is insufficient, often inaccessible and difficult to replace. During the attempt to address and solve the growing social and economic problems and demographic and geopolitical risks, most of the global firms have re-evaluated the concept of geographic allocation of production capacities and have systematically built an innovative model of industrial production. Initiatives responding to the Fourth Industrial Revolution, e.g. Industrie 4.0 in Germany, the Industrial Internet Consortium or Smart Manufacturing Leadership Coalition in the U.S. as well as analogous programs in Japan or China, react to a new philosophy of system use, integration and interconnection of various technologies accepting long-term and flexible development and are the vision of the new Industry 4.0 concept. Due to the scope of impact of Industry 4.0 on partial branches, the philosophical thinking and comprehension penetrate the entire spectrum of society. It brings innovative changes and new challenges but also unusual opportunities especially for industrial companies which are gradually reacting to them because ignoring the new reality would lead to loss of competitiveness on the global market which would cause instability, low competitiveness, bankruptcy or extinction of companies, the loss of prestige and reputation but also the social benefits and usefulness of corporate entities in the future.

The three previous industrial revolutions were caused by the development of steam-driven mechanical production equipment and the introduction of mass production with use of electricity or electronic systems and computing in the manufacturing sphere. The current phenomenon is the Internet of Things, the Internet of Services, the Internet of People and the associated volume of data generated in the transfer of communications between machine-machine, human-machine or human-human, express (Berdal, Pacaux-Lemoine, Trentesaux, et. al.,

2019). The manufacturing environment is created by new technologies of autonomous robots, claim (Wang, Wang, Dai, 2019); analysis of the Big Data (Wang, 2015); computer simulations and virtualization of cloud data repositories, comment (Rahman, Medjahed, Orady, et. al., 2018); additive production of 3D print or augmented reality, say (Chun, Kim, Lee, 2019). Changing the value chains creates new strategic opportunities for business models, communicates (Ghobakhloo, 2018) and increases pressure on the flexibility of modern industrial manufacturing including demands on cyber security and interdisciplinary access. The initiative of Industry 4.0 is not only a digitization of industrial production, it is a complex change of systems associated with many human activities not only in industrial production, adds (Stadtfeld, 2015). Industry 4.0 transforms production from standalone automated units into fully integrated, automated and continuously optimized manufacturing environments, expresses (Tarassov, 2019). New global networks based on the integration of production facilities into cybernetic-physical systems (CPS) are being established: They are the basic building blocks of the “smart factories” as they are able to autonomously exchange information, react to implemented actions and independently control each other. Sensors, machines, parts and IT systems are interconnected within the value chain exceeding the boundaries of an individual company. CPS interact with each other through standard Internet-based communication protocols and analyse data to predict eventual variations, failures or errors, configure themselves and adapt to turbulent conditions in real time. In manufacturing plants there are produced “smart products” that are uniquely identifiable and localizable including their history and current status as well as alternative routes that contribute to the final product. Manufacturing processes are horizontally interconnected within corporate systems which in real time flexibly respond to changing demand for products as well as individual customer requirements and wishes. The manufacturing processes are optimized and able to flexibly respond to accidental changes caused by e.g. failure of the production equipment. The smart factories create space for creative industries with added value including the establishment of new business models. There is a fundamental redefinition of links between customers, producers and suppliers as well as a change in the way of communication between the human and the machine during solving global issues such as lack of raw materials, energy intensity or demographic changes, argue (Dolls, Doorley, Paulus, et al., 2017). Workforce is transformed, comment

(Kazancoglu, Ozkan Ozen, 2018) when physically and manually demanding work does not create a space for creative work which has a positive impact on extension of working hours as job flexibility, free working hours, compressed work week, part-time work, work from home and shifts create space for harmonization of private and working life.

The Government of the Czech Republic is aware of the fact that comparative advantages, which create the Czech Republic a developed country in order to establish subsidiaries of the global companies, will not have the added value in the new industrial world and interest in the existing competency structure will be reduced which would cause widespread macroeconomic and social problems in the digital world where large data and communication infrastructure needs to be created, the educational system has to be innovated, the new labour market instruments need to be implemented, the new form of social environment has to be adapted and the fiscal support for companies must be created in order to deal with input investments to new technologies and know-how, expresses (Mahmood, 2018). The philosophy of Industry 4.0 opens new possibilities for those ones who will be able to use it and develop it in the new millennium.

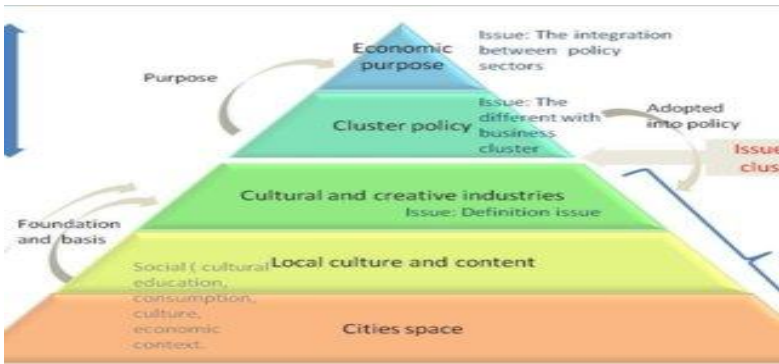


Figure 2.2 Cultural and creative industries

Source: Modified by (Kolesnichenko, Radyukova, Pakhomov, 2019).

2. Literature Review

2.1. Technological assumptions and visions

The Industry 4.0 initiative, with the transition from isolated computer and robotic support of manufacturing or administrative operations, claim

(Čejka, Černohorský, 2016) and (Ruohomaa, Salminen, 2019); is technologically simulated by the development of communication, information and computing technologies (PeBl, Ortner, Schweiger, 2014); methods and techniques of cybernetics and artificial intelligence, communicate (Uhlmann, Hohwieler, Geisert, 2017); new materials and biotechnologies . According to Moore's law, it is still valid for the development of information and communication technologies (ICT) that the key parameters of ICT are twice improved every 18 months, e.g. in favour of improving parameters of partial solutions and standardization of interface as the process of implementing Industry 4.0 is influenced by a series of innovations. Improvement of ICT technologies can be predicted; respectively it is possible to plan changes and innovations in the areas of cybernetics, robotics, and mechatronics but not in system sciences. Manufacturing units, including business, economic and managerial units perceive Industry 4.0 as a complex distributed system resulting from the "smart" integration of partial autonomous subsystems. The integration is ensured by an appropriate face-to-face communication based on the immediate need, mutual confrontation, co-ordination of activities and co-operation between autonomous subsystems. There is an absented sense of central hierarchical control and the processes of communication and coordination gain decentralized character. In extreme cases, the production system can work without the support of a central management authority.

Within the system perception, the initiative of Industry 4.0 is based on three key visions namely the horizontal integration of aggregate subsystems to ensure receipt and confirmation of the order from the production department to the shipment of products and to guarantee the warranty and post-warranty service eventually the end of life cycle of the given product. Furthermore, the vertical integration of all subsystems from the lowest level of automatic management of physical processes (with time demands on reaction in tens of milliseconds) through the management of the production department to Enterprise Resource Planning (ERP) with time indicators in hours and appropriate days. Last but not least, the vision is created by computer integration of partial engineering processes from creation, design, development, application, testing and verification to product lifecycle planning. The vision of horizontal and vertical integration requires the standardization of communication interfaces, displacement of functionalities provided by individual subsystems including the formulation of integration protocols. New open platforms of Service Oriented Architectures (SOA)

type are originated which are equipped with tools for mutual interaction between the registered subsystems as the reference architectures, that are typical for integration of systems of different types of enterprises, are created in the platforms according to the nature of production and production technologies of large data, cloud storage, semantic structures and usage methods. The existence of the reference architectures enables easier repeatability of solutions and interoperability. For the conceptual solution of Industry 4.0 projects, the key aspects are the facts when the autonomous unit of the complex production system consists of production sections, production machines and tools as well as transport trucks and belts, robots, products and semi-finished products and input materials, add (Karkalos, Markopoulos, Davim, 2019). The workforce is classified as a part of the production system. It is expected that all autonomous units constantly and mutually communicate, collaborate and negotiate. Interactive collaboration and communication, the real world of physical objects (machines, devices, robots, products, people) with virtual reality create space for presentation, representation and behaviour simulated by the software module as it is assumed that elements of the physical world are interconnected through the Internet networks with individual IP addresses of the so-called Internet of Things (IoT). Software modules presenting physical elements in the virtual space jointly solve the tasks that coordinate activities and decision-making about the use of services which provide each other through the Internet of Services (IoS). Although from a methodological point of view, it is spoken about two Internets namely IoT and IoS but in the reality Enterprise Service Bus is more often used expression. For robots and workforce, it is necessary to use a special interface enabling mobile communication on the basis of natural speech, claim (Aksu, Jenderny, Martinetz, et al., 2019); visual or tactile mechanics through which the third type of Internet, namely Internet of People (IoP), is connected. The vision and demand on integration of engineering processes also need (in addition to the methods of horizontal and vertical integration) creation of virtual space with highly intensive use of special knowledge in the form of ontologies, semantic links and effective imaging methods including methods of processing and using large data sets, on-line analyses, filtering and imaging of distributed simulation systems, planning and prediction of sophisticated research in the area of artificial intelligence, cybernetics and visualization, comments (Taylor, 2019). The whole behaviour of complex systems, without a central element including stability and convergence leading to the optimal measure,

cannot be analytically or experimentally proved. The artificial intelligence and cybernetics offer innovative solutions in the area of learning and self-learning organizations, optimization and diagnostic systems in a distributed environment. The introduction of industrial systems into user practice is very demanding, in terms of manufacturing, technical and computer-based, and requires regular testing and simulation with a certain amount of motivation and courage. The intelligence of solution applicable to production and non-production processes and services at the level of a complex production system, which is inspired by the socio-economic behaviour of the people in society, is decisive.

2.2. Specific situation of the Czech industry

The key branches of the Czech industry are the automotive industry, production of electrotechnics and electronics and engineering which accounts for more than half (55%) of the total export volume. In these branches, there is concentrated a significant part of the company's research and development operations which are connected to the foreign markets and the export economy in the field of manufacturing, engineering services, etc. In order to maintain the dynamics of the development of the Czech companies, it is necessary to support the development of optimal conditions for partner cooperation of stakeholders responding to foreign trends, the transition to communication and production technologies and equipment used in global supplier-subscriber chains and the increased pressure on investments and changes in the sense of increasing competitiveness through rapid adaptation to the new entry conditions and requirements of the European and world market. The process of the whole revolution should be understood as a societal challenge to which the Czech Republic has to respond in a timely manner so as not to lose its exclusive position on the international market because its competitive potential lies in newly emerging dynamic and globally successful Czech start-ups and best practices.

2.3. Demands on the applied research in the Czech Republic

Industry 4.0 is a new challenge for organization and management of the applied research in the Czech Republic. The issue of Industry 4.0 in the Czech Republic requires the formulation and implementation of a national programme of applied research including the socio-scientific one which is based on the long-term development of a system of

centres/institutes of applied research at national level. The position of Czech applied and industrial research is irreplaceable in a dual role. The research focuses on the integration of up-to-date partial solutions and new, innovative alternatives that are supported by long-standing tradition in the field of technical-automatic management, cybernetic-physical systems, simulation, and software for computer security, robotics, and visualization. The applied research cannot be realized with a small number of researchers (2 to 3) in a short-term horizon but it is appropriate to set up research and application centres which will be equipped and assembled in a complex manner. Reconstruction of space for the applied research, which would support a functional infrastructure with sufficient capacity space, is necessary in the case of Industry 4.0 as it creates opportunities and benefits for building start-up companies whose public support of applied research is concentrated and coordinated at national level.

The creation of new institutions is not a necessity. More suitable model is the involvement into already existing infrastructures of research centres according to professional specializations and professional orientations. The partial conceptual step is to summarize the results of scientific work at universities and research institutions and to compare them with the results of research and development in industrial and technological enterprises or entities in order to establish close working and personal contacts with the support of professional partnerships in joint projects together with the establishment of research centres and subsidiaries branches of multinational companies in order to increase the efficiency of using modern technology with help of engineering networks and interdisciplinary thinking.

2.4. Demands on standardization

The integration of decentralized solutions within Industry 4.0 has to comply with standards and internal requirements in accordance with international platforms such as Industrial Internet Consortium or Industrie 4.0. It is necessary that Czech research institutions and professional experts participate in international standardization committees and project teams under the auspices of the Ministry of Industry and Trade of the Czech Republic; they should also qualify products and services, identify solutions of professional orientation, and e.g. subsidize financial support for investment projects of the applied research. Regarding these considerations, it is expedient to prepare an effective and flexible national standardization policy which would

define the preparedness of Industrial 4.0 with respect to international standards and platforms.

2.5. Demands on safety, reliability and accessibility

Security and reliability are perceived in a complex and systematic way from data and communications security at the lowest level through the infrastructure reliability and global security such as the system security of manufacturing enterprises or retail chains. Ensuring data and communication security (cyber security) in the area of information and communication technologies is a partial task of many Czech companies, especially of small and medium enterprises, as companies need to have a constant overview of the condition and the current situation in cyberspace including its prevention and data protection. A prerequisite of company's security is the analysis and strategy of security of applications, development and monitoring of acceptable weaknesses and threats. Companies have to ensure efficient and comprehensive centralized management of end-user devices in terms of minimizing input costs and maximizing protection against malware and other Internet hacker attacks and threats on early identification networks of key systems containing sensitive business communications and data of centralized access to management information. Safety, reliability and accessibility of public, private and hired infrastructure at the level of global system have to be formulated in the clear way including competences and responsibilities at the international level, key branch, specific field or business entity. Attention should also be paid to the safety of automated operations including legislative measures relating to prevention, responsibility for damage and other operational or extraordinary risks and partial activities. The achievement of operational reliability, system security and accessibility of the manufacturing processes and facilities with the support of sophisticated decentralized management systems is a very challenging task designed for all stakeholders of the society 4.0.

2.6. Impacts on the labour market, qualification of the workforce and social impacts

The influence of the demanded qualification on the labour market has social impacts which influence organization of work, changes in employees' roles, state (Lotti, Villani, Battilani, et al., 2018); organization structures and job description, which demands new skills applicable for innovative policies of the labour market, and education,

add (Sparrow, Cooper, Jones, 2012). The impacts on the development of employment and unemployment generate new opportunities for increase in qualification, cite (Diez Olivan, Del Ser, Galar, et al., 2019) and (Inanc, 2018); better life conditions and innovative human resources as new work opportunities and competitive advantages of the Czech Republic in the international environment. Author Hahm (2018) claims that the traditional organization of work, under the influence of new production processes that are growing in favour of mutual interconnection and continuity, changes the separate division of labour between professions and activities into the organizational structure most often the flat ones with decentralized links. The work performance is also focused on independent decision-making supported by the application of automatic and semi-automated systems, coordination and control activities including communication systems with the customer. Digitalization brings a wide range of possibilities of transfer of information at a distance, state (Adam, Aringer Walch, Bengler, 2019), which have a significant influence on reconciliation of work and family life, support of talented and excluded people as well as participation in global demand by subsidizing virtual networks through social contacts. With the use of digital technology, employability is often more accessible to all occupational professions. New technologies enable the removal of manual and physically demanding traditional work, improving the working environment, security and employee care including the creation of new opportunities for career development. Industry 4.0 appeals to the disappearance of certain occupational professions/sectors and, at the same time, the establishment of new, non-traditional, or innovative ones. The technological process is more flexible in developed countries which have better conditions for implementation of technological changes, as automation, robotization and optimization of manufacturing processes displace simpler and repetitive activities of formerly traditional professions that have a beneficial effect on hard-to-fill jobs, e.g. on the assembly lines. It also reduces the employability of a low-skilled labour force (up to 54% for the Czech Republic comparable to Austria and Estonia) including jobs requiring secondary or tertiary education linked to certain routine activities, e.g. corporate administration, collecting, processing and analysing data, etc. Conversely, job positions requiring active business negotiation, creativity, flexibility, and social intelligence are less reduced as the implementation of the automation process into the realization of these activities is very difficult, sometimes even excluded.

Digital technology creates new job opportunities in database management, web design, architecture, big data protection, cloud services, and creative activities, communicate (Flores Ituarte, Chekurov, Tuomi, et al., 2018). System architects are innovators for Industry 4.0 because they combine technical education with software intelligence and creativity, say (Akopová, Przhedetskaya, 2019). Robotics specialists cooperating with robots and people oversee the safety and reliability of systems in order to assess, eliminate or prevent possible risks, express (Klopová, Komishová, Simonová, 2018). In addition, other technological changes are taking place within traditional industries linked to the use of biotechnology and advanced materials. Implementation of digitalization and cybernetic approaches stimulates creation of new job opportunities and professions with advanced requirements on qualification, quality, and speed and cost savings. Language mutations as well as the ability to communicate and teamwork including appealing to technical skills and methods of analytical thinking will retreat in favour of knowledge and skills to design adequate, partial solutions realized in customer practice according to the wishes and needs of the key customer. Using new technologies, the way of managing enterprises, manufacturing processes and services are changes. Authors Contreras, Bonilla, Peña Pérez Negrón (2019) state that the increasing use of digital technologies in implementing innovations to a particular branches, processes, product lines that require new competences, so-called e-leadership, is increasingly being taken into account.

The changes that the company has recorded in connection with the Industry 4.0 concept are revolutionary and their adaptation requires consensus across society and mutual support of stakeholders. The policy of employment reacts to the labour-releasing processes due to the implementation of automation and digital technologies by demanding workforce, comment (Fan, Oswin, 2016); creating new job opportunities, decreasing the aggregate labour costs, such as a lower tax base, adds (Hoffmann, 2016). The current trend appeals to the self-employment with focus on professional counselling and consulting, the possibility of flexible working time, retraining, and a flexible environment of the labour market based on the concept of flexicurity. This innovative system requires a better corporate responsibility in continuous renewal of the necessary knowledge and skills of employees and the responsibility of individuals to develop their own human capital with higher productivity and efficiency of human work allowing faster

transfer of wealth to society, increasing leisure time and creating new opportunities in the service sector, mainly in health and leisure-time services but also environmental protection. In order to make the impact on the labour market, qualification of labour force and social consequences positive, it is necessary to set up the employment policy, fiscal policies and a stable and economically sustainable environment with partnerships between the public and private sectors.

2.7. Effects on the education system

The impact on the education system, in relation to the requirements of professional qualification according to the Industry 4.0 concept in various sectors, requires systematic approach to new technologies including the improvement of the education system and the use of creative thinking in the teacher's profession. The quality and functionality of the education system at all levels is a critical factor of success as the current school curriculum is not sufficient to meet the requirements for the expected level of school leavers. Education has to respond to new occupations on the labour market and therefore overall changes in the content and form of education and the process of education at all levels are both a necessity and a new challenge. Educational institutions need motivated graduates with an enterprising spirit, creative and critical thinking and thinking, analytical ability to solve key issues independently. Achieved levels of pupils' and students' skills are dependent on the quality of teachers so it is more than necessary to get the best specialists for work with information, with mathematical skills, logical reasoning, problem solving skills and social sentiment and providing them with further professional education and the expected money rating. According to the content of education, the priority is given to science and technology fields because the structure of students/graduates of humanities creates structural mismatch with the needs of strategic branches. While studying technical and scientific disciplines is challenging, it provides a comprehensive basis for creating new job opportunities for different specializations. Services respond to exact fields, e.g. technical, health, environmental, etc., therefore the graduated study requires a more complex basis in combination with the knowledge of social fields and humanities. For these disciplines, the fundamentals are not essential but a good designer can be retrained as a marketing specialist; reciprocally without the knowledge of technical know-how it is not possible.

The digital technology changes the way of achieving information, cumulating social links, work habits and mutual communication, express (Olaf, Hanser, 2019). The generation of millennium works with digital technologies since early childhood, comments (Pianta, 2018), therefore, the school educational organizations must also consider the development and deepening of professional skills and abilities of language mutations including their improvement in language education, say (Caroleo, Demidova, Marelli, et al., 2017). The almost of all fields are mathematics abilities. It is necessary that students at primary and secondary schools successfully complete mathematics as the struggle for talent and care for talented young people is growing, therefore it is appropriate to devote more care to creation of optimal conditions for search, acquisition and development of talented students, engineers and scientists from the Czech Republic and abroad. The Czech tertiary technical education is at a high professional level, however, the realization of high-quality education within the partial technologies of the appropriate branches with the concept of Industry 4.0 needs to focus on the thought shift towards interdisciplinary system approaches and visions that predict a fundamental change in the concept of production systems and use of information technology, style and way of thinking of engineers oriented on a decentralized system using the automated organization of complex systems and subsystems without a central control element. Technical universities are changing educational programmes and curricula aimed at the horizontal integration of knowledge and experience from different disciplines providing system insight; comment (Longo, Nicoletti, Padovano, 2019). An important role is also attributed to professional internships for young people as major changes are reflected in many fields, e.g. economic, legal and social sciences, so each university implement the teaching of Industry 4.0 knowledge into the newly accredited study programs in the form of a study program or subject.

Education requires a wide range of information knowledge on the user and developer basis including knowledge about security of digital systems, work with big data, cloud solution, etc., state (Charro, Schaefer, 2018) and (Lu, Xu, 2019). It is more than necessary to integrate traditional fields with system knowledge and to respond to the need of interdisciplinary skills, knowledge of process and project management in order to find a suitable and effective innovative solution within the framework of demanded skills of given graduates.

2.8. Necessary modification of the legal framework and the regulatory environment

The influence of Industry 4.0 and digital economics needs the creation of legal legislative which is applicable in the digital practice and responds to the social changes in the society. The Industry 4.0 concept requires creation of new regulatory conditions, changes and modification of the up-to-date legal legislative in accordance with the development of innovation as the inclusion of modern technologies into manufacturing and automatization of manufacturing processes is more demanding on regulatory and legislative precautions, e.g. in relation to audits, certifications, monitoring of security devices but also reliability for damages caused by autonomous systems. The implementation of the standards of the Industry 4.0 concept needs revision of legislation in the area of Czech technical standards.

Based on the modification of the legal framework and regulatory environment, it is suitable to apply the Digital Impact Assessment (DIA) for new and novelized laws. The scope and expertise require the participation, open communication and cooperation of experts from legal, technical, economic, educational and social fields in cooperation with public and private sector specialists.

2.9. Industry 4.0 and efficiency of using resources

Reducing the use of energy and raw materials within production, increasing production, comment (Burhan, Sidek, Kurniawan, et al., 2015), optimizing logistics and distribution centres and routes, add (Tsourma, Zikos, Drosou, et al., 2018) and (Wrobel Lachowska, Polak et al., 2019), implementing technologies of the decentralization of the manufacturing system, transfer of energy or intelligent urban infrastructures are the key factor of success in optimal use of resources as even in automated manufacturing plants, there are also produced small production batches that meet the requirements and wishes of individual customers. Wide changes in many branches also causes reduction in the time needed to transfer production, reduction in costs by up to 25% when total production costs are reduced by 8%, the use of autonomous handling trucks increases up to 50%, operating, wage and overhead costs are reduced down by 30%. The technology of Industry 4.0 appeals to the best level of occupational safety and health of workers, advise (Leso, Fontana, Iavicoli, 2018). Machines are able to detect interaction with human factor through sensors, say (Krason, Maczewska, Polak, et al., 2019), and to alert to threats, risks and early

restrictions in the case of elimination or exclusion of injuries to people in manufacturing operations by up to 25%. The efficiency of human resource utilization is intense as a result of increasing labour productivity because new technologies create opportunities for employing a qualified workforce with the potential to develop creativity in manufacturing, IT, the service sector, and non-traditional industries. Connecting the value chain from delivering components from subcontractors to delivering the final product to the end user/customer significantly improves production, e.g. in the production planning process, comment (Bendul, Blunck, 2019), minimalization of warehouse stocks and optimization of logistics routes, express (Martín Gómez, Aguayo González, Luque, 2019).

The State Energy Policy envisages the development of local cogeneration of electricity and heat, renewable energy sources (Tumelero, Sbragia, Evans, 2019); intelligent building and electro mobility because the strategic branch of the up-to-date industry is the energetics and smart networks (National Action Plan approved by the Czech government). An example is the use of smart sensors which enable timely detection of grid defects in order to prevent long-term power outages including reduced repair costs. Traffic signalling related to current urban traffic density, urban public transport tracing, more efficient planning, etc. has an impact on reducing fuel consumption and produced emissions, reducing time-consuming with respect to the environmental impacts and environmentally friendly solutions.

2.10 Support of investments to projects which implement Industry 4.0

Projects which implement the technologies of Industry 4.0 are financially very demanding so the Czech Republic, with the support of EU funds, offers financial subsidies to companies investing in innovative solutions together with investments in science, research, education and social care; claim (McCall, Smith, Wunsch, 2016). Support for Industry 4.0 implementation must be projected into the Innovation Platforms of Research and Innovation Strategy (RIS3) according to the actual calls announced for RIS3 subordinate operational programs due to the increased competitiveness and attractiveness of the national environment created for the investment incentives of a foreign partner. In cooperation with the Ministry of Industry and Trade, the Ministry of Finance, the Ministry of Education, Youth and Sports and the Technology Agency of the Czech Republic (TA CR) in the program

period up to 2020, new support tools into applied research and industrial realizations were created in connection with the Industry 4.0 concept, e.g. in the form of subsidy titles and credit financing or through risk capital or revolving financing. Investment support is devoted to innovative and technical solutions in line with Industry 4.0, to training systems for the training of workers with regard to new demands on skills and labour market conditions as well as to systems of social security and social policies.

3. Conclusion

The Industrial revolution brings a complex change which influences all parts of life of the Czech society. The key prerequisite for successful adaptation and implementation of the changes is the use of opportunities as a challenge including the elimination of potential risks with the emphasis of the preventive measures implemented in Industry 4.0 as a consensus of strategic direction and sustainable development of the Czech Republic's competitiveness at the governmental level under the auspices of the Prime Minister and Ministers of the relevant ministries, entities, educational and research organizations and non-governmental and non-profit organizations.

Strengths

Tradition of industrial production oriented mainly to the automotive industry, good technical background, professional skills and employee's maturity are prerequisites for the comparative advantages of the implementation of the Industry 4.0 concept and its introduction into relevant branches of the market economy, communicate (Kulyk, Škodová Parmová, 2017).

The favourable level of innovation performance of the Czech economy among Central and Eastern European countries shows comparable results with Slovenia and Estonia, which confirms the good strategic starting position and comparative advantage in the system of innovative support for public and private investments, effective innovation partnerships with the academic community whose pillars are education system, science, research and development. Specialization on key basic technologies increases regional innovation performance mainly in fields of advanced materials, industrial biotechnology, photonics and advanced manufacturing technologies, state (Wilker, Meisel, Treytl, et al., 2018). It is expected that the innovation performance of EU will increase during next two years as most of

companies based in Romania, Malta or Ireland, plans to maintain or increase the share of innovative investment in 2019.

The openness of the Czech economy creates an advantage in the preparation and development of Industry 4.0 due to the confrontation with global “best practices”. Education, especially tertiary education, is seen as an added value by the Czech population therefore the interest in obtaining a university degree is constantly increasing with results similar to the achieved level of tertiary education as in developed countries. Choosing the appropriate specialization of professional orientation and improving the quality of tertiary education is a prerequisite for more flexible acquisition of diverse qualifications demanded by younger generations including lifelong learning. The quality level of education especially of technical and science subjects at technical universities in cooperation with foreign research institutes and organizations and partners from technological institutions and corporate bodies of professional practice create conditions for successful implementation of contractual basic to applicable research and experimental development of all stakeholders. The growth of employment in the sectors of the national economy of the Czech Republic has been included among the countries with progressive creation of new jobs in industrial production, technology sectors and services in the last five years. Regular increases in wages are another attraction for future talents and potential employees of the respective sectors of the national economy.

Weaknesses

The low awareness of the Industry 4.0 concept is often misinterpreted by the public with a shift to the term digitization or so-called internalization. The impacts of Industry 4.0 changes are manifested in a wide range and fall into almost all areas of human life. The introduction of Industry 4.0 into the concepts of the White Paper, Action Plans and other development activities is annual analyses of the implementation of Industrie 4.0 in the Federal Republic of Germany, are estimated at EUR 250 million and are based on the national needs of the state concerned.

The interconnection of manpower in production and low qualified professions performing manually and physically demanding rather routine work endangers the members of the human population due to the automation and digitization of production processes and services demanded in relation to changes in the social status of individuals and

occupational groups as the current specialization of technical and non-technical fields does not cover the future needs of Industry 4.0 consisting of system thinking and an interdisciplinary approach. The tertiary education undergoes a phase of substantial change at the level of multidisciplinary and interdisciplinary interconnection, calling for the support, partnership and cooperation of all stakeholders in the field of technology, social sciences and humanities and other emerging disciplines responding to the labour market's needs and requirements and development of employment. Funding of the applied research is not long-term, it is spoken mainly about small and short-term projects that are inadequate for Industry 4.0 as a suitably chosen communication strategy calling for speed and volume of data is a prerequisite for the development of Industry 4.0.

Insufficient investment opportunities for small and medium enterprises, limited investment support by the state and banking institutions, low applicability of specific funding instruments most often based on foreign experience e.g. revolving funding, combination of subsidies and loans or inefficient communication and informal support and integration between government authorities, corporate practice and technological institutions oriented on development and education systems, appeal on consensus and united formulation of the goals and tools applied in corporate practice often embedded in personal interpersonal relationships not in a uniform regulatory methodology.

The all-society unpreparedness to the Fourth Industrial Revolution of Society 4.0 is appealing to major changes in the field of industrial production responding to the open challenges of transforming the social status of work into all-community values in accordance with ethics and education to moral behaviour, sharing common principles, norms and values of virtues in communities of society.

Opportunities

The emergence of Industrie 4.0 in the Federal Republic of Germany is an indispensable innovative tool for supporting, strengthening the stability and leading position of Germany as an industrialized country on the European market due to an expensive workforce. In order to strengthen the competitiveness of the Czech Republic or a new form of industrialization by implementing the principles of Industry 4.0, so-called Smart Factory, it is possible to achieve higher production and efficiency of production compared to enterprises focused on cheap labour, express (Sjödin, Parida, Leksell, et al., 2018). Higher industrial

share in GDP creation needs to be transformed into a comparative advantage of a synergistic effect in favour of quality not quantity of all stakeholders and individuals, as the gained added value has a positive impact on other sectors of the national economy, e.g. energy, the environment, transport, health and social services, etc., has a positive impact on the increase of the economic efficiency, the performance of the workforce and the increased standard of living and the quality of the population. Increasing the attractiveness of the Czech Republic for new incoming foreign investors, stimulation of investments of foreign companies in the Czech Republic expanded by a new dimension of research and development character or by investment realization into industrial production ends the stage of so-called fitting shops and creates space for new design, architecture, software engineering and the attractiveness of the new generation according to the vision of Industry 4.0, emphasize (Lee, Chen, Lee, et al., 2017).

With the aimed support of small and medium enterprises to achieve effective growth of competitiveness, the state support to these entrepreneurial as well as non-entrepreneurial entities is necessary as they are pillars of the Czech economy and co-financed from EU funds, Operational Program Entrepreneurship and Innovation for Competitiveness (OP PIK) in the form of the selected operational program under the auspices of the Ministry of Industry and Trade of the Czech Republic.

Improving the quality of the education system opens up space for creativity and initiative of teachers who emphasize talent's search and development, innovation, critical thinking and imagination. The partnership of educational institutions with business, non-governmental and non-profit entities creates a new space of the fourth generation supported by the development of modern information and communication technologies applied to the teaching process by introducing new disciplines and specializations, educational methods at all levels of education according to the needs of Industry 4.0. The creation of qualified employment opportunities in the professions in the industrial sphere and in other sectors of the national economy generates new employment opportunities in the service sector that are favourably influenced by the growth of the standard of living of the population and the quality of life of individuals in the social, health, leisure and environmental spheres.

Threats

The attractiveness of Industry 4.0 and its positive impacts are a risk of purposeful use of stakeholders. Political misunderstanding of Industry 4.0 and the diversity of policies of Industry 4.0 under the auspices of the Ministry of Industry and Trade of the Czech Republic should not be perceived and judged separately but as a tool of a government program addressed to all stakeholders regardless of political affiliation, engagement or power preference. The broadband coverage of the Czech Republic is a priority of broadband Internet with sufficient capacity without which it is not possible to continue the development of Industry 4.0.

The absence of compact standardization and cyber security has to be in line with world standards and systems that work in neighbouring countries. The development of renewable resources, decentralized energetics and Smart Grids represents a major change in the management and maintenance of a stable energy system. From the point of view of the industrial revolution of the fourth generation, it is essential that newly established decentralized centres have to be able to co-operate with existing systems and available resources, to promote their operational stability and to be used in the case of so-called blackout.

The inadequate structure of research, development and innovation cannot be achieved without a well-prepared and implemented restructuring in the area of applied research which is realized in newly established centres and institutes in which the research and development support of Industry 4.0 can be achieved.

The education and retraining system should be implemented in accordance with the aim of Industry 4.0 so as to avoid diversion from the value chain, skill-intensive investments allocated to other sources, the restriction of creation of new occupational opportunities or the possible loss of jobs in traditional, obsolete processes.

Rapid changes in the range and structure of the workforce and the demands on labour force's skills can have negative effects on the labour market especially in demanding professions. It is necessary to prepare for the amended changes, to respond adequately to them considering an active employment and social policy.

Low support of social and ethical behaviour and perceptions in modern society leads to the emergence of social barriers, the widening of household incomes' disparities with limited creation of new opportunities, social frustration and inclusion in society.

In order to sustain sustainable economic growth, cultural and creative industries are an opportunity and a challenge but also a threat in case that the Czech Republic and the EU do not recognize new trends, development changes in systems, do not map the sector and draw the consequences according to the data gathered so that it remains strategically competitive, state (Holátová, Březinová, Kantnerová, 2016).

It is necessary for Czech companies to accept new approaches and standards of the international market, to reduce dependence on German customers and to extend the strategy of economic growth to other economically advanced countries of the international market.

References:

1. Adam, C., Aringer Walch, C., Bengler, K. (2019). *Digitalization in Manufacturing - Employees, Do You Want to Work There? Advances in Intelligent Systems and Computing. Issue 825*, pp. 267-275.
2. Akopová, E. S., Przhedetskaya, N. V. (2019). *The algorithm of managing the process of formation and development of industry 4.0 in the modern economic systems in the conditions of knowledge economy's formation. Studies in Systems, Decision and Control. Issue 169*, pp. 201-208.
3. Aksu, V., Jenderny, S., Martinetz, S., Röcker, C. (2019). *Providing context-sensitive mobile assistance for people with disabilities in the workplace. Advance in Intelligent Systems and Computing. Issue 776*, pp. 3-14.
4. Bauer, W., Moritz, H., Stefan, G., Strölin, T. (2014). *Planning flexible human resource capacity in volatile markets. IFAC Proceedings Volumes. Issue 19*, pp. 4459-4464.
5. Bendul, J. C., Blunck, H. (2019). *The design space of production planning and control for industry 4.0. Computers in Industry. Issue 105*, pp. 260-272.
6. Berdal, Q., Pacaux-Lemoine, M. P., Trentesaux, D., Chauvin, C. (2019). *Human-machine cooperation in self-organized production systems: A point of view. Studies in Computational Intelligence. Issue 803*, pp. 123-132.
7. Burhan, N. A. S., Sidek, A. H., Kurniawan, Y., Mohamad, M. R. (2015). *Has globalization triggered collective impact of national intelligence on economic growth? Intelligence. Issue 48*, pp. 152-161.
8. Caroleo, F. E., Demidova, O., Marelli, E., Signorelli, M. (2017). *Young people and the labour market: A comparative perspective. Young People and the Labour Market: A Comparative Perspective. pp. 1-266*.
9. Contreras, M., Bonilla, D., Peña Pérez Negrón, A. (2019). *Proposal of*

- a model for the development of labour competencies based on serious games in the context of industry 4.0. Advances in Intelligent Systems and Computing. Issue 865, pp. 80-87.*
10. Čejka, J., Černohorský, J. (2016). *Optimization of robotic workplaces. Proceedings of the 2016 17th International Carpathian Control Conference, ICCCC 2016. pp. 146-150.*
 11. Diez Olivan, A., Del Ser, J., Galar, D., Sierra, B. (2019). *Data fusion and machine learning for industrial prognosis. Trends and perspectives towards Industry 4.0. Information Fusion. Issue 50, pp. 92-111.*
 12. Dolls, M., Doorley, K., Paulus, A., Sieglösch, S., Sommer, E. (2017). *Fiscal sustainability and demographic change: a micro-approach for 27 EU countries. International Tax and Public Finance. Vol. 24, Issue 4, pp. 575-615.*
 13. Fan, I. S., Oswin, L. (2016). *Factory automatization and information technology convergence in complex manufacturing. Advances in Transdisciplinary Engineering. Issue 3, pp. 331-336.*
 14. Flores Ituarte, I., Chekurov, S., Tuomi, J., Springer, P., Partanen, J. (2018). *Digital manufacturing applicability of a laser sintered component for automotive industry: a case study. Rapid Prototyping Journal. Vol. 24, Issue 7, pp. 1203-1211.*
 15. Ghobakhloo, M. (2018). *The future of manufacturing industry: a strategic roadmap toward Industry 4.0. Journal of Manufacturing Technology Management. Vol. 29, Issue 6, pp. 910-936.*
 16. Hahm, S. (2018). *Attitudes and performance of workers preparing for the fourth industrial revolution. KSII Transactions on Internet and Information Systems. Vol. 12, Issue 8, pp. 4038-4056.*
 17. Hoffmann, J. (2016). *Reengineering of business processes with Industry 4.0 puts employees in focus. ZWF Zeitschrift fuer Wirtschaftlichen Fabrikbetrieb. Vol. 111, Issue 4, pp. 225-227.*
 18. Holátová, D., Březinová, M., Kantnerová, L. (2016). *Strategic management of small and medium-sized enterprises. WSEAS Transactions on Business and Economics. Vol. 12, Issue 7, pp. 65-73.*
 19. Charro, A., Schaefer, D. (2018). *Cloud Manufacturing as a new type of Product-Service System. International Journal of Computer Integrated Manufacturing. Vol. 31, Issue 10, pp. 1018-1033.*
 20. Chun, K. W., Kim, H., Lee, K. (2019). *A study on research trends of technologies for industry 4.0; 3D printing, artificial intelligence, big data, cloud computing, and internet of things. Lecture Notes in Electrical Engineering. Issue 518, pp. 397-403.*
 21. Inanc, H. (2018). *Unemployment, Temporary Work, and Subjective Well-Being: The Gendered Effect of Spousal Labour Market Insecurity. American Sociological Review. Vol. 83, Issue 3, pp. 536-566.*

22. Karkalos, N. E., Markopoulos, A. P., Davim, J. P. (2019). *General aspects of the application of computational methods in industry 4.0. Springer Briefs in Applied Sciences and Technology.* pp. 1-10.
23. Kazancoglu, Y., Ozkan Ozen, Y. D. (2018). *Analysing Workforce 4.0 in the Fourth Industrial Revolution and proposing a road map from operations management perspective with fuzzy DEMATEL. Journal of Enterprise Information Management.* Vol. 31, Issue 6, pp. 891-907.
24. Klopová, O., Komishová, L., Simonová, M. (2018). *Professional development in the field of human resource management of heads and specialists of the innovative organizations. Problems and Perspectives in Management.* Vol. 16, Issue 1, pp. 214-223.
25. Kolesnichenko, E. A., Radyukova, Y. Y., Pakhomov, N. N. (2019). *The role and importance of knowledge economy as a platform for formation of industry 4.0. Studies in Systems, Decision and Control.* Issue 169, pp. 73-82.
26. Krason, P., Maczewska, A., Polak Sopinska, A. (2019). *Human Factor in Maintenance Management. Advances in Intelligent Systems and Computing.* Issue 793, pp. 49-56.
27. Kuľyk, V., Škodová Parmová, D. (2017). *E-business development: The comparative study of the Czech Republic and the Ukraine. Deturope.* Vol. 9, Issue 1, pp. 80-110.
28. Lee, C. H., Chen, C. H., Lee, Y. C., Li, F., Zhao, X. (2017). *Accelerating retail-innovation design for smart services via foresight approach and case-based design. Advances in Transdisciplinary Engineering.* Issue 5, pp. 813-820.
29. Leso, V., Fontana, L., Iavicoli, I. (2018). *The occupational health and safety dimension of Industry 4.0. La Medicina del lavoro.* Vol. 110, Issue 5, pp. 327-338.
30. Longo, F., Nicoletti, L., Padovano, A. (2019). *Emergency preparedness in industrial plants: A forward-looking solution based on industry 4.0 enabling technologies. Computers in Industry.* Issue 105, pp. 99-122.
31. Lotti, G., Villani, V., Battilani, N., Fantuzzi, C. (2018). *Towards an integrated approach for supporting the workers in Industry 4.0. Proceedings - 2018 IEEE Industrial Cyber-Physical Systems, ICPS 2018.* pp. 609-614.
32. Lu, Y., Xu, X. (2019). *Cloud-based manufacturing equipment and big data analytics to enable on-demand manufacturing services. Robotics and Computer-Integrated Manufacturing.* Issue 57, pp. 92-102.
33. Mahmood, M. (2018). *The Three Regularities in Development: Growth, Jobs and Macro Policy in Developing Countries. The Three Regularities in Development: Growth, Jobs and Macro Policy in Developing Countries.* pp. 1-316.

34. Martín Gómez, A., Aguayo González, F., Luque, A. (2019). *A holonic framework for managing the sustainable supply chain in emerging economies with smart connected metabolism. Resources, Conservation and Recycling*. pp. 219-232.
35. McCall, B., Smith, J., Wunsch, C. (2016). *Government-Sponsored Vocational Education for Adults. Handbook of the Economics of Education*. Issue 5, pp. 479-652.
36. Olaf, J. M., Hanser, E. (2019). *Manufacturing in times of digital business and industry 4.0. The industrial internet of things not only changes the world of manufacturing. Lecture Notes in Mechanical Engineering*. pp. 11-17.
37. Peßl, E., Ortner, W., Schweiger, J. (2014). *Industry 4.0: Information technology fuses with production. Productivity Management*. Vol. 19, Issue 1, pp. 59-62.
38. Pianta, M. (2018). *Technology and Employment: Twelve Stylised Facts for the Digital Age. Indian Journal of Labour Economics*. Vol. 61, Issue 2, pp. 189-225.
39. Rahman, M. N. A., Medjahed, B., Orady, E., Abdullah, R., Jaya, A. S. M. (2018). *A review of cloud manufacturing: Issues and opportunities. Journal of Advanced Manufacturing Technology*. Vol. 12, Issue 1, pp. 61-76.
40. Ruohomaa, H., Salminen, V. (2019). *Regional Development in Modern Robotic Education on Industrial and Society Context. Advances in Intelligent Systems and Computing*. Issue 793, pp. 159-168.
41. Sjödin, D. R., Parida, V., Leksell, M., Petrovic, A. (2018). *Smart Factory Implementation and Process Innovation: A Preliminary Maturity Model for Leveraging Digitalization in Manufacturing Moving to smart factories presents specific challenges that can be addressed through a structured approach focused on people, processes, and technologies. Research Technology Management*. Vol. 61, Issue 5, pp. 22-31.
42. Sparrow, P. R., Cooper, C. L., Jones, D. (2012). *The employment relationship: Key challenges for HR. The Employment Relationship: Key Challenges for HR*. pp. 1-282.
43. Stadtfeld, H. J. (2015). *Industry 4.0 and its implication to gear manufacturing. American Gear Manufacturers Association Fall Technical Meeting 2015, AGMA FTM 2015*. pp. 78-101.
44. Tarassov, V. B. (2019). *Enterprise total a gentrification as a way to industry 4.0: Forming artificial societies via goal-resource networks. Advances in Intelligent Systems and Computing*. Issue 874, pp. 26-40.
45. Taylor, S. J. E. (2019). *Distributed simulation: state-of-the-art and potential for operational research. European Journal of Operational*

- Research. Vol. 273, Issue 1, pp. 1-19.*
46. Tsourma, M., Zikos, S., Drosou, A., Tzovaras, D. (2018). *Online task distribution simulation in smart factories. 2nd International Symposium on Small-Scale Intelligent Manufacturing Systems. SIMS 2018, pp. 1-6.*
 47. Tumelero, C., Sbragia, R., Evans, S. (2019). *Cooperation in R & D and eco-innovations: The role in companies' socioeconomic performance. Journal of Cleaner Production. Issue 207, pp. 1138-1149.*
 48. Uhlmann, E., Hohwieler, E., Geisert, C. (2017). *Intelligent production systems in the era of industry 4.0. Changing mind sets and business models. Journal of Machine Engineering. Vol. 17, Issue 2, pp. 5-24.*
 49. Wang, Y., Wang, K., Dai, G. (2019). *Cognitive maintenance for high-end equipment and manufacturing. Lecture Notes in Electrical Engineering. Issue 484, pp. 394-400.*
 50. Wang, Y. (2015). *Development of an energy management system using 'big data' and 'wireless' technologies for industry 4.0 in brewery industry. International Journal of Simulation: Systems, Science and Technology. Vol. 16, Issue 2, pp. 101-104.*
 51. Wilker, S., Meisel, M., Treytl, A., Leonhartsberger, K., Frantes, B. (2018). *ENDUSTRIE 4.0. A future technologies qualification network for local businesses. Proceedings - 2018 IEEE Industrial Cyber-Physical Systems, ICPS 2018. pp. 497-502.*
 52. Wrobel Lachowska, M., Polak Sopinska, A., Wisniewski, Z. (2019). *Challenges for logistics education in industry 4.0. Advances in Intelligent Systems and Computing. Issue 785, pp. 329-336.*

Chapter 3

FORMATION AND EFFECTIVE USE THE INNOVATION POTENTIAL OF ECONOMIC ENTITIES

Belanova Katarina

*PhD. in Economics, Associate
Professor, Department of Finance
University of Economics in
Bratislava
(Bratislava, Slovakia)*

PUBLIC SOURCES IN FINANCING OF INNOVATIVE SMALL AND MEDIUM – SIZED ENTERPRISES IN THE SLOVAK REPUBLIC

The small and medium-sized business sector is an integral part of any advanced market economy. A favorable business environment and the provision of appropriate forms of support is an important prerequisite for the successful development of small and medium-sized enterprises (hereinafter referred to as "SMEs") because they usually have limited financial sources and significantly higher sensitivity to the existence of different barriers in business compared to large enterprises.

The significance of small and medium-sized enterprises is also recognized by individual EU countries that use a wide range of support measures to help them.

In Slovakia, small and medium-sized enterprises are a key segment of the business sector, as well as the backbone of the economy and the basis for the country's competitiveness. Creating of innovations in particular economies takes place primarily in the business sphere. In Slovakia, it is represented especially by SMEs, as they make up 99.9% of all businesses. They are defined according to the European Commission Recommendation 2003/361, which sets out the main factors for determining whether a company is a SME; number of employees and either turnover or balance sheet total. We can recognize three categories of enterprises: Micro (less than 10 employees, turnover or balance sheet total \leq 2 million EUR), Small (less than 50 employees, turnover or balance sheet total \leq 10 million EUR), Medium-sized (less than 250 employees, turnover \leq 50 million EUR or balance sheet total \leq

43 million EUR).

Under the conditions of Slovakia, a number of support measures have been implemented, which direct or indirect aim is to support small and medium-sized enterprises. Creating new as well as further developing of support tools for entrepreneurs can help to sustain the growth of the economy and promote employment in the long term. However, without evaluating the impact of support measures, it is not possible to assess the degree of fulfillment of the individual priorities and objectives of these instruments.

This was the reason why we decided to focus on evaluation of effectiveness of public funding for SMEs with the emphasis on innovative SMEs.

The aim of the article is to evaluate support programmes for innovative SMEs in the SR and to propose measures to improve the support system.

The bases of the study are legal acts of the EU and of the SR and statistics data. When writing this article, we used the methods of theoretical generalization, analysis and synthesis, analogy method, statistical analysis, abstraction and concretization, which enabled us to conduct a comprehensive study.

SME sector in the SR

According to records of the Statistical Office of SR (hereinafter referred to as "SOSR"), the number of active business entities (according to SOSR, an 'economically active entity' is an entity which had employees, generated revenues or made investments in the reference period under review) in 2017 reached 567,793, while SMEs represented 567,131 out of the above-stated figure. Compared to 2016, the number of active SMEs increased by 1.8%.

Out of the total number of enterprises, microenterprises represented 97.0% (550,016), small enterprises 2.5% (14,159) and medium-sized enterprises 0.5% (2,956). The number of registered active large enterprises amounted to 662 and their share represented 0.1%. Looking at the development of the total number of active SMEs in the period of 2008-2017, the number of microenterprises rose slightly, particularly before 2010. After 2010, the development of the number of microenterprises became stable and it currently oscillates at 97% out of the total number of business entities.

An opposite trend was seen in the category of small enterprises. In 2017, the proportion of small enterprises dropped by more than a half compared to 2008. The most dynamic year-on-year drop in the proportion (by 3.2 p.p.) was seen between 2009 and 2010. In the case of other size categories of enterprises, there is a stable development without any major oscillations.

From 2009 to 2015, the total number of SMEs was characterized by different development tendencies seen in individual legal forms. While the number of SMEs - legal persons would rise every year, the number of natural persons - entrepreneurs would decrease. A change in the development occurred after 2016 when the total number of natural persons - entrepreneurs as well as of SMEs - legal persons was rising. The data available for 2017 confirms the change in the development trends seen in the previous year in the number of the monitored legal forms, i.e. the rise in the number of natural persons - entrepreneurs (by 0.38 p.p.) and of SMEs - legal persons (by 4.12 p.p.) compared to 2016.

According to Eurostat data, innovation activities in Slovakia were carried out by almost every third small and medium-sized entrepreneur in 2014 (30.5 %). As we will present later, the low share of innovating enterprises in the Slovak Republic is a result of the innovation barriers. In particular, it is a lack of one's own resources to finance innovation, lack of finance from outside the enterprise and too much high innovation costs that significantly restrict business innovation activities in industry and services.

From the point of view of the industrial structure of SMEs, the core business line of more than a quarter (25.2%; 142,906) of active SMEs included business services (SK NACE section K to N) in 2017. SMEs were slightly less represented (21.2% or 120,178) in the trade sector, followed by the building industry (16.7% or 94,694 SMEs). Industrial activities were performed by 75,670 SMEs (13.3%). Representation of SMEs in other industries did not exceed 10%. In a long-term perspective, SMEs have been least represented in agriculture (4.4%) and in accommodation and catering (3.5%). In 2017, more than three quarters (76.3%) of SMEs operated in the following four sectors: business services, trade, construction and industry.

The evolution of main economic indicators characterizing the SME development was positive in 2017 as well. The added value of (non-financial) SMEs increased by 8.9% to EUR 21,774.6 million compared to the previous year. Almost three quarters of the added value of SMEs were created by business entities operating in industry, trade and

business services. After the proportion of SMEs in the total created added value had been decreasing for six years, it rose again to 53.6%. However, compared to other EU countries, the Slovak SMEs still lag behind as for their proportion in the created added value. In absolute terms, other economic indicators increased as well: gross production (by 7.1%), pre-taxation profit (by 7.5%) and gross fixed capital (by 34.4%). The labour productivity per 1 employed person in SMEs represented EUR 16,700.

From the point of view employment, SMEs have an irreplaceable position in Slovakia. In 2017, their proportion in employment reached 73.8% in corporate economy and 59.1% in the entire economy. Compared to 2016, the proportion of SMEs in employment in corporate economy decreased by 0.3 p.p., particularly as a result of a more dynamic employment growth in large enterprises. In absolute terms, the number of persons employed by SMEs increased by 1.4% in 2017 (or by 19,066 persons) to 1,387,848 persons, representing the highest number since 2008.

Compared to other EU countries, Slovakia is characterized by a high business activity and the highest representation of microenterprises. In comparison with EU-28, the SMEs in Slovakia have a significantly higher representation in industry and construction. On the contrary, they are least represented in services.

The position of women in the business sector in Slovakia has not changed significantly. The proportion of women in the total number of natural persons - entrepreneurs amounted to 29.0%, thus increased by 0.2 p.p. compared to 2016.

2017 saw a positive trend in the number of established and disestablished business entities. Compared to the previous year, the number of established SMEs increased by 11.2% to 65,404 business entities (according to data from the SOSR's Register of Organizations) and the number of disestablished business entities dropped by 2.4% to 52,599 entities. In 2017, the net increase of the number of business entities amounted to 12,805.

As for foreign-trade exchange of goods, large enterprises have maintained their long-term dominant position. According to preliminary results of SOSR, the export of SMEs increased only slightly (by 0.1%) in 2017. The share of SMEs in the total export reached 27.9%, representing the lowest level in the last eight years.

Table 3.1

General and demographic SME indicators

indicator	2016	2017	2017/2016 (%)
Number of SMEs	557,122	567,131	1.8
Number of established SMES	58,838	65,404	11.2
Number of disestablished SMEs	53,878	52,599	-2.4
Net increase in the number of SMEs	4,960	12,805	258.2
Number of SMEs bankruptcies	273	285	4.4
Number of permitted restructurings of SMEs	68	46	32.4

Source: processed by the author according to SO SR

The territorial structure of the export of SMEs has long been marked by dominance of the common EU market. Only 9.1% of the total export of SMEs went to non-EU countries. Compared to other EU countries, Slovak SMEs are characterized by the lowest proportion of export to markets of third countries. At the same time, the passive balance of SMEs' foreign trade increased by 13.8% compared to the previous year. The number of SMEs operating in high-tech sectors increased also in 2017 (to 21,772); the proportion of the above-stated entities represented 4.9% in the total number of SMEs. In a long-term perspective, the development of the number of SMEs in high-tech industries is characterized by growing dynamics, particularly as a result of a growth of SMEs in high-tech services. The proportion of SMEs in revenues and gross investments in high-tech sectors is higher than one third and in the total employment it is higher than one half.

Legislative and institutional framework of support for SMEs in Slovakia

On 9 January 2013, the European Commission adopted an Entrepreneurship 2020 Action Plan - Reigniting the Entrepreneurial Spirit in Europe with the aim to increase the number of entrepreneurs in order to achieve priority goals, i.e. to restore the economic growth and to increase the employment rate.

The Small Business Act for Europe Initiative is an overarching framework for the EU policy related to SMEs. It is focused on improving the access to entrepreneurship in Europe, simplifying the regulatory and political environment for SMEs and eliminating the remaining obstacles hampering their development.

The most important EU investment policy is the Cohesion Policy. It has set 11 thematic growth-promoting objectives for 2014-2020. Enhancing the competitiveness of small and medium-sized enterprises is one of its priorities. Investments are directed also at promoting growth in areas such as strengthening research, technological development and innovation, improving the access to information technology and increasing its use and quality, or supporting the transition to low-carbon economy.

Financial resources of the European Structural and Investment Funds are a significant tool of such Policy, helping strengthen the economic, social and territorial cohesion and decrease the persistent regional disparities. In the new programme period 2014-2020, SMEs may be supported through several operational programmes (hereinafter referred to as "OPs") financed by ESIF, such as OP Research and Innovation, OP Quality of Environment, OP Integrated Infrastructure, OP Human Resources, OP Efficient Public Administration, Integrated Regional OP and Rural Development Programme.

At the national level, in its Programme Statement for 2016-2020 the Slovak Government undertook to adopt a new act on SMEs the aim of which is to create a better business environment for SMEs and appropriate conditions for active application of the SBAfE principles and of the Entrepreneurship 2020 Action Plan.

The business environment in the Slovak Republic is characterized by frequent changes of legislative and legal conditions related inter alia to obligations and requirements applicable to SMEs. The year 2017 saw changes mainly in tax legislation, in electronic communication with public administration authorities and in the social and health insurance systems.

A new Act No. 290/2016 Coll. on Supporting Small and Medium-Sized Enterprises became effective on 1 January 2017, indicating a positive change. The aim of the Act is to foster the "Think Small First" principle in the Slovak legal environment. The Act regulates the form of providing support to SMEs, direct support in the form of an independent financial contribution, subsidies and a financial tool, and forms of indirect support such as education, consultancy, supporting participation

in internships, exhibitions, competitions, etc.

The National Reform Programme of the Slovak Republic 2017 describes structural measures which the Slovak government plans to implement mainly in the next two years. The measures planned for the business environment would have a positive impact on SMEs. Changes related to the Business Register will decrease the administrative burden of entrepreneurs and courts during registration of business companies. Fees will decrease and electronic services for entrepreneurs will improve. Availability of the services will be extended by extending the number of external registrars who will be able to register entities in the Business Register.

In the near future, a coherent and conceptual Economic Policy Strategy of the Slovak Republic by 2030 is supposed to be adopted. The Economic Policy Strategy is focused on a key area, i.e. business development. In relation to the fact that SMEs represent a significant element in creation of new jobs, the Strategy is focused on looking for solutions which would increase the growth of their labour productivity and overall competitiveness. It is the recommendation of the Strategy to focus on promoting the export of SMEs as well as their internationalization and involvement in global value chains. SMEs should thus be supported both during their establishment and development.

SME finance in the SR

In Slovakia, SMEs are primarily financed from their own sources, respectively from loans and leasing.

According to a joint survey of the European Commission and of the European Central Bank entitled Survey on the Access to Finance of Enterprises (SAFE) 2017, the Slovak SMEs most intensively use or consider using four sources for financing of their business activities. For 56% of SMEs, the most relevant source of financing is permitted overdraft of their bank accounts or credit cards. According to the survey results, the above-stated source is the most relevant also at the EU level (53%). Leasing is an important source of financing for more than a half of Slovak SMEs (55%). 41% SMEs consider bank or trade credits to be suitable sources of financing. Compared to EU-28, the Slovak SMEs are considerably lagging behind in the use of such forms of financing as grants or venture capital.

Based on the processed available financial reports of business entities, the state of bank loans granted to SMEs in 2016 (as of 31 December 2016) was 14,729 Million Euros (preliminary figure). In a year-to-year comparison, the state of bank loans granted to SMEs increased of 11.7%. The share of long-term bank loans on the total amount of bank loans for SMEs represented 57.4%. In 2015, the year-to-year increase of the rate of use of the bank loans for SMEs (the share of SMEs - entrepreneurs on the bank loans) was 0.5 of a point of percentage to 18.2%. The year-to-year increase of the share of business entities using bank loans was 0.5 of a point of percentage for microenterprises and 0.8 of a point of percentage for small enterprises. To the contrary, a decrease of 0.8 of a point of percentage was accounted for in the category of medium-sized enterprises. From a long-term point of view, the highest share of business entities using bank loans is in the category of medium-sized enterprises (52.0%). In the category of small enterprises, the use of bank loans is reported by 42.8% of entities and in the category of microenterprises 15.7%. The state-guaranteed loans are provided by the Slovak guarantee and development bank (SZRB), primarily to those SMEs, which does not possess sufficient credit security, or are considered unreliable for commercial banks. The basic principle of providing Guarantees for loans relies on the breakdown of risks between SZRB, the client and the partner subject. In the year 2016 the total sum of bank guarantee portfolio of SMEs was 104 Million Euros (inter-annual decrease of 4.5%). State-provided guarantees for the SMEs decreased in the interannual comparison too to a sum of 34 Million Euros (SZRB, Eximbanka). The Average interest rate of provided bank credits for SMEs in the year 2016, in accordance to NBS data, decreased again to 3.1%.

In 2017, loan standards were changing only through a drop in interest margins, i.e. the interest rates of credits provided to SMEs dropped by 0.1 p.p. compared to the previous year, what was caused by a gradual and stable trend of loosening the credit terms for SMEs. Mainly large companies saw an increase in interest rates. The internal bank criteria or the loan parameters themselves did not change in general. The proportion of failed loans remained at acceptable levels. Compared to other EU countries, the indebtedness of the Slovak corporate sector is one of the lowest ones. However, the Slovak corporate sector was marked by a high indebtedness growth dynamics in 2017.

According to preliminary estimates, the amount of credits provided to SMEs was lower (by 3.5%) in 2017 compared to 2016, mainly as a result of a drop in the amount of long-term bank credits for SMEs.

Table 3.2

Economic and financial SME indicators

indicator	unit	2016	2017	2017/2016 (%)
Bank loans provided to SMEs	EUR million	13,523	13,051	-3.5
Short - term	EUR million	5,394	5,442	0.9
Long - term	EUR million	8,129	7,609	6.4
Interest rates for SMEs	%	3.1	3.0	3.2
Delays in B2B payments of SMEs	days	19	19	=

Source: processed by the author according to SO SR

However, SMEs, especially in the early stages of their life, are often perceived as relatively risky subjects by the banking sector, so they should try to obtain resources for the development of their business even from the public sector. On the other hand, although one of the main barriers for innovative SMEs is a lack of finance, out of the total number of innovating SMEs, only 13.2% of entities used public financial support in 2014, which is significantly less than in the EU-28 (24.9%) and V4 countries (29.1%).

Financial support of SMEs

Statistical data show, that from 2015 to 2016, SMEs were mainly supported by EU grants (i.e. from European Structural and Investment Funds), accounting for more than 25% of the total amount of financial support for SMEs for those years. In 2017, support for SMEs through EU grants fell significantly and accounted for 1.6% of the total financial support for SMEs. The reason for such a decline is a slow start in the use of support programmes under the new 2014-2020 programming period. In 2017, financial support under loans from the budget resources represented 30% of the total amount of support for SMEs. Similarly to previous years, innovative financial tools (venture capital funds) were not successful.

Looking at a year-on-year comparison of the total amount drawn by SMEs from public financial tools, we may see a decrease in the amount of the drawn funds by 42.95%.

In 2017, the proportion of SMEs in the total amount of state aid (EUR 301.59 million) amounted to 25.99%, representing EUR 78.37 million. Compared to the previous year, the proportion of SMEs in the total amount of state aid decreased by 37.01 p.p. The highest proportion of state aid (amounting to 100%) was provided to SMEs by the Slovak Audiovisual Fund (EUR 6.99 million), the Office of the Government of SR (EUR 4.15 million) and the Bratislava Self-Governing Region (EUR 0.25 million).

In 2017, the largest share (over 50%) of funds in the total amount of financial support for SMEs was in the area of access to finance, while the second largest share (19.31%) of the total amount of financial support was in employment and the third largest share (11.97%) of the total amount of financial support was given to SMEs in agriculture.

According to the results of the European Commission (EC) survey on SME access to finance (SAFE), small and medium-sized enterprises in the Slovak Republic are characterized by a low rate of utilization of public grants and subsidised loans. In 2017, only 2.3% of small and medium-sized enterprises were using public grants and subsidised loans in Slovakia. Compared to 2016, the rate of use of public grants or subsidised loans to small and medium-sized enterprises in Slovakia increased year-on-year (from 1.3% in 2016 to 2.3% in 2017), but is still lower than in 2014 and 2015. A substantially higher rate of use of public grants and subsidised loans is achieved in the EU-28 (7.3%) and in the V4 countries (6.7%).

Small and medium-sized enterprises use public grants and subsidised loans mostly in Italy (14.1%), Hungary (12.0%) and Slovenia (11.7%). Slovakia ranks among the countries with the lowest use of public funding sources (2.3%). Only three countries, namely Estonia (1.8%), the Netherlands (1.5%) and Latvia (1.2%) were placed after Slovakia in the comparison.

Only 15.4% of small and medium-sized businesses in Slovakia considered grants and subsidised loans as the relevant source of their funding.

Positive changes in access to public financial support are reported mostly by SMEs in Slovenia (29.5%), Portugal (22.1%) and the Netherlands (20.8%). At least small and medium-sized enterprises perceive positive changes in access to public financial support in Greece

(3.2%), Luxembourg (1.5%) and Estonia (0.0%). Slovakia is below the EU-28 average, along with Poland (9.4%) and the Czech Republic (4.4%). In Hungary, up to 17.0% of SMEs perceive positive changes in access to public financial support.

The results of a further EC survey Businesses' attitudes towards corruption in the EU, which evaluated entrepreneurs' attitudes towards corruption, also state that Slovak business entities are characterized by a low level of use of public support programmes designed to support entrepreneurship.

The results of the survey show that in 2017, some 6.3% of business entities in Slovakia have used some type of public support to promote business in the previous 12 months. A higher rate is achieved in the EU – 28 (8,5%) and in the V4 countries (13,3%).

According to this survey, the Czech Republic (23.2%), Belgium (21.3%), Austria (16.3%) and France (15.0%) are among the countries with the highest use of support programmes. Poland (13.7%) and Hungary (11.2%) are also ahead of Slovakia.

Countries such as Italy (2.0%), the United Kingdom (1.7%) and Romania (0.3%) have the lowest use rates of support programmes across EU countries.

Use of public support programmes

In order to map the attitudes of small and medium-sized enterprises to the use of support programmes, the Slovak Business Agency conducted a representative quantitative survey of 1,000 SMEs.

We value positively the fact that in the period 2015-2018 the number of entrepreneurs who have enough information on the possibilities of using support programmes increased (from 39% in 2015 to 43% in 2018).

Entrepreneurs who acquired or attempted to obtain public support for their business identified the Internet (40%) as the most commonly used source of public support information. Nearly one third of entrepreneurs received information on public support from their friends, acquaintances and business partners (32%) and through a call for proposals (29%). Nearly one quarter (24%) of small and medium-sized enterprises have used the official sites of support institutions. 15% of small and medium-sized entrepreneurs used television and print media. To a lesser extent, entrepreneurs reported social media (8%) and advertising (6%).

The most significant obstacle to the availability of public support for entrepreneurs was the high administrative burden, the demanding fulfillment of the support conditions or the long evaluation procedures of the applicants.

According to approximately half of the respondents, public sector support should be more strongly geared towards promoting entrepreneurship for start-ups (53%) and micro-enterprises (51%).

Public support was used for employment and retention of workers (35% of SMEs that received public support). In order to support the implementation of innovation activities, support was provided for 29% of small and medium-sized enterprises. For the introduction of organic products and services, support was primarily used for 13% of respondents. Almost every tenth entrepreneur (9%) took advantage of the support received in the start-up business.

There were positive impacts prevailing at entrepreneurs who received public support for the development of their business. According to more than one third of respondents (35%), the support received helped to overcome short-term business problems. A quarter of small and medium-sized enterprises were helped by the support received to strengthen the company's market position (25%) and stimulated further expansion (24%). 16% of supported firms received the necessary information through the support provided.

Nearly two thirds (61%) of small and medium-sized enterprises in Slovakia plan to use public support for their business in the future. On the contrary, more than one third (39%) of entrepreneurs expressed no interest in future public support for entrepreneurship. More than one fifth (21%) of respondents plan to use the EU contribution/grant in the future. In the future, 18% of SME representatives plan to use the state budget contribution/subsidy. 12% of small and medium-sized enterprises plan to use a tax advantage in the future, a 10% discounted loan or loan, 9% advice and information services, and a 4% guarantee. 6% of small and medium-sized enterprises plan to use other forms of public support in the future.

Evaluation of public support programmes

The development described in the previous part is also in line with the assessment of government support programmes for small and medium-sized enterprises, which we elaborated according to Global Entrepreneurship Monitor data, component National Expert Survey

(GEM NES). On a year-on-year basis, the evaluation of support programmes in Slovakia after previous improvement decreased by 0.6 points. The level of evaluation of support programmes in 2017 was the lowest within the monitored period.

Table 3.3

Evaluation of public support programmes for SMEs

country	2013	2014	2015	2016	2017	2017/2016 (p.p.)
SR	2.2	2.3	2.3	2.6	2.0	-0.6
EU	2.8	2.8	2.7	2.8	2.8	0.0
V4	2.5	2.5	2.5	2.5	2.3	-0.2

Source: Processed by the author according to GEM NES data

Note: Assessment of government programmes for SMEs is classified on a scale from 1 (worst) to 5 (best).

Evaluation of support programmes for SMEs in V4 countries shows a relatively stable development (around 2.5 points), with a slight decrease in 2017 to 2.3 points. There is also a relatively constant assessment in the EU countries, which oscillates 2.8 points in the period under review.

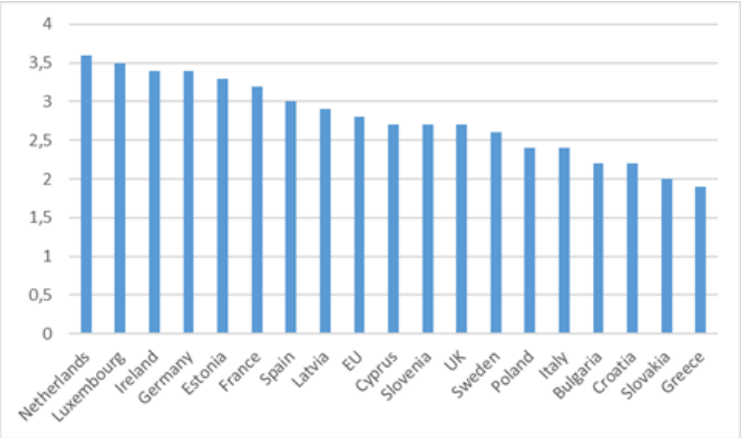


Figure 3.1 Evaluation of government support programmes for SMEs

Source: author

The significant lag of Slovakia in the status and quality of support programmes for small and medium-sized enterprises is also highlighted

by the ranking of individual EU countries in the given area. In this comparison, Slovakia is ranked at the penultimate place ahead of Greece, which achieved a score of 1.9 points in 2017. Other V4 countries are also characterized by below-average levels of government support programmes. Countries such as the Netherlands (3.6 points), Luxembourg (3.5 points), Ireland and Germany (3.4 points each) rank best in government support programmes for entrepreneurs.

Innovative activities of SMEs and their financing from public sources

There are many surveys assessing the innovation activities which reveal that Slovakia is moderate innovator and the innovation activity of Slovak SMEs is low and does not show any signs of improvement.

The most recent edition of the European Innovation Scoreboard which was published on 14 July 2016, revealed that the performance of Slovakia as well as of Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, and Spain is below that of the EU average. These countries are Moderate Innovators.

The Regional Innovation Scoreboard 2016 revealed that Europe's most innovative regions are located in the most innovative countries, although regional innovative hubs exist in moderate innovator countries: Piemonte and Friuli-Venezia Giulia in Italy, País Vasco in Spain and Bratislavský kraj in Slovakia.

Based on the SBA's profile compiled for 2016, the European Commission assessed that one of major concerns in the core areas of the SBA for Slovakia is the area of Skills and Innovation.

According to the results of the survey "Community Innovation Survey (CIS) 2014" the decline in innovation activity of SMEs in Slovakia continued.

Eurostat data show that the share of small and medium-sized enterprises with innovative activity in 2014 was 30.5%, i.e. innovation activities in Slovakia are carried out by almost every third small and medium-sized entrepreneur (30,5 %). The achieved representation of innovative SMEs in 2014 was lower than in 2012 (32.3%) and 2010 (33.4%).

The innovation activity of Slovak SMEs does not show any signs of improvement nor in comparison with other EU countries. Slovakia is still included among countries with under-innovative innovation activity

of SMEs. According to Eurostat, almost every third SME (30.5%) was innovative in Slovakia in 2014. However, in the EU - 28, nearly every second SME (48.0%) reports on the implementation of innovation activities.

SMEs in Estonia (25.6%), Hungary (25.3%), Latvia (24.3%), Bulgaria (24.2%), Poland (19.4%) (12.2%) were placed behind Slovak SMEs. On the other hand, the most innovative SMEs are from Germany (65.6%), Luxembourg (64.2%), Belgium (63.2%) and the United Kingdom (59.9%).

The Statistical Office of the Slovak Republic reports that the highest measure of innovative activities is characterized by SMEs operating in the industry and services sectors. The lowest innovation activity is reported by SMEs in construction.

Analysing the development of innovative businesses in the Slovak Republic, we can find that the number and share of innovating businesses in Slovakia from 2001 to 2008 (except in 2003) had a rising trend. In 2010 the number of innovative businesses in comparison with the 2008 decreased from 3 494 to 2 106 and the share of innovative businesses of all enterprises decreased from 36.1% in 2008 to 35.6% in 2010. The reduction of innovation activity was influenced by depression in the years 2008 – 2010.

In the years 2010 - 2012, 31.3% of innovative enterprises were in the Slovak Republic. In industry and selected services, they were 34% together. However, the average level in the European Union stood at 48.9%. Compared to the previous period 2008-2010, when the share of innovative enterprises in Slovakia was 35.6%, the situation has become worse.

Compared to the previous survey in 2010, the share of innovative enterprises in industry decreased by 3.5 pp. and in the service sector increased by 0.6 pp., i.e. the overall decline in innovation activities was mainly due to the reduction of innovation activities within industry.

In individual sectors of economic activity, the share of enterprises with innovation activity was different and ranged from 11.1% to 85.7%. On average, it reached 32.4% in industry and 35.8% in services.

As in the period 2008 - 2010, innovation activity of enterprises was directly proportional to their size, although compared with this period in industry, there was a decrease in all enterprise size categories, most in the group of medium-sized enterprises. In this context, there was a stronger decline in innovation activities in large enterprises only, with small and, above all, medium-sized enterprises growing.

Although the share of the number of enterprises with innovation activity in industry and services together represented only 34% between 2010 and 2012, their share in total revenues was 66.9% and 58.3% in the total number of employees. This suggests that the economic weight of enterprises with innovative activity is higher than their number.

The share of revenues from sales of new or significantly improved products (market or business innovations) in total sales is an important indicator of the impact of innovation activity. This share was 40.2% in 2012, i.e., enterprises with technological innovation have achieved more than a third of their revenues for innovative products.

On average, 42.4% of product innovations in industry and selected services were developed by innovating enterprises themselves. 30.8% of innovations were realized by modifying or changing products or services originally developed by other businesses or institutions, with 14.1% of product innovation in industry and 10.8% of service innovation being developed by other businesses or institutions.

An important aspect of the evaluation of the development of innovating enterprises in the SR is their belonging to the individual branches of the processing industry and services according to the intensity of research and development and not by the characteristics of their products. According to the definition of the technological sectors mentioned in the revised OECD / Eurostat classification, the levels of high, medium, low and low technology, and the level of knowledge-intensive services and knowledge-intensive services are differentiated in the manufacturing industry.

Of the total number of manufacturing enterprises, almost 36% belong to the low technology group, more than three quarters to a low and medium-tech group. Only a third of manufacturing enterprises were innovative in 2010-2012, with 61% of those enterprises' innovation being technological in nature (the remaining 39% being non-technological innovations). Secondary technology enterprises were 21.2% in the manufacturing and 3.3% high technology. Innovation was most active in the medium-tech sector.

In the service sector, 28.8% of all enterprises are in the knowledge intensive sector, and 10.3% of them are in knowledge intensive, high technology services. In this technology sector, 48% of enterprises were innovative and 64.1% of them implemented technological and 35.9% non-technological innovation. The knowledge-intensive sector of services includes almost three quarters of service enterprises. Only a third of them developed innovation activity, with more than half of these

activities being technological in nature.

According to the results of the Statistical Survey of the Statistical Office of the Slovak Republic in the period 2008-2010 the low share of innovating enterprises in the Slovak Republic is a result of the innovation barriers, which inhibit innovative activities in both innovating and non-innovative companies. Innovation barriers in Slovak enterprises are mainly costly, market and knowledge factors. Slovak companies consider cost factors as the main obstacles to their innovating activities. In particular, it is a lack of one's own resources to finance innovation, lack of finance from outside the enterprise and too much high innovation costs that significantly restrict business innovation activities in industry and services.

The highest item of innovation expenditure in 2012 was the purchase of machinery and equipment (62.8%). This expenditure item in industry accounted for 62.1%, 66% for services, and 47.1% for total innovation expenditure in construction. Compared to 2010, the share of spending on the purchase of external R & D, which was 20.8% on average, increased by 13.2 pp in technology innovation enterprises in 2012. 13% of the total expenditures on innovations were allocated for internal research and development in enterprises in the Slovak Republic, which represents a decrease of 4.5 pp compared to the year 2010. There was 1.8% of the external knowledge allocated and spending on all other innovation activities reached 1.6% of total innovation expenditure.

Of the total number of innovating SMEs, only 13.2% of entities used public financial support in 2014, which is significantly less than in the EU-28 (24.9%) and V4 countries (29.1%).

Table 3.4

Share of innovative SMEs that received the public support

country	2008	2010	2012	2014	2017/2016 (p.p.)
SR	13.5	16.3	16.4	13.2	-3.2
EU - 28	21.9	26.3	27.1	24.9	-2.2
V4	18.5	23.4	27.4	29.1	1.8

Source: Processed by the author according to Eurostat data

The share of small and medium-sized enterprises that used public financial support for their innovation activities in Slovakia decreased year-on-year (by 3.2 pp). The decline in 2012 was also recorded in the EU-28. On the contrary, the continuous increase in the use of public financial support is evident in the V4 countries during the period under review.

In comparison with individual EU countries, Slovakia is in the last place behind Lithuania (18.5%) and Sweden (14.1%). Most innovative SMEs benefiting from public financial support are in Hungary (44.4%), the Netherlands (41.9%), Finland (32.8%) and the Czech Republic (32.2%). Poland (27.2%) is also characterized by the above-average use of public financial support for innovation activities.

Conclusions

The position of small and medium-sized enterprises in the national economy in terms of job creation, local economy support or balancing of regional development disparities is significant in Slovakia in the long run. Not only macroeconomic development, a stable rate of economic growth, but also a range of support measures implemented within Slovakia's economic policy have had a positive influence on the business conditions of SMEs in recent years.

In order to improve the conditions for the use of support programmes, it is a prerequisite not only to increase the quantity and budget capacity of the support programmes, but also to increase their efficiency and availability for individual target groups. As the SME business support system in Slovakia is rather complex and not very transparent to business people, it is important to strengthen SME awareness at regional and local level. 97% of business entities in Slovakia are micro-enterprises, but up to two-thirds of these entrepreneurs feel a lack of information about the possibilities of using support programmes. Examples of suitable measures in this area include national projects of the National Business Centers of the SBA, which aim to provide entrepreneurs with a comprehensive range of services, including information support on support measures in the Slovak Republic.

As additional measures to improve the use of support programmes and to streamline support delivery, we propose to: reduce time and simplify administrative processes between submitting a grant application until it is approved, simplify and streamline the procurement process, reduce the difficulty of defined measurable indicators, or introduce a "pre-class" evaluation of project objectives. Furthermore, it would be appropriate to simplify the EU grant scheme so that the applicant is able to develop the project self-help, without the need for external consultancy agencies. These measures would increase the attractiveness of support programmes for entrepreneurs and the conditions for the use of support measures.

References:

1. SBA. (2018). *State of Small and Medium Enterprises 2017*.
<http://www.sbagency.sk/en/slovak-business-agency>
2. SBA (2018). *Analýza efektívnosti podpory podnikania*. www.sbagency.sk
3. EK (2017a). *Survey on the access to finance of enterprise*.
www.ec.europa.eu
4. EK (2017b). *Businesses' attitudes towards corruption in the EU*.
www.ec.europa.eu
5. SBA and Crystal Ball (2018). *Postoje MSP k využívaniu podporných nástrojov*. www.sbagency.sk

Bezpartochna Olesia

*Assistant at the Department of Economics
and Marketing*

*National Aerospace University named after
N. Zhukovsky "Kharkiv Aviation Institute"*

Britchenko Igor

*Doctor of Economics, Professor,
Faculty of Technical and Economic
Sciences*

*State Higher Vocational School Memorial
of Prof. Stanislaw Tarnowski in
Tarnobrzeg*

Jarosz Piotr

*Dr. Inz., Vice-Rector for University
Development*

Higher School of Social and Economic

Radochonska-Jarosz Renata

*(Kharkiv, Ukraine; Tarnobrzeg,
Przeworsk, Poland)*

STUDY OF THE MODERN PRODUCTION AND ECONOMIC RELATIONS OF THE ENTERPRISES OF AGRICULTURAL COMPLEX IN POLTAVA REGION

INTRODUCTION

The current state of agrarian production and economic relations in Ukraine are characterized by mismatches of the interests of partners, increased monopoly of processing enterprises and agro trade, and the inequality of exchange between the stages of the production process.

This leads to a decrease in business activity and competitiveness of the enterprises of agricultural complex in various commodity markets of agro-food products and raw materials, and also increases negative tendencies in the economic activity of related industries. In turn, different types of consumers in a timely manner do not receive raw materials and products; there are changes in the pricing system and the ratio between demand and supply. Also, the external environment is having a negative impact on the activity of the enterprises of agroindustrial complex, as changes in the regulatory-legal regulation of the agrarian sector are taking place and the situation in the foreign markets of agro-food products and raw materials is changing. The mentioned aspects negatively affected the activity of economic entities in the regions, in particular, in the Poltava region. Thus, there is a need to develop a set of organizational-economic measures that will promote the improvement of the economic activities of the enterprises of agroindustrial complex and the formation of effective partnerships relations in the agrarian sector.

Research of the current state of production and the problems of formation of effective economic relations of the enterprises of agroindustrial complex devoted to scientific works V.G. Andriychuk, O.V. Berezin, P.I. Gaiduckiy, M.Ya. Demyanenko, M.Yu. Kodenska, O.V. Krysalnyi, M.Ya. Malik, V.Ya. Mesel-Veselyak, O.M. Onishchenko, G.M. Pidlisetskyi, O.A. Ryabchik, P.T. Sabluk, L.M. Khudoliy, O.M. Shpichak, V.V. Yurchishin et al. famous scientists in the field of agrarian production. However, will require further research the system of economic relations between the entities of the agrarian sector and other contracting parties in connection with the elements of the external environment and the develop of the organizational-economic mechanism for improving the economic activity of the enterprises of agroindustrial complex at the regional level.

The carry out of economic activity by enterprises agroindustrial complex at the regional level requires attraction of the corresponding resources. Their effective formation affects the results of the activities of the agrarian economic entities. In the process of activity of the enterprises of agroindustrial complex interact among different actors, thus forming an appropriate system of economic relations. Therefore, there is a need to study the current state of production and economic relations of the enterprises of agroindustrial complex of the Poltava region and to develop an organizational-economic mechanism for improving their economic activity.

RESULT OF STUDY

The sphere of agrarian production is characterized by certain factors influencing on activity of the enterprises of agroindustrial complex at the regional level. The main ones are the demand for agrarian products and raw materials in the domestic and foreign markets, the mechanism of pricing, the presence or absence of state support for agricultural producers, the degree of concentration of production and its specialization, the level of development of market infrastructure, etc. The problem of organizing the efficient production of agricultural products and raw materials in Ukraine is that, during the time of the administrative management of the economy, the task of creating a market environment with its laws of value, the balance of supply and demand, and competition simply was not raised. At the present stage, there are problems with the effective formation and use of resources in the production of products. Thus, the main means of the enterprises of agroindustrial complex of the Poltava region have a high degree of depreciation, the majority of economic entities are not able to provide an update of the technical-technological basis of production through financial and credit mechanisms, the increase in prices of crop materials and fuels and lubricants leads to an increase in the cost of production and sales of agricultural products at non-compliance with government procurement prices. The management system of the enterprises of agroindustrial complex of the Poltava region requires the improvement and reorganization of the organizational structure, and the personnel – continuous improvement of professional skills. The financial assets of economic entities in the agrarian sector of the region are limited because of the lack of own working capital and the inability to access credit resources, etc.

We will conduct a study of the economic indicators of activity the enterprises of agroindustrial complex of the Poltava region as a plant, and livestock sub complex, using the official statistics.

The pace of agricultural production changes in the enterprises of agroindustrial complexes of the Poltava region is shown in Table 3.5.

Based on the data presented in the table, in 2018, the production of the enterprises of agroindustrial complex of the Poltava region decreased by 13.5% compared to 2017. There is a significant reduction of production volumes by agricultural enterprises of the region – by 32.8%, respectively, but the production of agrarian production by households for the same period increased by 7.9%. From 2015 to 2017,

Table 3.5

**Indices of agricultural production of the enterprises of
agroindustrial complex of the Poltava region for 2015-2018 [1]**

Economic entities	2015	2016	2017	2018	Deviation, 2018-2017 (+, -)
Agriculture – total:	103,6	102,1	113,0	99,5	-13,5
including:					
agricultural enterprises	105,1	109,2	127,3	94,5	-32,8
households	102,3	95,7	98,3	106,2	7,9

we have a positive dynamics of the volume of production of agricultural enterprises in the oblast and a decrease in households.

The dynamics of the volume of production of main crops by the enterprises of agroindustrial complex of the Poltava region is presented in Table 3.6.

Table 3.6

**Dynamics of volumes production of main agricultural crops by
enterprises of agroindustrial complex of Poltava region for 2016-
2018 [1]**

(thousand quintals)

Types of agricultural crops	2016	2017	2018	Rate of change, 2018- 2016, %	Rate of change, 2018- 2017, %
Cereals and legumes (in the beginning earned weight)	28661,2	45312,7	38298,6	133,6	84,5
Sugar beets	21958,2	27009,2	20776,5	94,6	76,9
Sunflower seeds (in the beginning earned weight)	3465,4	4578,9	4838,8	139,6	105,7
Potato	8916,6	9104,0	9023,7	101,2	99,1
Vegetables of open ground	3989,8	3773,1	4274,2	107,1	113,3
Fruits and berries	590,4	664,0	1170,0	198,2	176,2

According to the data of the table, in 2018 grain and legume crops were growing by the enterprises of agroindustrial complex of Poltava

region by 33.6% in comparison with 2016, and in 2017 they decreased by 15.5%.

Growing of sugar beet by the entities of agrarian sphere at the Poltava region in 2018 decreased by 5.4% and 23.1% in accordance to 2016 and 2017. During the investigated period, the growth of sunflower by the enterprises of agroindustrial complex of the Poltava region was a positive trend. Thus, in 2018, the volume of cultivation of this culture increased by 39.6% compared to 2016 and by 5.7% compared to 2017. In 2018, potato growing by agricultural enterprises of the region increased by 1.2% compared to 2016 and decreased by 0.9% against the volume in 2017. The positive dynamics of growth in crop growing is observed in vegetables (in 2018, the volume of cultivation increased by 7.1% compared to 2016 and by 13.3% relative to 2017), fruits and berries (respectively 98.2% and 76.2%).

Thus, it can be argued that the enterprises of agroindustrial complex of the Poltava region achieved a positive dynamics in the volume of activity of such crops as sunflower, vegetables, fruits and berries. Reducing the volumes of other crops was negatively affected by the structure of production activity and the final financial result of the economic entities of the Poltava region.

The dynamics of the sown area of the main agricultural crops of the enterprises of agricultural complex of the Poltava region is presented in Table 3.7.

Table 3.7

Dynamics of sown areas of main agricultural crops of the enterprises of agroindustrial complexes of Poltava region for 2016-2018 [1]

(thousand hectares)

Types of agricultural crops	2016	2017	2018	Rate of change, 2018-2016, %	Rate of change, 2018-2017, %
Cereals and legumes	997,5	1049,1	1019,6	102,2	97,2
Sugar beets	73,8	64,2	56,3	76,3	87,7
Sunflower	170,7	212,5	218,5	128,0	102,8
Potato	61,5	61,9	61,5	100,0	99,4
Vegetables of open ground	21,3	21,9	21,7	101,9	99,1
Fodder crops	171,2	157,7	158,0	92,3	100,2

Based on the data presented in the table, in 2018, compared to 2016, the area under cultivation of grain crops (by 2,2%), sunflower (by 28,0%), vegetables (by 1,9%), but decreased on sugar beet (by 23.7%) and fodder crops (by 7.7%). In 2018, relative to 2017, the dynamics of crop area for agricultural crops changed, namely: the area under grain crops (by 2.8%), potatoes (by 0.6%), and vegetables (by 0.9%) decreased; sunflower seed crops (by 2.8%) and fodder crops (by 0.2%).

Describing the overall size of the sown area of the enterprises of agroindustrial complexes of the Poltava region, it should be noted that most of them are allocated to the cultivation of grain crops and sunflower. In 2018 compared to 2017, the yield of sunflower seeds (by 3.2%), vegetables (by 14.5%), fruits and berries (by 76.9%) increased; declined – grain crops (by 13.3%) and sugar beet (by 11.4%).

There were also changes in the animal husbandry complex of the enterprises of agroindustrial complexes of the Poltava region. The dynamics of livestock and poultry population of the enterprises of agroindustrial complex in the Poltava region is presented in Table 3.8.

Table 3.8

The dynamics of livestock and poultry population at the enterprises of agroindustrial complexes of Poltava region for 2016-2018 [1]
(thousand heads)

Types of animals	2016	2017	2018	Rate of change, 2018-2016, %	Rate of change, 2018-2017, %
Cattle, total	310,2	294,0	282,5	91,1	96,1
including:					
cows	157,1	147,5	142,3	90,6	96,5
Pigs	331,3	294,0	364,6	110,1	124,0
Sheep and goats	44,6	43,2	43,9	98,4	101,6
Poultry	5477,2	5434,6	5179,3	94,6	95,3

Based on the data presented in the table, in 2018, the number of cattle at the enterprises of agroindustrial complex of the Poltava region decreased by 8.9% compared to 2016 and by 3.9% compared to 2017.

The positive dynamics of the growth of the population is traced pigs: in 2018 their number increased by 10.1% compared to 2016 and by 24.0% compared to 2017. In 2018, the number of sheep and goats in the enterprises of agroindustrial complex of the Poltava region decreased by

1.6% comparatively from 2016, and relative to 2017 – increased by 1.6%. In 2018, there was a decrease in the number of pitches in the enterprises of the region by 5.4% compared to 2016 and by 4.7% compared to 2017.

The dynamics of production of other livestock products by the enterprises of agroindustrial complex of the Poltava region is presented in Table 3.9

Table 3.9

Dynamics of the volume of production the basic livestock products by the enterprises of agroindustrial complex of Poltava region for 2016-2018 [1]

Type of livestock products	2016	2017	2018	Rate of change, 2018-2016, %	Rate of change, 2018-2017, %
Meat of all kinds (live weight), thousand tons	79,3	63,8	65,1	82,1	102,0
Milk, thousand tons	681,2	655,7	718,0	105,4	109,5
Eggs, million pieces	557,3	539,7	620,1	111,3	114,9
Wool of all kinds, tons	15,0	17,0	21,1	140,7	124,1

According to the data of the table, in 2018, for all types of meat production, enterprises of agroindustrial complex of the Poltava region have a decrease of 17.9% compared to 2016 and an increase of 2.0% compared to 2018.

In 2018, the volumes of milk yield on the enterprises of agroindustrial complex of the Poltava region increased by 5.4% compared to 2016 and by 9.5% in comparison with 2017. Similarly, the volume of egg production is similar (in 2018, it increased by 11.3% comparatively from 2016 and by 14.9% compared to 2017). A positive trend is shown by the volume of wool production: from 15.0 tons in 2016 to 21.1 tons in 2018.

Taking into account the production volumes of the plant and animal husbandry complex of the enterprises of agroindustrial complex of the Poltava region, it is also important to study the average prices of agricultural products sales (Table 3.10).

Based on the data presented in the table, we see changes in the dynamics of average prices of agricultural products sold by the

Table 3.10

Dynamics of average prices of sales of agricultural products by the enterprises of agroindustrial complex of Poltava region for 2014-2018 [1]

(UAH per ton)

Types of agrarian products	2014	2015	2016	2017	2018	Rate of change, 2018-2016, %	Rate of change, 2018-2017, %
Cereals and legumes	380,5	508,5	836,8	734,7	801,5	95,8	109,1
Sunflower seeds	938,2	917,8	1924,2	1383,5	1807,4	93,9	130,6
Sugar beets	167,1	176,2	155,4	186,5	270,7	174,2	145,1
Potato	532,4	1053,0	951,3	1160,3	1448,1	152,2	124,8
Vegetables	642,9	665,4	1006,6	1018,2	2799,6	y 2,8 p.	y 2,8 p.
Cattle and poultry (live weight)	6546,8	5762,4	6139,7	11110,1	10380,5	169,1	93,4
Milk and dairy products	1202,9	1093,8	1823,3	2146,3	1943,9	106,6	90,6
Eggs, per thousand pieces	252,8	188,0	268,0	380,6	392,8	146,6	103,2

enterprises of agroindustrial complexes of the Poltava region. Thus, the average prices of sales of grain and leguminous crops in 2018 decreased by 4.2% compared to 2016 and increased by 9.1% in comparison with 2017. A similar trend with average prices for sales of sunflower seeds: in 2018, decreased by 6.1% compared to 2016 and increased by 30.6% in comparison with 2017, there was a significant increase in the average prices of sales of sugar beets (respectively 74.2% and 45.1%), potatoes (52.2%, respectively) and 24.8%) and vegetables (2.8 times over the period under investigation). In 2018, in comparison with 2016, the average prices of cattle and poultry (by 69.1%) and milk and dairy products (by 6.6%) increased, while in 2017 the decrease was 6.6% and 9.4%. Average selling prices for eggs in 2018 increased by 46.6% compared to 2016 and by 3.2% compared to 2017.

In modern conditions, the study of the economic relations of the enterprises of agroindustrial complex is of great importance. Under economic relations we understand the system of economic relations between enterprises of agroindustrial complex regarding the appropriation and restoration of land, production assets, labor,

manufactured goods and other entities of the market environment (state, resource suppliers, consumers of finished goods, financial and scientific-educational organizations etc). Economic relations of the enterprises of agroindustrial complex cover the stages of production, distribution, exchange and consumption of agricultural raw materials and products; is an organizational-management system in the process of agricultural production, its procurement, transportation, storage, processing and sale, as well as the production of material-technical resources for agriculture and other branches of agroindustrial complex, their production and social services.

Characteristic peculiarities of economic relations of the enterprises of agroindustrial complex, including the economic entities of agrarian sphere of the Poltava region at the present stage are as follows:

- functioning of large collective farms with collective-partial ownership of land and means of production;

- lack of sufficient private ownership of land by owners and employers who use large amounts of hired labor;

- creation and cooperation of peasant farms and the formation on this basis of production agricultural cooperatives, joint-stock companies;

- functioning of state enterprises in agriculture (seed, educational-research enterprises);

- presence of a personal auxiliary farm workers cooperatives, joint-stock companies, state-owned agricultural enterprises;

- development of horticulture and gardening of inhabitants of cities and working villages, etc.

Economic relations between enterprises of agroindustrial complex and the state are carried out through state regulation.

Taking into account the current state of production and economic relations of the enterprises of agroindustrial complex of the Poltava region, we proposed an organizational-economic mechanism for improving the economic activity of the entities of the agrarian sector, which is based on the complex development of the resource potential of agricultural enterprises of the region and its effective use, adaptation of economic entities to market environment and ensuring the competitiveness of products in the markets. The scheme of the proposed mechanism may have the following form (Figure 3.2).

The implementation of organizational measures should be based on the introduction of scientifically forms of organization of production, advanced technology and innovative technologies; rationalizing management; ensuring of entrepreneurial initiative; organization market

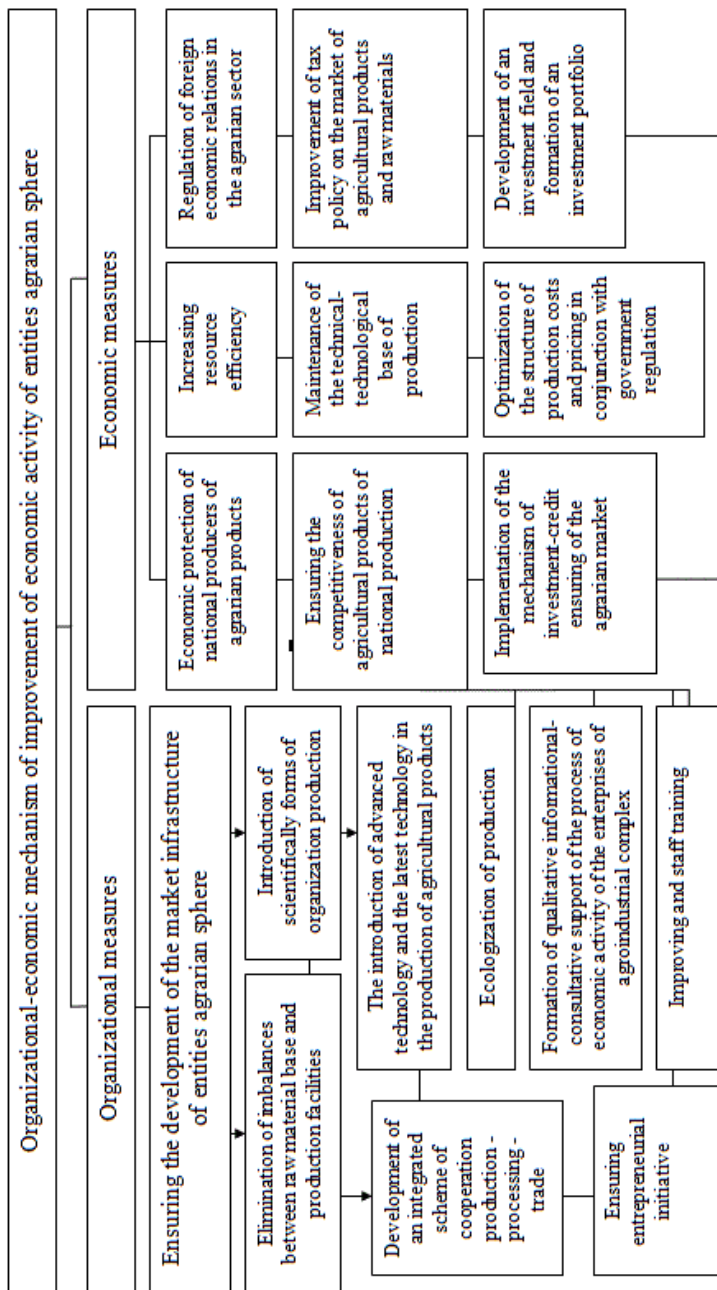


Figure 3.2 Organizational-economic mechanism of improvement economic activity of the enterprises of agroindustrial complex of Poltava region

researches of commodity markets; ecologization of production of agricultural products, etc.

In economic measures it is extremely important to improve the mechanism of economic relations both in the inter-branch and in-industry sectors, which will ensure compliance with the law of value in the formation of pricing policies, take into account the timing of capital turnover in the sectors of the national economy in the formation of credit and tax systems; competitiveness of products; protection of the domestic commodity producer; regulation of import-export food commodity flows.

CONCLUSIONS

Consequently, the research of current state of production and economic relations of the enterprises of agroindustrial complex of the Poltava region shows the changes in the volumes of activity of the entities agrarian sphere caused by the market situation. Economic relations in the agroindustrial complex of Ukraine have an unstable nature of the interaction between agricultural production entities and other contracting parties, including government bodies of different levels of government. The proposed organizational-economic mechanism of improvement of economic activity and economic relations of the enterprises of agroindustrial complex of Poltava region should provide development of infrastructure of economic entities of agrarian sphere through organizing measures on market-oriented principles of management of production activities and economic directions in order to increase the efficiency of formation and use of resource potential, development ways to improve financial-credit relations and investment activity, and so on regulation of foreign economic activity on the market of agricultural products.

References:

1. *Agriculture. Statistical Yearbook of the Poltava region.* – Available at: <http://www.pl.ukrstat.gov.ua>
2. *Bezpartochnyi M., Britchenko I., Bezpartochna O., Mikhel V. Economic diagnostics as a tool for transformation of organizational-legal forms of economic activity in the field of agriculture. Management mechanisms and development strategies of economic entities in conditions of institutional transformations of the global environment: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2019. Vol. 1. P. 259–269.*

3. Bezpartochna O. *Use of economic diagnostics for innovative ensuring of the economic process of agroindustrial enterprises* // *Механізми та стратегії розвитку господарюючих суб'єктів в умовах інтеграційних процесів: матеріали науково-практичної INTERNET-конференції студентів та молодих вчених з міжнародною участю (м. Харків – Пшеворськ, 19 лютого 2019 р.) / Національний аерокосмічний університет імені М. Є. Жуковського “Харківський авіаційний інститут”, Wyższa Szkoła Społeczno-Gospodarcza w Przeworsku. – Przeworsk: WSSG, 2019. – pp. 143-146.*

Kuranovic Veslav
Vilnius Gediminas
Technical University
(Vilnius, Lithuania)

**CHINA GREEN SUPPLY CHAIN
BUSINESS AND MANAGEMENT
IN DEVELOPED COUNTRIES**

INTRODUCTION

The economic growth increases the level of energy and material consumption, which contribute to the environmental issues and resource depletion problems. It has become increasingly significant for organizations facing competitive, regulatory, and community pressures to balance economic and environmental performance. Nowadays, most organizations are starting to go green in their business as concern to environmental sustainability. They have realized the greater benefit of the green technology adoption in business operation, which also affected suppliers and customers. Environmental issues under legislation and directives from customer especially in the US, the European Union (EU), and Japan become an important concern for manufacturers. As a result, Green Supply Chain Management (GSCM) emerges as a new systematic environmental approach in supply chain management and has been increasingly accepted and practices by forward-thinking organization. The current changing in environmental requirements that influenced manufacturing activities had increased attention in developing environmental management (EM) strategies for the supply chain. Thus, the concept of GSCM arises as a new systematic approach and becoming an important factor for business activities today. Zhu et al. also claimed GSCM can be regarded as an environmental

innovation. By integrating the 'green concept to the supply chain' concept, it has created a new research agenda where the supply chain will have a direct relation to the environment. Interest in China has soared in recent years. The Chinese economy has been booming, and multinational firms have been investing in China at a furious pace.

Green Supply Chain Management

It is important to integrate environmental management practices into the whole supply chain management in order to achieve a greener supply chain and maintain competitive advantage [8] and also increase business profit and market share objectives. Various definition of GSCM exist in the literature. Accordingly, Zhu and Sarkis [3] defines GSCM as has ranged from green purchasing to integrated supply chains starting from supplier, to manufacturer, to customer and reverse logistics, which is "closing the loop". According to Srivastava [7], GSCM can be defined as "integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing process, delivery of the final nproduct to the consumers as well as end-of-life management of the product after its useful life". The quality revolution of the 1980s and the supply chain revolution of the 1990s extend the green supply chain literature with the beginning of corporate environmental management, environmentally conscious manufacturing strategy, and supply chain management literature [9]. It has become clear that the best practices call for integration of environmental management with ongoing operations [7]. Green supply-chain management (GSCM) is gaining increasing interest among researchers and practitioners of operations and supply chain management. The past literature also shows that most researchers have studied the GSCM adoption and implementation on developed countries such as Japan, Germany, Portuguese, UK and Taiwan and so on. Still limited studies have examined the GSCM practices in developing countries.

Green Supply Chain Management in Developed Countries

Developed countries can be described as a high level development of countries based on certain characteristics. These characteristics consist of economic, industrialization and Human Development Index (HDI). The economic characteristic is income per capita. Countries with high income or gross domestic product per capita can be categorized as developed countries. Then, developed countries according to

industrialization characteristic are the tertiary and quaternary sectors of industry. Another recently measure, the Human Development Index (HDI) integrate an economic measure, country income, with indices for expectancy and education. Developed countries can be defined from this characteristic as those have a higher HDI rating. Thus, the developed countries are believed to deal with lots of environmental issues and depletion problems due to their increasing economic development. Most researchers conducted their study in developed countries to examine the integration of environmental concept and supply chain management. One study from Germany conducted by Large and Thomsen [10] identified five potential drivers of green supply chain management performance: green supply management capabilities, the strategic level of purchasing department, the level of environmental commitment, the degree of green supplier assessment, and the degree of green collaboration with suppliers. Azevedo et al. [11] examined the links between green practices of supply chain management and supply chain performance in the context of the Portuguese automotive supply chain. In the study of Chiou et al. [12] in Taiwan has explored the correlation between greening the supplier and green innovation in Taiwan industry by using Structural Equation Modeling. They concluded that greening the supplier through green innovation leads to significant benefits to the environmental performance and competitive advantage of the firm. Through a study in Italy by Cagno et al. [13] examined the GSCP adopted by Third Party Logistics (3PLs) service providers such as specific practices implemented and level of adoption of each practices and also examined the relationship of various GSCP implementation and company performance. In this study, the work offers a depth understanding of potential effects of GSCP on company performance. The study from Japan conducted by Arimura et al. [14] determined the influence of ISO 14001 certification on the green supply chain management (GSCM) by using Japanese facility level data. The study proved that ISO 14001 and also voluntary EMS government program are significantly influence GSCM practices. These programs highly perhaps the facilities will evaluate their suppliers' environmental performance and ask suppliers to undertake specific environmental practices. Another study from Japan by Zhu et al. [5] sought to introduce environmental, green supply chain management experiences of large Japanese manufactures. This work shows that the large companies can green their supply chain by creating win-win relationships with their partners, and hence realize the sustainable growth for the entire supply

chains. Besides, it also indicates that suitable regulations and policies set by government can help GSCM circulation from larger leading companies to smaller companies. Hsu and Hu [15] investigated the consistency approaches by factor analysis that determines the adoption and implementation of GSCM in Taiwanese electronic industry. The fuzzy analytic hierarchy process method was applied to prioritize the relative importance of four dimensions and 20 approaches among nine firms in electronic industry. Meanwhile, Shang et al. [16] explored key green supply chain management (GSCM) capability dimensions and firm performance based on electronics-related manufacturing firms in Taiwan. On the basis of a factor analysis, six green supply chain management dimensions were identified: green manufacturing and packaging, environmental participation, green marketing, green suppliers, green stock, and green eco-design. Holt and Ghobadian [17] investigated the level and nature of greening the supply chain in the UK manufacturing sector. In this study, the work explores the driving forces behind environmental, the specific management practices that result, and the relationship between them. The study by Nawrocka et al. [18] in Sweden, has concentrated on the role of ISO 14001 in environmental supply management practices in Swedish companies. The study described the existing and potential role of ISO 14001 for three key operational tasks of environmental supply chain management: to communicate the requirements to the supplier, to motivate and enable the supplier, and to verify that the supplier follows the requirements. Moreover, the study from South Korea carried out by Lee [19] has identified the drivers of participation in green supply chain initiatives by considering small and medium-sized suppliers and their most important stakeholders, including buyers and the government. Raymond et al. [20] examined the relationship between supply chains and environmental performance of SMEs in Canada. This study proved that time and financial resources to deal with solid waste and energy issues are the most limiting factors.

In addition, Chen [21] looked into the relationship between green innovation and green image of companies in Taiwan. The study proposed a new concept of green core competence. Chien and Shih [22] examined the adoption of GSCM practices among the electrical and electronic industry in Taiwan. The relationship between green supply chain management practices and environmental performance, as well as financial performance has been studied. One study from Australia, conducted by Simpson et al. [23] explored the moderating impact of

relationship conditions existing between a customer and its suppliers and effectiveness of the customer's environmental performance requirements (otherwise known as "green-supply"). Practically no research exists on the actual effectiveness of green supply requirements when placed in context with the realities of inter-organizational dynamics.

Green Supply Chain Management in Developing Countries

Green supply chain practice commonly is believed to represent the environmentally-friendly image of products, process, systems and technologies, and how the business is conducted [24]. Nonetheless, as stressed by Anbumozhi and Kanda [25] most companies especially in developing countries adopted the green solutions into their business more tries to reduce the negative environmental effects rather than adopting a proactive approach to reduce the sources of waste or pollution. Then, these adopted green solutions continue to be the traditional command-and control or "end-of-the-pipe" solutions [25]. Therefore, there is needed to put more interest in studying the adoption and implementation of GSCM in developing countries due to the "end-of-the-pipe" approach. Little research attention has been devoted to the concern of GSCM in developing countries especially in Asian Regions. The GSCM concept is a relatively new concept in South East Asian Region and probably only a few companies are actually able to implement it [26]. However, as claimed by Rao [26] in his study on green supply chain in South East Asian Region (Philippines, Indonesia, Malaysia, Thailand, and Singapore) found that environmental supply chain practices had started to take place. Thus, the findings from those researches in Asian Region can be useful for manufacturing in developing countries in order to develop the appropriate GSCM practices and help to reduce the environmental problems. Recent literature showed that most researchers starting investigate on GSCM in East Asian Region especially China as developing country. The issues related to GSCM have become even more critical in China. Although China gains more opportunities as a major manufacturing country, they also deal with huge environmental problems with this opportunity [26]. Zhu et al. [27] investigated whether different Chinese manufacturer clusters varying in their extent of implementing GSCM exist from the ecological modernization perspective. The study also examined whether Chinese manufacturers' awareness of local and international environmental ESPR-oriented (enhancing energy savings and pollution

reduction) compliance is related to GSCM implementation and also either a mediating effect of regulatory pressure plays a major role. Then, study found that the varying pace of Chinese manufacturers to ecological modernize with GSCM practices and the significance of regulatory pressure to distribute the practices adoption by Chinese manufacturing industry. The study by Liu et al. [28] in China has analyzed the relationship between green supply chain management level (LGSCM) and the classified determinant factors. The study confirmed that a company's environmental management capacities will be strongly enhanced by frequent internal training of employees to increase its involvement in GSCM practices. Another research from China, studied by Yan Li [29], examined the adoption levels of GSCM practices in China and explored the performance measurement for GSCM. The findings demonstrated that GSCM was strongly balancing to other advanced management practices, and contributed to improving environmental performance. Zhu et al. [30a] evaluated GSCM practices relating GSCM to closing the supply chain loop for four Chinese industries (power generating, chemical/petroleum, electrical/electronic and automobile). They concluded that adoption of GSCM practices in different industrial contexts is not uniform across the four industries. Another study also by Zhu et al. [31] in China has evaluated and explained GSCM drivers, practices and performance among diverse Chinese manufacturing firms. Chinese enterprise has not contributed into strong or higher GSCM practice adoption, let alone to improvements expected in some areas of performance. Concern about the environmental issue has also rise the interest of researchers to investigate the adoption and implementation of GSCM practices in another Asian Countries such as Thailand, India and Malaysia. A study of Ninlawan et al. [2] in Thailand analyzed the recent green activities in computer parts' manufacturers and also measured the level of green supply chain management. The in-depth interview regarding green procurement, green manufacturing, green distribution, and reverse logistic has been conducted. The study conducted in India by Diabat and Govindan [32] identified the drivers influencing the implementation of GSCM using an Interpretive Structural Modeling (ISM) methodology and extracted 11 drivers collected through past literature: Certification of suppliers' environmental management system; environmental collaboration with suppliers; collaboration between product designers and suppliers to reduce and eliminate product environmental impacts; government regulation and legislation; green design; ISO 14001

certification; integrating quality environmental management into planning and operation process; reducing energy consumption; reusing and recycling materials and packaging, environmental collaboration with customers; and reverse logistics. The concept of GSCM is relatively newer in Malaysia. Recent literature found that still lack of researchers study on GSCM adoption and implementation based on Malaysian context as a developing country. One study from Malaysia that has been carried out by Eltayeb and Zailani [33] has identified the four key drivers or motivators to green supply chain initiatives: Regulations, customer requirements, expected business gains, and social responsibility. Eltayeb et al. [34] analyzed the relationship between green supply chain initiatives and performance outcomes and identified the key initiatives (eco-design) that have positive effect on the four types of outcomes (environmental, economic, cost reductions, and intangible outcomes).

Review of Previous Studies on Green Supply Chain Management

The following is a review of previous literatures about issues related to GSCM and has been summarized into three sections which by manufacturing (various industry), by manufacturing (focus industry) and by Malaysian country. Most researchers used manufacturing industry as their sample of study in order to investigate the GSCM adoption and implementation either in developed and developing countries. Manufacturing is believed to be the main causes to the emerging environmental problems due to its traditional business operation. Various industries in manufacturing companies such as manufacturers in paper; textile and dyeing; chemicals, plastics and rubbers; metals; machinery and equipment manufacturing; electronics; automobile; printing; construction and others. Traditional polluting industries such as manufacturers in chemical, electrical and paper industries generally experience higher environmental pressure. Therefore, the manufacturing industry as traditional polluters tend to be the potential sample of study as they tend to implement GSCM practices.

Research direction

Green supply chain management continues to be an important research agenda among the researchers. However, there is still limited of studies to investigate GSCM adoption and implementation in developing countries. Therefore, our research direction will be focus on ISO 14001 certified manufacturing firms in Malaysia context in order to

extend the study about GSCM in more depth. ISO 14001 certified firms will be focused because they are expected to be involved in the adoption of GSCM practices. This is supported by the studies of Darnall et al. [38] and Zhu et al. [30b].

Conclusions

The purpose of this paper is to discuss an overview of the development of GSCM literature in a developed countries and developing countries. Although some studies in the literature discussed the GSCM implementation includes drivers, practices, and performance over the world, but there has still little research about the GSCM implementation and adoption in developing countries especially Malaysia. Further study still required for more understanding toward the adoption and implementation of GSCM and also the organization awareness level on environmental problems that caused by their business operation.

References:

1. Ninlawan, C., Seksan, P., Tossapol, K., & Pilada, W., (2011) "*The Implementation of Green Supply Chain Management Practices in Electronics Industry*", *Proceedings of the International Multiconference of Engineers and Computer Scientists*, 3.
2. Zhu, Q. & Sarkis, J., (2004) "*Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises*", *Journal of Operations Management*, 22, pp 265-289.
3. Zhu, Q., Geng, Y., Fujita, T., & Hashimoto, S., (2010) "*Green Supply Chain Management in Leading Manufacturers: Case Studies in Japanese Large Companies*", *Management Research Review*, Vol. 33, No. 4, pp 380-392.
4. Srivastava, S.K., (2007) "*Green supply-chain management: a state-of-the-art literature review*", *International Journal of Management Reviews*, Vol. 9, No. 1, pp 53–80.
5. Zhu Q. & Sarkis, J., (2006) "*An inter-sectoral comparison of green supply chain management in China: drivers and practices*", *Journal of Cleaner Production*, Vol. 14, No. 5, pp 472–86.
6. Large, R.O. & Thomsen, C.G., (2011) "*Drivers of Green Supply Chain Management Performance: Evidence from Germany*", *Journal of Purchasing and Supply Management*, Vol. 17, pp 176-184.
7. Azevedo, S.G., Carvalho, H., & Machado, V.C., (2011) "*The Influence of Green Practices on Supply Chain Performance: A Case Study*

- Approach*", *Transportation Research Part E*, Vol. 47, pp 850-871.
8. Chiou, T.Y., Chan, H.K., Lettice, F., & Chung, S.H., (2011) "The Influence of Greening the Suppliers and Green Innovation on Environmental Performance and Competitive Advantage in Taiwan", *Transportation Research Part E*, 47, pp 822-836.
 9. Cagno, E., Guido, M.J.L., Perotti, S., & Zorzini, M., (2011) "The impact of green supply chain practices on company performance: the case of 3PLs", *Lancaster University Management School Working Paper*, pp 1-31.
 10. Hsu, C.W. & Hu, A.H., (2008) "Green Supply Chain Management in the Electronic Industry", *International Journal Environment Science Technology*, Vol. 5, No. 2, pp 205-216.
 11. Shang, K.C., Lu, C.S., Li, S., (2010) "A taxonomy of green supply chain management capability among electronics-related manufacturing firms in Taiwan", *Journal of Environmental Management*, 91, pp 1218–1226.
 12. Holt, D. & Ghobadian, A., (2009) "An Empirical Study of Green Supply Chain Management Practices amongst UK Manufacturers", *Journal of Manufacturing Technology*, Vol. 20, No. 7, pp 933-956.
 13. Nawrocka, D., Brorson, T., & Lindqvist, T., (2009) "ISO 14001 in environmental supply chain practices", *Journal of Cleaner Production*, 17, pp 1435–1443.
 14. Lee, S., (2008) "Drivers for the participation of small and medium-sized suppliers in green supply chain initiatives", *Supply Chain Management: An International Journal*, Vol. 13, No. 3, pp 185–198.
 15. Raymond, P. C., Lopez, J., Marche, S, Perron, G.M., & Wright, R., (2008) "Influences, practices and opportunities for environmental supply chain management in Nova Scotia SMEs", *Journal of Cleaner Production*, 16, pp 1561–1570.
 16. Chen, Y., (2008) "The Driver of Green Innovation and Green Image – Green Core Competence", *Journal of Business Ethics*, 81, pp 531–543.
 17. Chien, M. K. & Shih, L. H., (2007) "An empirical study of the implementation of green supply chain management practices in the electrical and electronic industry and their relation to organizational performances", *Int. J. Environ. Sci. Tech.*, Vol. 4, No. 3, pp 383-394.
 18. Simpson, D., Power, D. & Samson, D., (2007) "Greening the automotive supply chain: a relationship perspective", *International Journal of Operations & Production Management*, Vol. 27, No. 1, pp 28-48.
 19. Vachon, S. & Klassen, R.D., (2006) "Extending green practices across the supply chain: the impact of upstream and downstream integration", *International Journal of Operations & production Management*, Vol. 26, No. 7, pp 795-821.
 20. Anbumozhi, V. & Kanada, Y., (2005) "Greening the production and

supply chains in Asia: is there a role for voluntarily initiatives?”, IGES Kansai Research Center Discussion Paper, KRC-2005, No. 6E. Available online: <http://www.iges.or.jp>

21. Rao, P., (2002) “Greening the supply chain: a new initiative in Sout East Asia”, *International Journal of Operations and Production Management*, Vol. 22, No. 6, pp 632-655.
22. Zhu, Q., Geng, Y., Sarkis, J., & Lai, K.H., (2011) “Evaluating Green Supply Chain Management among Chinese Manufacturers from the Ecological Modernization Perspective”, *Transportation Research Part E*, 47, pp 808-821.
23. Liu, X., Yang, J., Qu, S., Wang, L., Shishime, T., & Bao, C., (2011) “Sustainable Production: Practices and Determinant Factors of Green Supply Chain Management of Chinese Companies”, *Business Strategy and the Environment*.
24. Li, Y., (2011) “Research on the Performance Measurement of Green Supply Chain Management in China”, *Journal of Sustainable Development*, Vol. 4, No. 3, pp 101-107.
25. Zhu, Q., Sarkis, J. & Lai, K., (2008) “Green supply chain management implications for ‘closing the loop’”, *Transportation Research Part E: Logistics and Transportation Review*, Vol. 44, No. 1, pp 1–18.
26. Zhu, Q., Sarkis, J., Cordeiro, J.J. & Lai, K., (2008) “Firm-level correlates of emergent green supply chain management practices in the Chinese context”, *Omega*, 36, pp 577-591
27. Zhu, Q., Sarkis, J., & Geng, Y., (2005) “Green supply chain management in China: pressures, practices and performance”, *International Journal of Operations and Production Management*, 25, pp 449–468.
28. Diabat, A. & Govindan, K., (2011) “An Analysis of the Drivers Affecting the Implementation of Green Supply Chain Management”, *Resources, Conservation and Recycling*, 55, pp 659-667.
29. Eltayeb, T. K. & Zailani, S.H.M., (2011) “Greening Supply Chain through Supply Chain Initiatives towards Environmental Sustainability”. *International Journal of Managing Value and Supply Chains (IJMVSC)* Vol. 3, No. 1, March 2012 18
30. Eltayeb, T. K., Zailani, S. & Ramayah, T., (2011) “Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: Investigating the outcomes”, *Resource, Conservation and Recycling*, 55, pp 495-506.
31. Darnall, N., Jolley, G.J. & Handfield, R., (2006) “Environmental management systems and green supply chain management: complements for sustainability?”, *Business Strategy and the Environment*, article in press, DOI: 10.1002/bse.557.

Lysiuk Oleksandra

Doctorant

VUZF University

(Sofia, Bulgaria)

THE FEATURES OF UKRAINIAN LABOR MARKET

Ukraine, as a country, is in the process of big economic reforms aiming at the construction of socially oriented market economy. Market economy is formed and developed as the unity of many markets, such as land market, capital market, housing market, markets of goods and services, labor market, etc. Labor market is an integral part of general economic market mechanism. It is defined as one of the most complicated socio-economic phenomenon of the society where all the sides of its life are reflected and all the variety of its interests and contradictions is demonstrated. That is why, the process of its functioning is always kept in sight by the state as the reproduction of labor forces is actually the recreation of labor resources and productive forces of the society. The transition to the market economy in Ukraine is characterized with arising and strengthening of a number of negative trends and, in particular, rising unemployment and inefficient employment of the population which cause a fall in productivity. So, there is a need for an active employment policy which includes social protection of the population against unemployment on the basis of employment growth and, thereby, raising the living standard of the population.

Labor market is the most complicated part of the market economy. Here the interests of an employee and an employer are intertwined when determining the price of labor and conditions for its functioning. The demand for labor supply, and accordingly, the unemployment rate depend on the economy, how successful the economy works, in what phase of the economic cycle it is. The level of inflation and the loan interest rate determine the investment activity, which, in its turn, forms the movement of the system of workplaces: the number of jobs increases or decreases, high-tech jobs are created or reproduced at an old technical level. The level of income of the population depends on the degree of the labor activity: the lower the income is, the more people are forced to work and, thus, the tension on the income increases. The traditions that have developed in the labor sphere, and national peculiarities of behavior have the significant influence on the behavior of the subjects of

the labor market. Because of that, the labor markets in Ukraine, Russia, Japan, Germany have clearly defined specific features. Nowadays we cannot say that Ukraine meets a totally unexplored economic phenomenon. Similar processes existed and exist both in the developed countries and in the countries of the former socialist camp. Therefore, those phenomena occurring in the labor market of Ukraine should be studied as, on the one hand, a manifestation of the general patterns typical for market relations and, on the other hand, the Ukrainian specific feature of the formation of the market environment. [1,p.140]

Specificity of the labor market of transition economies stems from the profound contradictions which have been developed in the field of labor relations at this stage of social development. On the one hand, elements of the relations typical for the command-administrative economy are preserved, that is, the so-called non-economic coercion (saving of registration (till 2002); low labor mobility; job reservation for people with reduced competitiveness; establishment of certain privileges for economic entities using the labor of the specified category of able-bodied population; state division of personnel of higher qualification, etc.), on the other hand, the elements of market relations with the typical system of hiring labor, specific conditions and wages appear. Accordingly, a more flexible mechanism of maintaining the balance of factors of production, in which the elements of the old and new systems interact closely, is formed. However, the advantage remains for the first elements of the relationship, mainly due to objective reasons. The formation of new economic relations can be effective only when the following is taken into account: from which status the society goes and what quality it aspires to have. This key thesis does not deny the role of the government, but also provides maintaining a strong position of the state in solving employment problems in the transition period and creating effective mechanisms for regulating labor relations [2, p.38].

It is obvious that the task of the state in the mechanism of employment is to take into account the coexistence of two systems of relations, such as administrative and economic, to use all opportunities of the state sector of the economy in solving problems and in every possible way to contribute to the creation of a market economy sector. In parallel, the process of forming the mechanisms of regulation of employment, organizing the institutional basis of the labor market such as employment services, centers of training and retraining of personnel, banks of information about available vacancies in the system of social protection of workers, etc., should take place.

Functionally, their activities change, filling with new market content. That concerns the hiring system, the nature of labor mediation, and social support for the unemployed. So in the depths of the old economic system, the elements of the new one are gradually emerging. They are aggravated by the dismissal of the state from carrying out the functions, that are not specific to it, by delegating them to local authorities.

The transformation of employment regulation functions is synchronized with the pace of privatization and denationalization of property, structural changes in the economic complex of the region, the dynamics of the development of the market economy sector, the efficiency of its own accumulation, the creation of a functioning economic mechanism of local self-government, formation of a mechanism for interaction of territorial authorities with professional associations and employers regarding the impact on the level of wages and stimulation of labor demand that means that the process of formation of the market economy sector is underway. The space for free movement of labor is being opened and conditions for self-realization of the person in the process of work are created. Based on these theoretical and methodological positions, it should be noted that the transition period corresponds to the state-market mechanism of regulation of labor relations that gradually evolves toward a mature labor market, displacing administrative levers of regulation with economic ones. That means that the economy of transition period cannot have a full-fledged labor market because determinants which form demand and supply of labor force and, accordingly, its price, are not developed enough. It creates the complexity and contradictions of the processes that are formed in the labor market.

Therefore, in the regulation of employment, it is necessary to flexibly combine two complementary forms of organization of economic ties: direct government intervention and market mediating which begins to interact mainly with the non-state sector of the economy, thereby exercising a corrective influence on the structural proposals of production and distribution of labor forces. State measures in this case are aimed at converging supply and demand for labor, which is necessary for reaching the balance in the labor market [2, p.42].

By regulating the factors of labor demand and supply, the state contributes to progressive transformations in the field of production and employment, thereby enhancing the effect of market regulators. Practically, this means that it gradually imposes the market rules on its participants.

Ensuring conformity between labor demand and its supply by volume and structure to achieve their effective balance occurs through labor market regulators that are known to have four:

- 1) regulatory legal acts of the state, as well as conventions and recommendations of the International Labor Organization;
- 2) economic laws that are typical for all countries with a market system (demand law, law of proposals, competition law, pricing law);
- 3) the level of development and influence of the trade union movement and the media;
- 4) national peculiarities, the mentality of the nation, the climatic conditions of the country

Main functions of the modern labor market are the following:

- 1) social division of labor;
- 2) informational function which provides information on the structure of demand and supply of labor force;
- 3) intermediary function which coordinates economic interests between the owners of the workforce and the owners of jobs;
- 4) professional advice for job seekers or owners of means of production regarding the legal aspects of the use of hired labor;
- 5) Regulatory function which provides professional selection of labor force and its professional adaptation for the formation of the optimal professional qualification structure;
- 6) price-creating function provides a competitive environment for subjects of labor relations;
- 7) the proportionality of the distribution of labor force in accordance with the structure of social needs and the development of scientific and technological progress;
- 8) reserving function contributes to the formation of a reserve of labor resources to ensure the normal process of social reproduction.

The indicated functions are closely interconnected and complement each other. They are common for all types of labor market - internal, external or potential, and also for the current labor market and form the national labor market.

Each country forms its own labor market, taking into account national peculiarities, conditions and trends of its own economy. Each state has its own peculiarities of labor market formation, which are caused by resource, geographical, economic, political and other reasons.

The model of the national market forms the system of training, retraining and professional development of workers; filling vacant jobs; means of regulation of labor relations, etc. In this regard, three most

well-known models of the labor market are distinguished [3].

So far, it is too early to mention the Ukrainian model of the labor market, as the process of its reformation is underway. In contrast to the dualistic model of Western markets, the Ukrainian market is characterized by a three-sector model that covers those employed in the official economy, employed in the unofficial economy and employed simultaneously in both official and unofficial economies. Socially vulnerable components of the labor market are of particular concern. They are represented by competitive workers with unstable employment, declining demand for labor services, low and unstable incomes, and a large number of hidden unemployment, representing a significant proportion of the employed population. The formal employment sector represents an extremely diverse segment according to its economic and social indicators [4, p.172].

The formation of the Ukrainian labor market is accompanied by serious contradictions:

- between demand and supply in the labor market;
- between sectoral and territorial disproportions in the allocation of labor resources;
- discrepancy of regulatory mechanisms and the needs of a balanced labor market.

The most important problem of the functioning of the Ukrainian labor market is, on the one hand, insufficient demand for labor forces and, on the other hand, "opacity" of the labor sphere, the advantage of latent processes in it. This refers both to the structure of employment and unemployment (high levels of unregistered employment, including redundancy and hidden unemployment, hidden employment among the unemployed), and to the payment (on the one hand, the real failure to pay officially calculated salary, on the other hand, unofficial payments in black cash, various types of "distorted" forms of wages, starting with the payment of wages or part of the salary with production of the enterprise, creating conditions for the "left" work on the equipment of the enterprise, etc.)

This situation is specified due to the action of a number of factors. Firstly, the process of spreading "shadow" economic relations leads to an increase in unregistered employment, secondly, the preservation of the old system of labor legislation, with a high formal level of protection of the rights of the worker, has come into conflict with the new socio-economic conditions.

In addition, in the conditions of the collapse of the traditional system

of monitoring the observance of labor laws and in the absence of sanctions for its violation could not help the emergence of the contradiction mentioned above. Finally, the high level of taxes related to labor creates a powerful stimulus to scrimp on them through the development of informal "shadow" labor relations, even in the registered economy. Lack of counteraction from the workers can be explained primarily by low material interest in the legal registration of labor relations [1, p.142].

In general, the following features are inherent in the modern labor market in Ukraine:

- excess supply of labor force over demand;
 - low labor cost, its non-conformity with real value;
 - reducing of employment in the sphere of social production, growth of the number of unemployed population;
 - a low proportion of officially registered unemployed people along with large-scale growth of hidden unemployment;
 - the presence of significant scales of unregulated employment;
 - growth of youth unemployment;
 - regional disproportions between the availability and need for labor;
 - low professional and especially territorial mobility of labor resources;
 - lack of laws or lack of efficiency of the legal norms of organizational and economic mechanisms to regulate labor relations, etc
- ∴
- emigration of highly skilled labor [3].

In today's conditions, it is impossible to rehabilitate the situation without an effective employment policy or without reforming the labor market. Both the strategic and tactical implementation of the employment policy, as well as the reforming of the labor market, must be subordinated (in the conditions of the transformation period), first of all, to the task of increasing the contribution of the labor factor (labor potential, human capital) into economic growth. In conditions of structural adjustment (domination of structural, long-term unemployment), the most reliable and effective means of protection of unemployed citizens is their employment.

As a rule, structural and technological restructuring of the economy, on the one hand, leads to the elimination of jobs, and, on the other hand, to the emergence of vacancies. In this case, problems will arise if these changes are not accompanied by adequate changes in the quality of labor force.

Therefore, at this stage of the development of the Ukrainian economy, the focus of the employment policy should not be based on passive assistance to the unemployed, for example, cash benefits, but on active politics, that is: raising the level of skills and labor competitiveness, intensifying all efforts to recruit non-working people; ensuring the decent existence of our citizens; the intensification of work on the establishment of coordination centers in the regions for the assessment and forecasting of the development of branches and sub-sectors of the economy with the purpose of adjusting the system of training and retraining of personnel, which will significantly reduce the number of unemployed, will purposefully enable to prepare the staff and provide them with the work. The experience of such centers can be taken from abroad, where educational institutions agree the number of students to enter with predicted staffing needs, taking into account the prospects for the development of a particular region or industry [4, p.141].

Economic growth creates the preconditions for the creation of new jobs and reconstruction of existing jobs. The purpose of such a reconstruction should be the following: reducing the proportion of jobs with severe and harmful working conditions, ensuring the modern technological level of production and protecting the environment. Accordingly, it is necessary for the Verkhovna Rada of Ukraine to ensure the passing the laws of Ukraine:

- "On Approval of the State Program of Employment of the Population for 2007-2010";
- "On employment of the population" (in the new edition);for the Cabinet of Ministers of Ukraine to introduce:
 - the mechanism of preferential crediting for the creation of new jobs for a specified period and, accordingly, the number of jobs created;
 - a system of grants for entrepreneurs to create new jobs;
 - a system of effective subsidies for employers for employing the unemployed, primarily from socially vulnerable groups of the population and those who have not worked for more than six months;
 - organizing of short-term free courses, seminars on the legal basis of entrepreneurship, accounting and tax accounting, providing with free methodological materials;
 - providing newly created business entities with consulting, information and advertising services, in particular, including in the local advertising and information directories of free legal advice, information about state and public institutions that work with entrepreneurs;

- facilitating to unite entrepreneurs in public organizations, unions for the protection of their interests and the implementation of joint activities;

- stimulating the development of farms and other enterprises engaged in agriculture on a professional basis using modern industrial technologies;

- legislative regulation of the status and activity of private peasant farms, based on not only size but also the predominant direction of land use;

- determining the rights of household members to state social protection and assistance, including unemployment payouts, taking into account the demographic composition of the family (the number of able-bodied people, children, the elderly) and the objective possibilities to lease the land plot (the presence of enterprises, willing to take land on lease, the amount of rent). The Cabinet of Ministers of Ukraine should develop mechanisms and find the necessary financial resources to make investing interesting for a private investor, in accordance with the specified priorities [4, p.143].

It is necessary to create the prerequisites for a significant increase in the mobility of the labor force through proper vocational training of the workers in accordance with current and future requirements of the economy and the creation of a real labor market. For this purpose: the Verkhovna Rada of Ukraine should ensure the passing of the Law of Ukraine "On the Professional Development of Personnel at Work"; The Cabinet of Ministers of Ukraine and the National Academy of Sciences of Ukraine should develop a long-term forecast for the needs of the country's economy in the labor force by professional qualification groups.

The Cabinet of Ministers of Ukraine should:

- develop mechanisms for increasing the scale and expansion of adult education, timely training and retraining of the labor force;

- ensure directing some part of the funds, allocated for vocational education, on its modernization, proper technological equipment and providing with methodological and educational literature;

- provide a direct link between pay standards and the educational qualification level of employees;

- ensure the transformation of vocational education, its proper conformity with the needs of the labor market;

- substantially increase the scope of vocational training and retraining of the unemployed;

- form a state order for labor force training, based on the results of the forecast of the needs of the country's economy in the labor force according to occupations, and to place orders at educational institutions (higher and secondary) on a tender basis [5, p. 15-21].

Conclusions

The analysis showed that the labor market in the transition period is characterized by a deep crisis situation. The age structure of the population is steadily deteriorating, the demographic and economic burden on the working population increases, the unemployment risk increases, unemployment is rising, working conditions deteriorate, the incentives for high-productivity work have practically disappeared, which leads to the degradation of personality, family, depopulation, social stratification and instability in society.

The destructive phenomena that take place on the labor market, the practical ineffectiveness of market instruments, that should have helped to overcome negative tendencies in the field of employment, require classifying the existing problems to the main priorities of socio-economic policy of the state, the solution of which must be based on deeply grounded scientific developments.

The modern labor market requires increasing control over the processes taking place on it. At present, there is practically no acceptable model for managing the labor market and developing labor potential, the position of trade unions and civic organizations does not play a proper role in creating the socio-economic partnership, which should provide a balance of interests of all participants in the labor market.

The transition of the Ukrainian economy to market conditions requires creating an appropriate process management system in the labor market. In Ukraine, a complex, coordinated and effective system of labor market management has not yet been established. Through the operation of existing market mechanisms and putting into practice new market mechanisms, the effective labour market management would have allowed to work out an effective mechanism for achieving effective employment.

The development strategy of Ukraine, as an independent and prosperous state, can only be achieved if an effective level of employment is achieved by strengthening the active policy of the state in the labor market through the introduction of an economic mechanism for regulating the labor market, which will reduce the unemployment

rate, especially the hidden unemployment, reduce unregulated employment, provide unemployed youth with jobs and increase the level of social protection of the unemployed and disabled categories of the population.

References:

1. Pavliuk T.I. *The role, significance and features of the functioning of the market Works at the present stage* // *Visnyk SNAU*. - 2010. - Issue. 5. - pp. 140-144.
2. Kalina A.V. *Economics of Labor: [taught. manual for the stud higher teach shut off]* / AV Guelder rose. - K.: MAUP, 2004. – p. 272.
3. Shimchenko L.A. *Labor market in Ukraine: problems and difficulties, Reformation* // *Economic Bulletin of the University: Sb. sciences works of scientists and graduate students*. - Vip 10. - Access mode: http://www.nbuv.gov.ua/portal/2011_17_1/shimchenko.pdf.
4. Kalina A.V. Kotvitsky A.A. *Labor market*, -Kyiv: *Knowledge of Ukraine*, 2017. – p. 208
5. Spasenko Y. *Labor market of skilled labor: state and conditions for effective development* // *Ukraine: aspects of work*. - 2014. - Issue 4. - pp. 15-21

Pidlypna R.P.

*Ph.D.in Economic Sciences,
Associate Professor*

Pidlypnyi Y.V.

*Ph.D.in Technical Sciences,
Associate Professor*

Indus K.P.

*Ph.D. in Econimic Sciences,
Associate Professor
Uzhgorod Trade and Econimic Institute
Kyiv National University
(Uzhgorod, Ukraine)*

**ANALYSIS AND
EVALUATION OF
COMPETITIVE
FACTORS AND
COMPETENCIES OF
A TRADING
ENTERPRISE**

The strategic management of the trading company is heavily focused on those key areas in which progress can be made and exceeded by the achievements of competitors. Therefore, the analysis of competitive

factors is the second in the order and equivalent in the importance task of analyzing the strategies of a trading enterprise. Managers who make strategic management decisions must be well aware of the points in which it is possible to destroy the positions of the competitors and find new buyers.

Any trading company should have, apart from the material base and financial resources, a coherent set of competences, through which, in fact, any strategy is implemented. Prerequisites for long-term success of the enterprise, according to A. Nalyvayko, are not only the proper development of tasks and the assessment of the external and internal environment, but also "the creation, expansion and effective use of so-called distinct competencies of the enterprise ..." [3, p. 11].

Distinctive or, as they are often called, the core competencies that A. Nalyvayko describes is a prerequisite for the implementation of virtually all competitive advantages of trading enterprises. The effectiveness of sales, logistics, operational sales management, marketing and advertising provides the appropriate competencies that the enterprise owns.

For example, in our opinion, the competitive advantages of many trading companies are as follows:

- strong and recognizable brand, which is associated with prestige, high level of service and quality of products;
- availability of a strategic brand development plan, which includes the standards of corporate salon and service, a set of brand differences, an appropriate advertising policy;
- versatility of brand standards;
- the existence of exclusive rights to the distribution of leading manufacturers;
- diversification of the range (the maximum share in turnover per one manufacturer does not exceed 15%);
- orientation to the consumer's expectations;
- availability of a comprehensive product, which includes a ready interior solution and a number of additional services;
- wide geography of presence;
- professional management;
- professional implementation of ERP-system at the enterprise.

As can be seen from the list above, the role of such non-material factors as the presence of a strong brand, personal reputation and talent of top managers, peculiarities of organizational relations, customer orientation, the existence of economic ties and exclusive rights, etc., has

increased significantly. All these factors should be considered as intangible resources that can generate profits and determine the appropriate position on the market. Therefore, one of the most common views on this problem is based on the definition of organizational capabilities and competencies of the company as the most influential factors in its successful long-term development and competitiveness.

Scientific literature and management practices do not yet have a unified terminology in the field of competence. Most often, terms such as "core competencies", "basic competences", "intangible assets", "intellectual resources", etc. have been used. Unfortunately, there is currently no clear definition of these concepts, which would be shared by the vast majority of reputable specialists. There is also no unity in the sense of the same terms, which only increases the uncertainty in the conceptual apparatus of the direction of the study of competences and creates certain problems for the spread of methods of competence management among professionals.

In the 90 years of the last century, the development of the theory of competitive advantages was associated with the expansion of the interpretation of resource support for the operation of the enterprise. In order to assess the strategic potential of the company, in addition to tangible and intangible resources, the following terms were proposed as "core competencies" [8] and "dynamic capabilities of the company" [9].

Competence (from the Latin *competentia* – affiliation) is a term that literally refers to the sphere in which a person or organization has extensive experience and knowledge. This term is often applied to individuals, describing the ability of a person to perform certain functions; the presence of her important skills in the performance of work. Personal competencies of an employee are the subject of attention in the management of personnel, as well as in strategic management, when it comes to the implementation of strategic plans and responsibility for their implementation.

An employee who owns valuable (from the point of view of his employer) personal competences must, on the one hand, clearly perform the functions assigned to him in accordance with the requirements of the enterprise, and on the other hand, be able, on the basis of his experience, to find the right solutions in different atypical situations.

The term "competences" or "strategic competences" is often used also in relation to organizations [6]. Strategic competences are the ability to choose the best business strategy in the appropriate external environment. Such competencies at the strategic level represent an

important intangible asset that cannot be seen in the usual balance sheet, but which ensures that the course of the organization conforms to the environmental conditions and available resources.

Competences of the enterprise must be distinguished from other, quite popular, concept – key competencies (Eng. – core competencies). The most enthusiastic scientists in this area are G. Hamel and K. Prahalad who define competence as a "set of interconnected skills and technologies," but in any case not as "individual skills or technology" [4, p. 177]. Such sets every business can have dozens and hundreds. With regard to core competencies, these are, according to Hamel and Prahalad, certain specific knowledge and skills that provide exceptional competitive advantages and support the success of the enterprise. This view is shared by F. Guyar and J. N. Kelly, who suggest defining core competencies as "interrelated sets of skills, abilities and technologies that form the uniqueness of the company in a particular industry or field, and can be applied in many types of businesses and industries." [2, p. 224].

Consequently, core competencies apply only to enterprises and cannot be attributed to individuals. It is highly unlikely that one person or a small team can have the core competence [4, p. 178]. As a rule, core competencies exist throughout the entire organization. For example, despite the fact that world-wide best-selling networks use cost leadership strategies, each of them succeeds in their geographic markets through the development of a unique set of resources and capabilities (for example, in logistics), original managerial decisions and organizational systems. Other trading companies can, of course, study this experience, but attempts to copy the strategy of the above-mentioned enterprises are almost guaranteed to be doomed to failure, since what is excellent cannot be bought or sold (except for the company as a whole).

To "service" the core competencies of the enterprise at all levels of management there must be formed specific management competencies. They provide the required level of quality, dynamics and creativity of managerial decisions related to the implementation of strategic and operational indicators. Some authors also separate the category of psychological competencies, which "characterize the ability of staff and, above all, its managers to quickly perceive changes in the rules of conduct in the business environment, their functioning, as well as in the macro environment" [3, p. 65-66].

The above mentioned types of competencies are far from being a

complete list. In our view, the formation of a methodology for the management of competencies and their evaluation is in the early stages of evolution and requires the following systematization and refinement. At the same time, it is already clear today that competencies need to be considered on various pillars of the organizational hierarchy – starting from the enterprise as a whole and completing individual employees. In this regard, it is considered relevant to generalize existing views on the problems of understanding and identification of competencies of a modern trade enterprise and to present their own vision of this concept.

Successful activity of any enterprise is largely due to the "strength" of all levels of management, each of which, depending on their competencies, strengthens or weakens the competitiveness and efficiency of the enterprise. Therefore, it is extremely important to properly identify and assess, on the one hand, the existing competencies, and, on the other hand, those that are necessary in terms of implementing a long-term business strategy. Competences should be tailored to the specificity of the business, the strategic goal, the requirements for managerial efficiency, and other parameters that are determined by the senior management of the company and which are in the field of strategic management responsibility. Consequently, management of the development of a trading company on the basis of its competencies can be considered a separate independent direction of analysis and decision-making.

Competence of the enterprise in terms of management of them can be considered in static and dynamic situations. The first of them involves the identification of specific skills, knowledge and experience in a specific area of the enterprise. The second position (dynamic) involves assessing the benefits of using existing competencies to address market, financial or operational issues.

The proposed approach allows us to systematize the conceptual and methodological apparatus of the analysis of competencies. The basis of this approach is the five-level structure of competencies, which has been suggested in the work of V. Verba and O. Grebeshkova [1]. This structure includes the following levels of competencies (Figure 3.3):

- 1) separate individuals (professional competences);
- 2) roles performed by team members in groups in the process of economic activity (role competences);
- 3) implementation of certain functions in the process of production and sales of products (functional competencies);
- 4) enterprises as a participant in market relations (strategic

competencies);

5) the uniqueness and distinctive character of the enterprise (core competencies).

In the basis of Figure 3.3 of "competency pyramid" there are personal competencies – professional and role-playing, in the middle – competences of subunits (functional competencies), and on top – corporate competencies (strategic and core competencies).

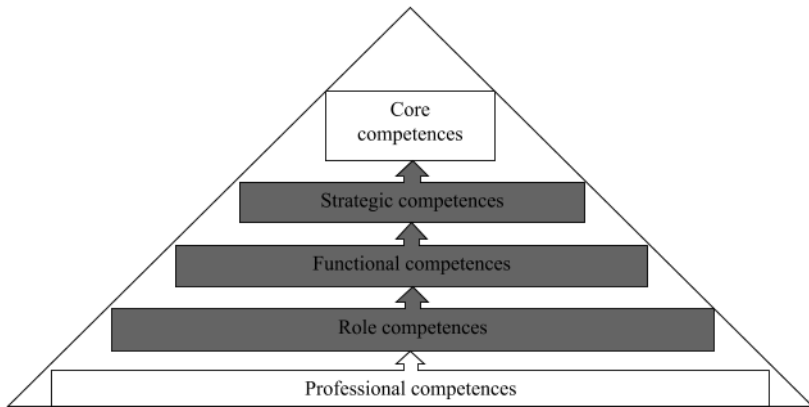


Figure 3.3 Hierarchy of competences of the enterprise [1, p. 25-26]

The level of personal competences includes the professional competence of a person, which refers to basic knowledge, skills and abilities of the individual, as well as role competences as personal characteristics that determine the social activity of the individual in the process of organizing and implementing the collective activities of people in groups while performing certain production tasks. It is the personal competence that forms the basis of the company's competencies as a complex open socio-institutional and technical and technological system [1, p. 26].

Functional competences have different nature and extend to the activities of divisions and subsystems of the enterprise. With the help of functional competences, the strategic intentions and plans of the enterprise are implemented – marketing, commercial, financial, research and development plans, in the field of personnel, etc. These competences "serve" the core business, providing systemic progress in all key areas of enterprise development.

Functional competencies are the basis for constructing strategic

competences within the enterprise.

Distinctive features of strategic competencies are, firstly, orientation on the adaptation of the strategy and tactics of the enterprise to the requirements of the environment, and secondly, the optimal selection of original (difficultly reproducible) levers of ensuring high competitiveness in a context of constant change.

The adaptive nature of strategic competences is complemented by core competencies of the company, which are aimed at creating and actively promoting qualitatively new solutions, services and products. In other words, core competencies allow the company to get the "right to championship" in a competitive struggle due to the unique characteristics of its business system, its strategies and technologies.

To capture and develop key competencies, the trading company must first analyze the existing and new competencies that need to be acquired as well as the existing and emerging markets for which it seeks to enter in the future (Figure 3.4).

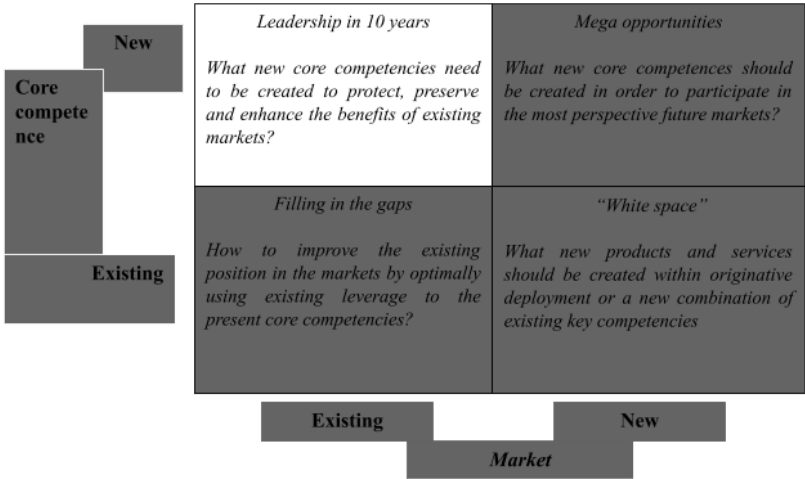


Figure 3.4 Matrix of acquiring core competencies [4, p. 199]

The lower left sector of the matrix depicted in Figure 3.4, represents the existing portfolio of enterprise competencies. By exploring what competencies support the maintenance of markets (consumer groups), it is possible to determine which of the existing competencies can be used to strengthen positions on certain markets ("fill in the gaps"). For example, in the networks of trading companies, the leaders' competences of serving the customers can be extended to other stores.

The upper left matrix sector offers an idea of what new competencies will need to be created to stay in the first place for its customer buyers in 10 years. For example, the development of modern information technologies requires thinking about meeting the growing information and communication needs of visitors to trading companies in the most convenient and modern way.

The right bottom matrix sector is intended to analyze the possibilities of using existing competences in new markets or new types of services. But at the same time one needs to be careful, because, switching to a new direction, one can lose focus on one's main advantages. For example, the recent decision by the largest Wal-Mart marketing company to expand its offer to a wider range of people, especially those with higher incomes, was sharply criticized by analysts who rightly pointed to the risk of losing focus on traditional low-income buyers.

And, finally, the right upper sector allows to analyze what competences may be needed by the company in the future on new markets? For example, which competences are needed for leadership in e-commerce?

So, using the matrix of acquiring competences, a trading company can analyze and plan its activities to develop new and effective use of existing competencies in the old and new markets.

In order to analyze existing competences in trading enterprises, a decision matrix based on the analysis of core competencies can also be used successfully [7]. This matrix helps to identify and analyze the various services and processes of trading enterprises in terms of their relevance to core competencies and missions (Figure 3.5).

Compliance with key competencies and mission relevance are rated on the "low", "medium", "high" scale. Accordingly, there are nine possible combinations of these two indicators, each of which has its own recommendation – from the elimination of the relevant service to its full support.

The decision-making matrix based on the analysis of key competences is a useful strategic management tool that can be used successfully for the following purposes:

- 1) to bind core competencies to the mission of the enterprise and make decisions on the development / termination of the development of those or other services;
- 2) for the strategic assessment of any units of the trading network in terms of the relevance of their activities, the mission of the enterprise and the depth of their competencies;

Coordination with the mission	High	Look for opportunities for cooperation	Develop by building competencies	Support
	Middle	Watch carefully without delaying the decision making	Support but be cautious	Allow "inner competition"
	Low	Eliminate	Watch carefully without delay in decision-making	Define in separate business
		Low	Middle	High

Figure 3.5 Matrix of decision-making based on the analysis of core competencies

3) as a tool for identifying core competencies and measuring their impact on performance outcomes.

Decision-making matrix based on the analysis of core competencies allows to correctly and efficiently direct the resources of the enterprise, to evaluate the most priority areas and to focus the attention of trade management on the development of core competencies that can provide long-term and stable success in a competitive market.

Similar tasks can also be solved by another strategic analysis tool – the matrix of outsourcing (Figure 3.6), developed by a consultant of the Russian consulting company BKG D. Khlebnikov in 1999 [5].

Outsourcing is the transfer of a part of the work, a separate function or certain actions in a row to a third party organization or a person professionally specialized in the field. In the process of strategic management of commercial business, the decision to transfer certain functions «to the side» is taken quite often. Therefore, the task of strategic analysis is to determine the list of works or functions that are not strategically important for the enterprise and which can be transferred to outsourcing.

It should be noted that in practice there are two approaches to outsourcing.

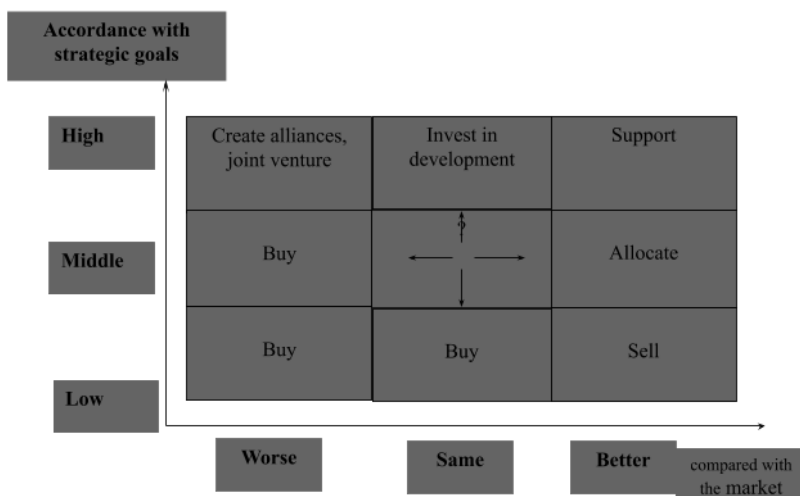


Figure 3.6 Matrix of outsourcing by D. Khlebnikov [5]

The first approach is that the trading company transfers its functions to legally separate units – firms that have to earn money on their own. The second approach is to eliminate certain works or functions, after which the company begins to purchase services from outside organizations.

For example, the trade network transferred the right to sell the product in its network to another company. The latter should carry out categorical management, determine the range of goods on the network, be responsible for pricing and merchandising. It is forecasted that in the nearest future, many trading companies will transfer and transfer the calculation of certain categories of goods for outsourcing, leaving only control as their function.

There are many examples when merchant outsourcing logistics, merchandising, security, information services, marketing and advertising. In particular, in recent years enterprises have increasingly been using logistics centers and other enterprises. There are several advantages for a trading company in the transfer of logistics to outsourcing.

First, the logistics center takes care of responsible storage of goods. The retailer does not need to spend time and money on renting, purchasing or constructing warehouses, finding or training personnel, purchasing infrastructure and equipment for the warehouse complex.

Second, if a trading company provides logistics for outsourcing, it does not pay for the excess of warehouse space that may temporarily not be used, for stoppage of technique and equipment, does not pay extra money to temporarily untapped personnel, but only eliminates the need for agreement and coordination of actions of different services.

At the same time, in the specific circumstances, the benefits of the transfer of logistics function to outsourcing do not always manifest. Therefore, so far, many retail chains create their own distribution centers and carry on logistics independently. Consequently, the adoption of a strategic management decision on the transfer of certain work and functions for outsourcing requires careful preliminary analysis.

Using the matrix of outsourcing (Figure 3.6), one can significantly improve the quality of strategic decision making. This matrix can be applied to any work, functions, processes or competencies that can be spread over 8 cells (the central cell of the matrix has a special purpose – if during the analysis you hit this cell, this means that you need to reconsider the input data and make a choice in favor of another cell.). This diversity is carried out by means of: 1) 1) the scale of compliance with the strategic goals; 2) the scale of accordance of the object of research with the average market quality indicators. For practical application of the matrix it is necessary to determine:

- how difficult will be the consequences for an enterprise of the exclusion of the object of analysis from the business system (scale "Compliance with strategic goals");
- the extent to which the research object is a monopolist in relation to the result that the enterprise receives from it, within the usual markets for it (scale "Compared with the market").

Analyzing the various functions performed by a trading company, using the matrix of outsourcing, one needs to understand that each cell of the matrix has its own meaning:

- "Create alliances, joint venture" – subject to the high degree of compliance of a certain function with strategic goals but low own competencies, the enterprise should look for ways to create a joint venture with another enterprise, whose competencies in the field are high;
- "Invest in development" – subject to a high degree of compliance of a certain function with strategic objectives, but with an average level of own competencies, it is necessary to invest in the development of the respective competence, since it is strategically important for a trading

company;

- "Protect" – subject to the high degree of compliance of a certain function with strategic objectives and a high level of own competencies, the trading company must maintain the existing high level of competence in the strategically important area;

- "Allocate" – subject to the average matching of a certain function to strategic goals but a high level of competence, one can try to allocate this function to an independent unit that could not only provide services to the parent company but also sell those services to the third parties;

- "Sell" – if the competence of the trading company is high, but this function is not strategically important for the enterprise, it is expedient to allocate it to a separate business and to sell it profitably;

- "Buy" - in all cases where the competence of the enterprise is not high and the importance of this function is low or average, it is better to purchase the relevant services on the side (transfer function to outsourcing), rather than keep your own unit (for example, a shop for the production of packaging materials);

- «?» – a zone of uncertainty. As already indicated earlier, if during the analysis some function got into a cell with «?» sign, one needs to carefully weigh all the factors and position it in another cell.

The evaluation of functions with the help of matrix of outsourcing is carried out only by expert way. We have improved the methodology of strategic analysis of the competencies of a trading company using the matrix of outsourcing, by elaborating the scales shown in Figure 3.6 and giving them digital values, which will further expand the possibilities of their processing.

In our opinion, when compared with the market, analysts must take into account, first of all, two main factors: the quality and cost of work or function, although other factors may also be relevant. Based on these parameters, one can evaluate the object of study on an expanded and digitized scale:

- 1.1. Much better (+4)
- 1.2. Noticeably better (+3)
- 1.3. Slightly better (+2)
2. Just as third-party organizations:
 - 2.1. Same, but cheaper (+1)
 - 2.2. Same, but more expensive (-1)
3. Worse than third-party organizations:
 - 3.1. Slightly worse (-2)

3.2. Noticeably worse (-3)

3.3. Much worse (-4)

We have specifically designed this scale in such a way that there are no uncertain situations when the object under study enters the central cell of the outsourcing matrix.

In Table 3.11 we give an example of an expert assessment of competence in the calculation of goods of a conventional trading company.

Table 3.11

Expert evaluations of the competence of a conditional trading enterprise for the calculation of goods on the scale of comparison with the market

Scale of assessment	Expert evaluations								Average evaluation
	1	2	3	4	5	6	7	8	
Much better	+4	+4	+4	+4	+4	+4	+4	+4	
Noticeably better	+3	+3	+3	+3	+3	+3	+3	+3	
Slightly better	+2	+2	+2	+2	+2	+2	+2	+2	
Same, but cheaper	+1	+1	+1	+1	+1	+1	+1	+1	
Same, but more expensive	-1	-1	-1	-1	-1	-1	-1	-1	
Slightly worse	-2	-2	-2	-2	-2	-2	-2	-2	
Noticeably worse	-3	-3	-3	-3	-3	-3	-3	-3	
Much worse	-4	-4	-4	-4	-4	-4	-4	-4	
Final evaluation:	+3	+2	+3	+3	+1	+3	+2	+2	2,375

As can be seen from the table, the average expert evaluation is +2,375, which characterizes the competency of compiling goods as "significantly better" than in other organizations.

The next stage of the analysis is the assessment of compliance with the strategic goals. To determine if the competence for product placement is consistent with the strategic objectives of the enterprise, it is possible to use the following detailed and digitized scale:

1. Corresponds to the mission and strategic goals:

1.1. Fully corresponds (+4)

1.2. Mainly corresponds (+3)

- 1.3. Correspond in many points (+2)
2. Finding in accordance with the general practice:
 - 2.1. Corresponds with general practice (+1)
 - 2.2. Corresponds with corporate practice (-1)
3. Does not correspond to the mission and strategic goals:
 - 3.1. Does not correspond in many points (-2)
 - 3.2. Mainly does not correspond (-3)
 - 3.3. Totally does not correspond (-4)

This scale has also been designed to avoid the central cell of the matrix of outsourcing. In addition, this scale provides estimates of a situation where there is no defined (formalized) mission and strategy, but it is possible to compare it with the general industry or corporate practice.

The results of expert research on the scale "Compliance with strategic goals" are given in Table 3.12.

Table 3.12

Expert assessments of the competence of a conditional trading enterprise for the calculation of goods on the scale of compliance with strategic goals

Scale of assessment	Expert evaluations								Average evaluation
	1	2	3	4	5	6	7	8	
Fully corresponds	+4	+4	+4	+4	+4	+4	+4	+4	
Mainly corresponds	+3	+3	+3	+3	+3	+3	+3	+3	
Correspond in many points	+2	+2	+2	+2	+2	+2	+2	+2	
Corresponds with general practice	+1	+1	+1	+1	+1	+1	+1	+1	
Corresponds with corporate practice	-1	-1	-1	-1	-1	-1	-1	-1	
Does not correspond in many points	-2	-2	-2	-2	-2	-2	-2	-2	
Mainly does not correspond	-3	-3	-3	-3	-3	-3	-3	-3	
Totally does not correspond	-4	-4	-4	-4	-4	-4	-4	-4	
Final evaluation:	+3	+4	+4	+3	+4	+3	+3	+2	3,25

Consequently, with both estimates, we can draw a conclusion on the scenario of further action and strategic decision on outsourcing (Figure 3.7). Competence of the conditional trading company for the calculation of goods fell into the cell with the recommendation to "protect". This means that the owner of the trading company should not give this competence to outside organizations and, conversely, should develop it in every possible way.

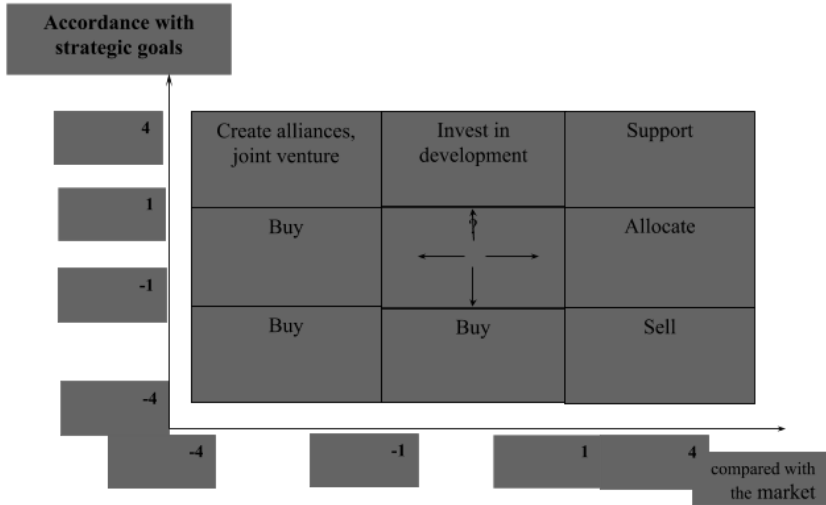


Figure 3.7 Positioning of the competence of the conditional trading enterprise for the calculation of goods using the matrix of outsourcing

Despite the fact that the principles of compilation of goods on the shelves of the company have long been known (ensuring inspection, availability, cleanliness, attractive front row, optimal filling of shelves, packaging attractiveness, bright marking of prices, constant replenishment of stocks, etc.), each trading company has its own small secrets, well-established procedures and invaluable experience. A competent bill guarantees high sales, that is, an increase in turnover, therefore, the effective use of competence in the calculation of goods is strategic for retail.

Similarly, a trading company analyzes other competencies, functions, work, and even individual employees.

The use of the above mentioned tools and methods of strategic

analysis will allow us to make informed managerial decisions on choosing the right strategies. The analysis carried out by this methodology, among other things, will help the management to conclude whether, in the nearest future, (or will not) to increase the costs of the transaction by increasing the level of costs for the payment of services by outside organizations, which will be reflected in the financial statements. In the conditional example we are considering, there will be a reduction in the costs of calculating goods, which will have a positive effect on the financial results of the trading company as a whole.

Focussing on core competencies through which a trading company forms its competitive edge is today the most successful strategy that is followed by the largest and most powerful trading companies in the world. Information about these intangible assets that are not reflected in the accounting system substantially complements the analytical function of the latter and allows for more substantiated economic decisions to manage trading activities.

Thus, we can conclude that in addition to evaluating financial parameters, any trading company also needs to assess the set of competencies, through which competitive advantages are achieved and the strategy of the enterprise is implemented. We consider different methods and models of analysis of the competencies of the trading company and proposed an extended analysis method based on a modified and improved matrix of outsourcing.

This technique allows to analyze any functions of a trading company for compliance with strategic goals and core competencies. Based on this analysis, recommendations are developed for further strategies of internal transformations of the enterprise, during which secondary functions are transferred to outsourcing to outside organizations, and strategically important functions receive the necessary attention and funding.

References:

1. Verba V. A. *Problemy identyfikatsii kompetentsii pidpriemstva* [Problems of identifying the competencies of the enterprise] V. A. Verba O. M. Hriebieshkova // *Problemy nauky*. – 2004. – No. 7. – pp. 23-27.
2. Guiyar F. ZH. *Preobrazovanie organizacii* [Organization transformation]: per. s angl. / F. ZH. Guiyar, Dzh. N. Kelli. — M.: Delo, 2000. — 376 p.
3. Nalyvaiko A. P. *Teoriia stratehii pidpriemstva. Suchasnyi stan ta*

napriamky rozvytku [The theory of enterprise strategy. Current status and directions of development]: monohrafiia [monograph]. — K. : KNEU, 2001. — 227 p.

4. Hamel G. Konkuriруя za budushchee. Sozdanie rynkov zavtrashnego dnya [Competing for the future. Creating the markets of tomorrow]: per. s angl. / G. Hamel, K. K. Prahalad. — M.: Olimp-Biznes, 2002. — 288 p.
5. Hlebnikov D. Matrica autsorsinga [Outsourcing matrix] / D. Hlebnikov // & Strategii. — 2005. — № 11. — S. 6-14.
6. Kim J. S. Manufacturing competence and business performance: a framework and empirical analysis / J. S. Kim, P. Arnold // International Journal of Technology Management. — 1992. — Vol. 11. — No. 3-4. — pp. 494-503.
7. Nicholls J. The MCC decision matrix: a tool for applying strategic logic to everyday activity / J. Nicholls // Management Decision. — 1995. — Vol. 33. — No. 6. — pp. 4-10.
8. Prahalad C. K. The core competence of the corporation / C. K. Prahalad, G. Hamel // Harvard Business Review. — 1990. — No. — pp. 79-93.
9. Teece D. Dynamic Capabilities and Strategic Management: Working Paper / D. Teece, G. Pisano, A. Shuen. — Berkeley: University of California at Berkeley, 1992.

Štoković Marija

Mag. turism.cult

Gržinić Jasmina

PhD in Economics,

Full Professor

*Juraj Dobrila University of Pula
(Pula, Croatia)*

**MANAGEMENT OF
TOURISM ATTRACTION
ACCORDING TO
TOURIST EDUCATION
LEVEL – NATIONAL
PARK BRIJUNI**

1. INTRODUCTION

The main goal of the work and the undertaken research is to analyze the basic theoretical settings regarding the experience during a tourist holiday. Additionally, the goals are to tackle the connection of tourist experience with the level of education for clear objectives regarding the management and valorization of tourist attractions. The paper proves that the level of education affects the affinity of tourist demands in the

selection of bids. The research was conducted at the Brijuni National Park.

The park is an archipelago in the Croatian region of Istria. The International Union for Conservation of Nature (IUCN) defines these islands as a geographical area that is recognized for the purpose and managed with a view to continuously preserve the entire nature, the services of the ecosystem it provides and its associated cultural values, legal or other effective ways (IUCN, 2019). This definition also uses the Croatian legislative system, which confirms that it is an area that includes land, sea and coastal areas, and all combinations of these spaces. Attraction management within the park should take the results of this research into account while planning attraction development and visit management. As a basic touristic resource, attractions should be tailored for tourist purposes in order to meet the targeted market. With the help of destination management companies, it is possible to meet the needs of modern visitors. Apart from the potential for developing health and cultural tourism, stories need to be developed. Namely, many celebrities have been on the island (President Tito, Paul Kupelwiser, Sofia Loren, etc.). A survey was carried out on a sample of 267 subjects, of which 178 women and 89 men. The survey had a time span from June to October 2018. It is the period of peak season. This research can help planning attractions in accordance to the indicators of the accepting potential (ecological-spatial, socio-demographic, semi-economic and infrastructural). For research purposes, methods of analysis, synthesis, inductive, deductive and statistical methods were used.

2. MANAGEMENT OF TOURIST ATTRACTIONS AND ADDITIONAL VALUES FOR CLIENTS

Attractions represent an essential resource in tourism and the level of one destination system. Although the international tourist offer is increasingly based on certain selective forms of tourism, which seem to have disrupted the domination of natural resources, there is a belief that the development of tourism at the level of individual tourist destinations is reinforced by the determined valorisation of the corresponding natural basis (Deng et al., 2002). Despite heterogeneous attractions in tourism, only a few of them can be used. Those that are usable and adequately valued for tourist purposes are called tourist attractions. Accordingly, it is possible to consider them as the fundamental characteristic of some destinations. The management of these is taking place in the context of

destination management or the process of managing the development of a tourist destination. Managing attractions means choosing, refining or improving a tourist product, supplementing content, and evaluating existing and potential attractions that will attract visitors to the community or region. Managing touristic attractions is a systematic process by which the tourist system creates, signals and elevates these resources to the status of attractions. Managing tourist attractions implies the following activities (Čavlek et al., 2011):

- Identification and listing attractions;
- Quality assessment;
- Package creation of attraction services;
- Discussing and reflecting how the attraction enhances the visitor experience.

The management of the destination system is responsible for making decisions about the needs of the immediate environment, which directly affects the tourist experience as well as the authentic experience. For the process itself, it is crucial to manage the entire space, within which the acceptance capacity must be thoroughly analyzed. The process of managing tourist destinations in order to create a tourist experience can be presented as a process of transforming these resources into touristic products.

Experience economy claims that the tourist experience is one of the means to achieving the competitiveness of a tourist destination and optimizing the business. In order to be practical, the stakeholders in tourism have the goal but also the obligation to meet the following requirements (Vitasović, 2012):

1. Educate tourists - teach them something new, offer new knowledge and experience;
2. Ensure the escape from everyday life - the full commitment of tourists and the preoccupation of traveling and activities in the destination;
3. Offer a party - passive participation and the core part of the tourist product;
4. Provide aesthetics - exposure to the environment, ie tourist's interpretation and perception of the environment

Added value is one of the components of tourist experience in contemporary tourism. This concept intensifies at the international level and begins to be discussed only recently. Today it is a concept that daily buys the interest of many stakeholders in international tourism, especially those at top level, managers and business entities. At the

tourist service or product level it is possible to offer tourists a more quality service, added service or product, prize and similar. It is believed that this approach has a positive impact on tourist experience, but also on the image and loyalty of tourists (Jelinčić, 2006). Therefore, managing attractions to ensure a tourist experience is so important that it is considered to be an essential process in the development of tourism and destination systems and integrated touristic products. Unrecognized, unforeseen and unobstructed tourist attractions in the offer do not represent any potential for development in tourism, nor the lot of tourist resources. "Good planning and management create the prerequisites for further development of tourism, and its success depends on management skills in preserving the natural and cultural value of the park, developing new products and tourist offer that will satisfy sophisticated visitors" (Smolčić Jurdana, Štoković, 2015: 262).

The following text analyzes tourist attractions of a Croatian national park as well as the link between the level of education of visitors and development of the tourist attractions of the destination. The experience economy is a transformation from traditional to modern tourism (Pine et al., 2001). Newman (2015) proves that the goal is to form consumers around an experience. This can justify the need to form a tourism of specialized interests that will develop touristic attractions and added values.

3. NATIONAL PARK BRIJUNI – ATTRACTIVE BASE

This area is a protected area of national significance. The central island has many natural and cultural attractions that attract more and more visitors each day. In addition to the attraction base, the communicative and receptive factors should also be mentioned. Within the framework of natural and cultural attractions, numerous elements need to be highlighted. Some of the most significant are contained in the following table (Table 3.13).

Therefore, the Brijuni National Park has a peculiar and unique attraction base. At the same time, one thinks of the natural and social basis. In the context of tourist valorisation and the use of the attractive basis, it should be emphasized that all attractions are adequately identified and as such valorized for tourist purposes. All of them possess a necessary signaling system, and the tour can be organized or individual.

Table 3.13

The attractive resource base - National Park Brijuni

NATURAL RESOURCES	MAN MADE ATTRACTIONS
Mild Mediterranean climate; Biological diversity Islands and coastline	Locations and objects of archaeological and cultural- historical value;
Adriatic Sea – purity, high salinity and health effects; Submarine diversity of flora and fauna;	Paleontological findings of dinosaur footprints; Gradina – fortress from the Bronze Age; Roman villas; Kastrum,
Endemic species Landscape park Safari Park	Exponentials from different historical periods

Source: *Top destinations* (2019.) *National park Brijuni*. Access: <http://www.topdestinacije.hr/atrakcije-detajli/nacionalni-park-brijuni-18> (17.03.2019.).

Visiting Brijuni is possible during the summer season, while the same area is closed for visits during other periods of the year. Mostly it is about hikers who visit the islands organized. The land connection with the mainland is organized by a regular ferry line Fažana-Brijuni. An organized tour of Brijuni National Park means visiting all attractions, ie a round trip. The visiting system is one of the most important factors in identifying a management system in some areas, as well as analyzing the reception capacity of that area. The main goal is organizing tourist traffic and business.

3.1. MODALITIES OF TOURISM OFFER

In the Brijuni National Park area, three systems of use and visits are currently available. It is thought to be the following (Public Institution National Park Brijuni, 2015):

- Excursion system that includes sightseeing: daily visitor movements are organized with programs covering services in individual buildings, events, sightseeing of the locality through a gathering system, trails and sea lines, starting from the central receptive base on Great Brijun (main port and the Venetian castle) or Mali Brijun, and including

other islands with receptive locations;

- Stationary tourist system on Great Brijun - in the central zone with the optimum capacity increase (up to 400 accommodation units or about 800 beds) of high category, with increased offer of quality facilities and improvement of service in the existing port;

- State - a residential system comprising the system of use of buildings and spaces (villas and the associated parks) as the highest quality tourist offer of the National Park Brijuni.

It is evident that a three-dimensional system of visits in this area is being applied. It also presents the advantages and disadvantages in development and the need to monitor tourism mobility in accordance to sustainable development.

3.2. THE INTEREST OF VISITORS ACCORDING TO THEIR EDUCATION LEVEL

To explore the issue of labor factors is far more important, it is considered to treat the pleasure of contemporary visitors. It plays a key role in treating visitors, developing new products, ways to interpret heritage, designing marketing activities, and developing new products. For the purpose of elaborating the satisfaction of contemporary visitors of the National Park Brijuni, the author of the work conducted a survey in the period from June to October 2018. The survey included 267 respondents, of which 178 women and 89 men. It is obvious that the visitors of high school education are dominant, followed by the visitors of secondary education and more professional qualifications (Table 3.14). The domination of highly educated guests implies a greater payer power of visitors. This knowledge needs to be taken into account in the process of future development of the destination and while adjusting the quality and total supply. In this sample, respondents were dominated by excursionists marking shorter stays in the destination. The obtained results point to the exceptional predominance of excursionists who visit Brijuni National Park shortly (68%). Following are those who plan for a trip for more than 3 months, while the share of those planning a trip up to a month and a month to three months is almost the same (8%).

It is obvious that the visitors of high school education are dominant, followed by visitors of secondary education and more with professional qualifications. The domination of highly educated implies greater payer power of visitors. This knowledge needs to be taken into account in the process of future development of the destination and while adjusting the quality and total supply.

Table 3.14

Tourism motivation and education level

Education level*	HS	HSE	ME
Tourist motivation NP Brijuni (%)			
Safety	5	0	7
Accommodation close to attractions	7	5	10
Escape from everyday life	16	17	19
Education	16	30	22
Time with family and friends	27	20	31
Active holiday	28	21	27
Peace	24	40	22
Getting to know the culture	32	67	44
Relaxation and contact with nature	52	51	58
Others	7	18	8

Source: authors

*SSS – high school, VŠS – higher education, VSS – more educated

It can be concluded that the significant majority of visitors to the Brijuni National Park are expecting contact with nature, motivated by natural attractions and driven by a desire for relaxation. The share of these visitors is about 55%. Followed by visitors who are motivated to learn about culture, just over 45%. After that, visitors are motivated by an active holiday, desire for a family gathering and peace seeking. The share of these guests is approximately 25%. More than 20% of visitors are trained in education, while those motivated by everyday life are around 18%. The vicinity of accommodation and security are the lowest ranked motives, and the share of guests in which they dominate is less than 9%. It should be emphasized that the dominance of these motives is ossified in individual groups of visitors in terms of age and level of education. Most of the respondents, around 80% of them have visited this destination once, while the rest had visited the islands multiple times. The island is mostly visited in the morning and significantly less in the afternoon, while in the evenings there are almost no visits. The information about the average spending of visitors is interesting. Consumptions up to 100 kn and between 100 and 500 kn are dominant. The share of these consumers is around 80%. From the point of view of the general pleasure of visitors it should be noted that most of them

consider that the crowd has no influence on the destination experience. Likewise, the vast majority of visitors are highly pleased with the price, observed from the aspect of visitor satisfaction.

Table 3.15

Visitor satisfaction - „value for money“

education level	HS	HSE	ME
visitor satisfaction (%)	89,6	88,4	91,2

Source: authors

We can conclude that almost 90% of the sample satisfaction (HS level) is given with regard to the price of services and tourist products (Table 3.15). The obtained data concludes that it is necessary to develop a visit management system to control the impacts that reduce the quality and diversity of visitors' experience, although the data does not indicate an urgent situation. The benefits to be derived from this are in correlation with determining the activity threshold of visitors, repositioning the type of visitors experience and the rest. The survey results point to failures in planning marketing activities for motivation to re-visit the destination. There is also a lack of emotional impressions about the destination (before, during and after arrival). In this regard, only 21% of visits have the main goal of visiting the park. A large percentage of respondents complain about the state of infrastructure, lack of information and education, and thus gaining knowledge and experience, lack of time for walking and more.

4. CONCLUSION

The tourist experience is the synergy of many factors. In addition to the basics, such as tourism resources, infrastructure, marketing and management support, they are thinking of an authentic experience, value added, quality, and confirmation of compliance with the sustainability principles. In the paper, it is proven that the level of education affects the selection of the offer. In order to offer value added and authentic experience, which will result in a better holiday and tourist experience, it is recommended to complete the tourist offer as well as to integrate separate selective forms of tourism into a wider product. The Visitor Action Plan should be aligned with the goals in the Management Plan. Its primary purpose is to harmonize the visitor with value protection in the protected area. It is recommended that the tourist offer should be completed, as well as the integration of separate selective forms of

tourism into an overwhelmingly wider product. The effects of a positive character that may result from the future researches are numerous and long-term justified.

References:

1. Deng, J. et al. (2002.) „Evaluating natural attractions for tourism“. *Annals of tourism research*. 29 (2). p. 422.-438.
2. Čavlek, N. et al. (2011.) *Turizam – Ekonomske osnove i organizacijski sustav*. Zagreb: Školska knjiga.
3. Jelinčić, D. A. (2006.) *Turizam vs. Identitet: Globalizacija i tradicija*, Institut za međunarodne odnose. Zagreb.
4. Newman, D. (2015.) *What is The Experience Company and Shoul Your Business Care*, <https://www.forbes.com>
5. Smolčić Jurdana, D., Štoković, M. (2015.) „Cultural and historical heritage as the basisi for sustainable development of protected areas“. *Cultural tourism and destination impacts*. p. 260 –294.
6. Pine, B.J., Gilmore, J.H. (2001.) "Welcome to the experience economy. It's no longer just about healing: patients want a personal transformation", *Health Forum journal*, 44(5);10-16.
7. Štoković, M. (2019.) *Holiday and experience economy – National park Brijuni*, undergraduate dissertation.
8. Vitasović, A. (2012.) *Experiance economy and the competitiveness of the Croatian tourist offer*, doctoral disertation. Juraj Dobrila University of Pula.
9. *IUCN Red List of Threatened Species*, 2019, <https://www.iucnredlist.org>

FINANCIAL ENSURING OF MANAGEMENT INNOVATIVE DEVELOPMENT OF ECONOMIC ENTITIES

Anufriieva Kateryna

*Doctorate Candidate in
Economics, Senior Scientific
Researcher*

*SE Institute for Economy and
Forecasting, NAS Ukraine
(Kyiv, Ukraine)*

ISSUES OF TERM FINANCING FOR THE INNOVATION: EVIDENCE OF A SMALL OPEN ECONOMY

Socio-economic development in small emerging economies is closely tied with implementing innovations, including those in production modernization, energy efficiency and corporate governance, fintech and digitalization sphere, and highly dependent on the opportunities to attract adequate term financing. Clearly, preferring long-term financing is stipulated by the wish to reduce the risk of terms' modification at short notice and interest rate risk. As fairly admitted, "in the absence of long-term financing, firms might have to rely on short-term debt" but inability to roll over leads to "consequences for their growth potential" (Almeida et al., 2011). Same is effective for the emerging country governments credited mostly with short-term debt¹⁶ suffering lack of term savings, term financing as well as runs of resources once macroeconomic or political conditions alter.

The pace of socio-economic development in the emerging economies rests upon the country-scale innovations, which show their results on the longer run. As scientists Aghion, Howitt, and Mayer stated, "for the

¹⁶ As such, in Ukraine, short-term residual maturity debt (maturing in the next 12 months) was over 40% in 2015-2017 and 39.3% in 2018 according to the National Bank of Ukraine data.

economy as a whole, long-term finance might contribute to higher growth and lower macroeconomic volatility” (Aghion et al., 2005), and as per Peria and Schmukler, “in addition, long-term finance is critical for infrastructure projects, which by nature take many years to complete and require lumpy investments.”

The problem of short-term hard-currency funding is in its burdensome character, which leads to the risk of default in case of insufficient foreign currency inflows (including from exports and transfers). As such, Belarus and Ukraine had 132.9% and 118.3% short-term debt to reserves ratio among peers, while others had below 100% in 2017¹⁷.

Upon the analysis of the comparable peer data available on the selected peer group, we can see that small economies mostly use less than 1% of their GDP for the research and development sector (Figure 4.1). At the same time, the state remains one of the main sources of term financing including for the innovation of the large state entities and by means of the financing programs of the production sector via the state-owned banks.

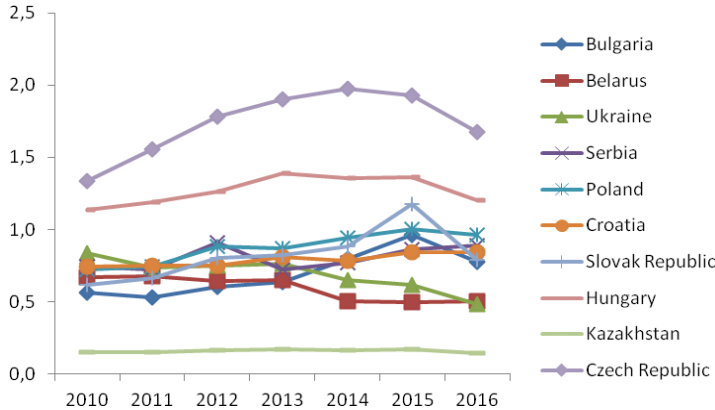


Figure 4.1 Research and development expenditure (% of GDP)
Source: the World Bank Database¹⁸

¹⁷ The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/DT.DOD.DSTC.IR.ZS?view=chart>

¹⁸ The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS>

Local savings comprising national income and net transfers can well be the internal source of the innovation support. Among the small European countries, Ukraine and Serbia remain the countries with the lowest savings to GDP ratio, 19.0% and 14.8% in 2017 respectively, whereas in Bulgaria and Belarus the ratio was 28.6%, in Czech Republic – 26.3%. In Ukraine, the ratio outperformed the pre-geopolitical crisis level of 13.1% in 2012 but is still on the low compared to peers¹⁹.

For the small economies, international cooperation is the huge repository to draw upon and special-purpose embrace grants and assistance, sizable syndicated loans and development programs, typically provided by international institutions and foreign governments, whereas the maturity of such financing is clearly higher for such economies.

Among the IFI's active in small economies there are the World Bank Group, the EBRD²⁰ and KfW. The IFIs' facilitation enrolls innovations for energy efficiency and alternative energy sources, agriculture, small- and medium-sized entities, utilities, and determines eligibility criteria for the projects to have positive financial result, be of use for the economy and environment protection.

Technical cooperation grants intended to speed up transfer of technical and managerial skills and technology, investment-related technical cooperation were the largest for Ukraine among the peer countries which received such grants for the observed period after-2007/2008 crisis – reached highest among peers 348.4 US\$ mio in 2016 (Figure 4.2).

Development assistance comprising loans on favorable terms as well as grants by multilateral institutions aimed to promote socio-economic development is another source of innovation support for small economies. In recent years, large share of development assistance was directed to Ukraine and Serbia (Figure 4.3).

¹⁹ *The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/NY.GNS.ICTR.ZS>*

²⁰ *The EBRD is the largest international financial investor in Ukraine. Since the start of its operations in the country in 1993, the Bank has made a cumulative commitment of almost €13.1 billion across some 418 projects in Ukraine. The EBRD finances projects in Ukraine's peers: Belarus, Bulgaria, Croatia, Georgia, Kazakhstan, Moldova, Poland, Romania and Serbia in the spheres of manufacturing, environmental infrastructure, power and energy, information and communication technologies, agribusiness and transport. Retrieved on May 31, 2019 from <https://www.ebrd.com/>*

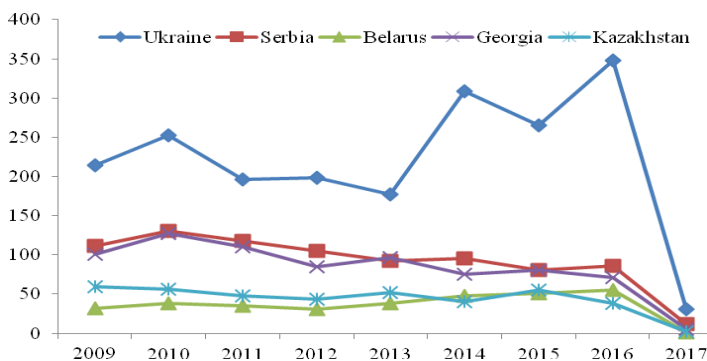


Figure 4.2 Technical cooperation grants (current US\$ million)

Source: the World Bank Database²¹

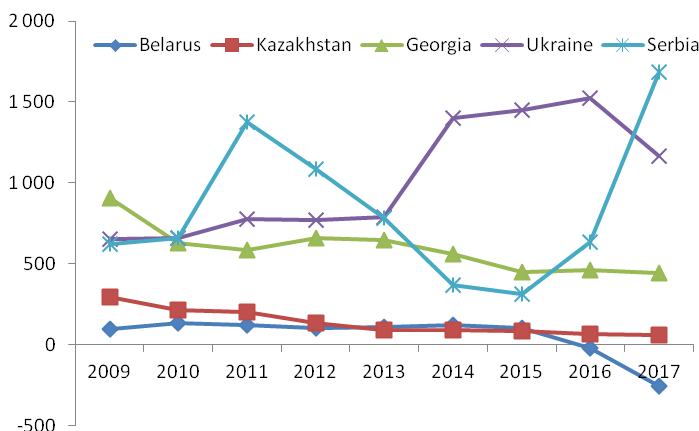


Figure 4.3 Net official development assistance received (current US\$ million)

Source: the World Bank Database²²

Term financing as a rule for the advanced economies comes from the institutional investors including insurance companies, pension and mutual funds, while other investors including commercial banks may be

²¹ The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/BX.GRT.TECH.CD.WD>

²² The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/DT.ODA.ODAT.CD>

focused on fast profit²³ and on easy monitoring, being reluctant to support development projects, on the other hand, start-ups and short-term investment projects require shorter-term financing, being not eager to pay at a higher rate for term financing.

Banks are the most important source of financing in developing economies, whereas capital markets are less developed and tapped by the insignificant share of entities and also by the state.

According to Peria and Schmukler (2017), “close to a third of bank loans in high-income economies have a maturity that exceeds five years, for developing economies the share of loans with maturity larger than 5 years averages 18%” and “while half of bank loans are short-term (less than 1 year) in developing economies, the share of short-term loans in advanced economies averages 40%”. This for certain depends on the higher country risk of the emerging economies. As further stated by Peria and Schmukler (2017), the factors that also matter the maturity of financing of the term innovation projects are “capital requirements and new minimum liquidity set in Basel III” to “indirectly affect long-term finance by increasing the amount of regulatory capital for such transactions, dampening the scale of maturity transformation risks”. Heightened requirements lead to the reinforcement of the de-risking trend and impact the flows of funds to the developing economies.

In case of Ukraine, industry and social sector innovation is alongside the state support also financed by state- and foreign-owned banks, which have sustainable sources of funding and are eligible to cooperate with the international financial institutions. In this course, for the last year, over 50% of credit to production sectors of agriculture, industry and construction was provided by the state and foreign-owned banks as per the central bank data. At the same time, high state ownership portion, which is effective for Ukraine and some of its peers, can lead to inefficient risk assessment and funds’ distribution to non-priority sectors or chasing the populist purposes. Such banks are prone to lend to politically connected firms²⁴.

²³ This may be the case for the countries with own other-than-hard currencies, where exchange rate volatility allows the gain on foreign currency transactions and to reluctance to lend in a local currency for the longer term. As such, for example, in 2018, in Ukraine and Bulgaria, banks’ trading gain reached est. 8% in their financial result, in Georgia – 7% (according to the respective central banks’ websites).

²⁴ These are the firms which have at least one politically exposed person among its owners, shareholders or managers, as per the World Bank research for Ukraine

For Ukraine, the government's "long" money generating capacity on the stock exchange implies a limited range of financial instruments (external or domestic foreign-currency indexed state bonds). A good example of the innovation for the Ukraine bond market per se was the EURO-2012 football championship purposed bonds, aimed to finance construction of the up-to-date facilities to host the championship. Banks were given the incentive to purchase and hold the bonds because of the favorable reservation requirements of the National Bank of Ukraine, moreover, the bonds could be used as a high-quality collateral. Similar purposed instruments can be issued to finance modernization projects.

On the other hand, local JSC Ukreximbank has issued a unique bond for Ukraine, the UAH-denominated "Eurobonds" (on the international market in the form of a public offering for its entrusted investors) back in 2011 and in 2018²⁵. The instrument rose sizable 3-year funds from abroad for the Ukrainian corporate sector, while the exchange rate risk exposure was taken over by investors. Such instruments widen the investment and resource accumulation possibilities.

In 2013, IFI's received the right²⁶ to issue bonds on the Ukrainian stock exchange and provide credit in the local currency units (hryvnia) exclusively for the real sector development, which may also widen local capital market.

Innovation of production processes results in higher value added in the exported merchandise, which in its turn allows higher hard currency inflows and stabilizes local currency units' exchange rates. Unlike the leading peer countries Czech Republic, Hungary and Slovakia, Ukraine,

dated March, 15, 2018: "concentrated in the mining, energy and transport sectors where they account for over 40% of turnover and over half of all assets" and "around a quarter of turnover and assets in agriculture". Retrieved on May 31, 2019, from <https://www.worldbank.org/en/news/opinion/2018/03/15/what-is-the-cost-of-crony-capitalism-for-ukraine>

²⁵ *In accordance with the JSC Ukreximbank official website, funds came from the United Kingdom, Germany, Switzerland and other European countries, as well as from "offshore" "with an opportunity to gain direct exposure to the Ukrainian local currency and interest rates." Retrieved on May 31, 2019, from <https://www.eximb.com/eng/bank/press/novyny-banku/news-list/jsc-ukreximbank-successfully-completed-the-issue-of-its-ukrainian-hryvnia-denominated-three-year-eurobonds-in-the-international-capital-markets.html>*

²⁶ *Adopted by the Law of Ukraine No. 400-VII of July 4, 2013 "On Amendments to the Law of Ukraine on Securities and Stock Exchange Regarding Issue of Bonds by the International Financial Organizations". Retrieved on May 31, 2019, from <https://zakon.rada.gov.ua/laws/show/400-18#n12>.*

Belarus and Georgia offer lower portion of high-technology production for exports for the observed period 2010-2017 (Figure 4.4-4.5).

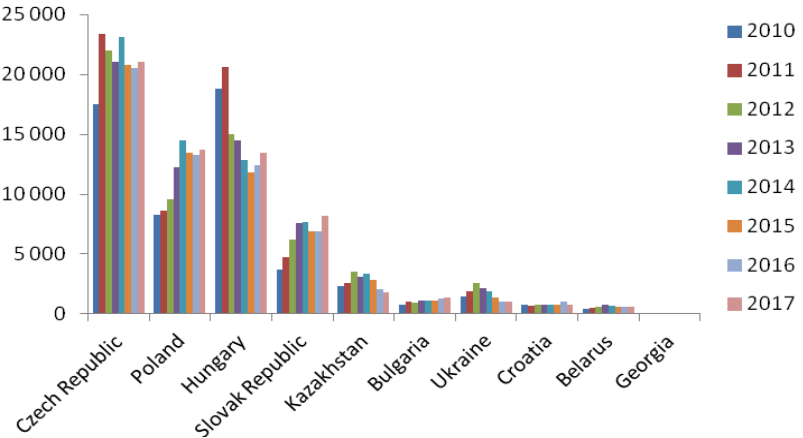


Figure 4.4 High-technology exports (current US\$ million)

Source: the World Bank Database²⁷

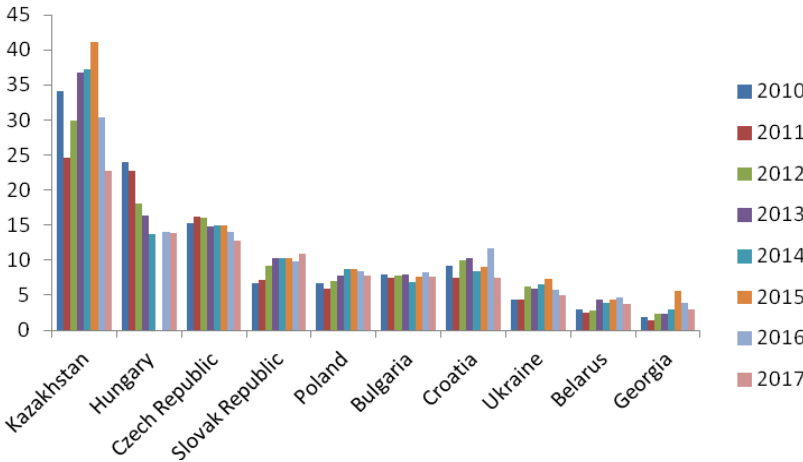


Figure 4.5 High-technology exports (% of manufactured exports)

Source: the World Bank Database²⁸

²⁷ The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/TX.VAL.TECH.CD>

²⁸ The World Bank Database. Retrieved on May 31, 2019, from <https://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS>

The long-term financing for the peer group of the small open-economy countries stumbles across the number of impediments to the movement of financing that gain momentum in the modern world, and include reluctance to take risks of changing environment in these economies and to reserve capital under such financing, fear to violate international financial sanctions' and money laundering regulations, or simply to lose money because of strict internal currency controls, inflation or devaluation of the local currency units. Also, meeting of information disclosure and eligibility requirements for the innovation projects slows down the financing velocity.

One of the non-unanimous ways to attract large term funding for the innovations stems from the principles of the financial offshore vehicles, determined to "capture higher return on investments, in exchange for services fees paid to the host jurisdictions. In this process, various vehicles are used, such as asset-holding vehicles, to park and isolate high-risk assets; collective investment and derivatives trading vehicles, to take advantage of tax incentives or undertake risky investments difficult to implement under onshore regulation; SPVs to levy financing (bond issuing and syndicated loans) while keeping the liabilities "off balance sheet", all possibly used also to finance innovations (Zorome, 2007).

Institutional development, consistent legal framework, including investment withdrawal and dividends, collateral and accounting procedures as well as the trustworthy state monetary authorities give a spur to local savings as one of the sources of the investment money given that transaction (non-investment) money in circulation reaches 30% in small economies according to the World Bank data²⁹. Currency regulations in small economies with local currency units' circulation directed at smooth foreign funds' movement, but at the same time accompanied by rapid actions to renew exchange rate stability and by the introduction of instruments to hedge currency risk add notably to foreign investors' confidence.

Financing innovations, especially in the exporting and import-substituting industries allows obtaining competitive advantages and securing sufficient hard currency cushion for small economies.

Term foreign and local financing for innovative development can be created with the introduction of so called technical parks, tailored taxation provisions and by proper securing of the funds of investors.

²⁹ In Ukraine, MO reached 27.5% in 2017. Retrieved on May 31, 2019 from <https://bank.gov.ua/>.

References:

1. Aghion, P., Howitt P., Mayer, D. (2005). *The Effect of Financial Development on Convergence. Quarterly Journal of Economics* 120 (1): 173–222.
2. Almeida, H., Campello, M., Laranjeira, B., Weisbenner, S. (2011). *Corporate Debt Maturity and the Real Effect of the 2007 Credit Crisis. Critical Finance Review. Vol. 1, pp. 3-58.*
3. Peria, M. S. M., Schmukler, S. (2017) *Understanding the Use of Long-term Finance in Developing Economies. IMF Working Paper WP/17/96, pp.6, 8-9, 12.*
4. Zorome, A. (2007) *Concept of Offshore Financial Centers: In Search of an Operational Definition. IMF Working Paper WP/07/87, p.8.*

Martynenko Valentyna

*Candidate of Economic Sciences,
Associate Professor,
Deputy Director of the Educational
and Scientific Institute of Accounting,
Analysis and Audit
University of State Fiscal Service of
Ukraine
(Irpın, Ukraine)*

METHODOLOGICAL FEATURES OF TAXATION IN FISCAL DECENTRALIZATION CONDITIONS

Introduction

The methodological problem of decentralization of power in the vertical levels of the tax system is now becoming particularly relevant, since in intergovernmental interactions there is a need in own local budget revenues, which ultimately leads to the loss of autonomy of regional budgets, significantly placing them in dependence from the budgets of higher levels. This complicates the decision of the problems of reducing the subsidy of the regions, which arises because of the low efficiency of mastering both own funds and financial assistance. The significant dependence of local budgets from budgetary regulation reduces the activity of the authorities in increasing the tax potential of the territories.

In connection with the realization the reform of fiscal

decentralization, launched in 2015, comes to the fore the problem of tax optimization; the key aspects to be determined, apart from the liberalization of tax rates, are the distribution of tax revenues by the levels of the budget system, since the independence of local budgets depends directly on the volume their financing by their own financial resources.

The basic methodological foundations of taxation are laid by such foreign scientists as J. Slemrod (1990), R. Bird (1991), W. Reed and C. Rogers (2006), L. Kaplow (2010), C. Spengel, W. Li, B. Zinn and K. Finke (2011), A. Tiwari (2012), I. Gashenko, Y. Zima and A. Davidyan (2019) etc. Among the domestic researchers it is worthwhile to select a team of authors V. Bashko, T. Koshchuk, O. Ozerchuk, Ya. Petrakov, A. Sokolovska (ed.), O. Tymchenko, and T. Yefymenko (ed.) (2012). It should be noted that the study of taxation problems started by the author in previous researches (Martynenko, 2018; Martynenko, 2019).

1. The theoretical basis of decentralization of taxation

Decentralization of taxation can be realized through the distribution of tax sources between levels of the state budget system. The division of powers between the state and local authorities should be based on the following conditions: 1) the constancy of the division of income powers between the levels of the tax system on a unified basis; 2) the adequacy of own revenues of budgets of any level for their effective use in order to secure established expenditure powers, including reducing the disproportions in the tax ensuring of the regional level; 3) state tax powers should have sufficient level to regulate the economy of state in the context of forming a symmetrical financial and tax space; 4) tax authority, revenue sources should have a vertical rather than horizontal orientation, excluding budgetary equalization (Shykina, Kotsiurubenko and Drapaliuk, 2015).

The above conditions lay the basis for the realization of tax decentralization processes on the basis of scientifically-grounded choice of the main instruments aimed at ensuring the balance of interests of the entities of tax relations.

Tax decentralization of taxation has the potential to become the basis not only of financial autonomy, but also of the financial freedom of territorial communities, which can be achieved through progress in this direction (Figure 4.6).

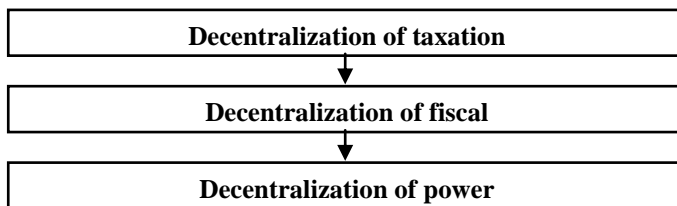


Figure 4.6 Recommended direction of decentralization of power

Source: formed according to the data provided by (Shykina, Kotsiurubenko and Drapaliuk, 2015)

Scheme shown in Figure 4.6, is both simple and effective at the same time. The national government reform decentralization of power begins with decentralization of taxation, when local budgets are filled both through tax revenues from local taxes and also at the expense of a certain portion of national taxes. At the second stage, decentralization of fiscal is being implemented, when the expenditures base of local budgets is expanding. Decentralization of fiscal should be considered as the basis for the formation of an effective country and an engine of economic growth. Providing significant powers to local authorities in generating revenues of local budgets is an important tool for development of regions.

In Ukraine were made the first positive steps towards redistributing taxes in direction grass-roots budgets. Such changes concern both property taxation, taxation of income and profits, and the scope of indirect taxes. In 2015, local budgets received significant fiscal resources in the form of implementation of the property tax, changes in the simplified taxation system, introduction of excise tax on retail trade excisable products, redistribution of part of the corporate profit tax for the benefit of local budgets. However, as noted above, reforms must be systemic and apply to the whole organism, rather than to individual bodies. Positive changes in the tax system should be accompanied by complex changes of institutions control and management in taxation, which are still exclusively declarative character. In Ukraine, corruption has not been eradicated in supervisory bodies. The structure of the State fiscal service has been incompletely improved, which greatly affects the flow of taxes to the budget and the formation of financial resources on the ground. The sphere of control in taxation remains not always qualitative. Accordingly, the first priority for the government state is to formulate a strategy for realization of tax policy in the direction of

decentralization and strict adherence to it in during the implementation of reforms.

In view of this, the problem of decentralization as part of the formation of a solid financial foundation for certain territorial communities and regions of Ukraine is extremely relevant and requires research and scientific substantiation.

The question of building a state with clear signs decentralization of fiscal has been and remains the primary in the writings of many foreign and domestic scholars. After all, the movement towards a decentralized finance policy was passed by virtually all advanced economies and those that belong to economies of a transitive nature. It is for this reason that it is worth examining the scientific achievements of those foreign scientists who have studied the processes of decentralization in foreign countries in order to highlight certain positive steps in this direction in those countries that they have reviewed and try to apply the best practices in domestic financial relations practice.

Each of the foreign and domestic authors puts in first place the tax problem. Proper and effective redistribution of tax instruments for the benefit of local authorities plays a key role in ensuring the quality of the functions entrusted to such entities. The financial component is decisive in achieving a high level of socio-economic development of the region and the country in particular.

The state should clearly define the limits of the seats delegated to the seats, outline the tasks that can be performed qualitatively and will be sufficient in reaching the proper level of economic growth. It is important in the situation of radical reforms in the field of public finances to determine qualitatively the tax instrument, the tax base, establish the optimal level of tax burden, analyze the number of taxpayers under the jurisdiction of a particular territorial community. It is also necessary to achieve a balance between the national and local tax instruments, and correctly redistribute state-wide taxes between budgets.

In the world of scientific practice are known several models decentralization of fiscal, which are effectively implemented in economic activity. Today it is customary to distinguish between the following species: Soviet, Chinese, American, Canadian and German (*Krysovatyi (ed.) and Desiatniuk (ed.), 2016*). Each of them has its own distinctive features and is characterized by certain advantages and disadvantages. However, for each the model decentralization of fiscal there are typical: the level of division of powers between local governance institutions, the degree of cooperation and ties between

different levels of government. According to the above features, in economic theory are distinguished the two types decentralization of fiscal – competitive (decentralized) and cooperative (*Morozova, 2009*).

Competitive (decentralized) model is a model that characterized by broad autonomy in the fiscal area, local authorities have broad powers in the area of tax introduction, tax rates and tax base definition, as well as in allocating expenditures and implementing social policies. This form decentralization of fiscal implies a low level of centralization of power, most of the powers in the field of financial policy are fixed by local authorities, and there are no horizontal connections in the allocation of financial resources. This model is used in the US and Canada. In particular, all parts of the US budget system are autonomous, formally independent of each other (*Andrushchenko and Danilov, 2004*). This tradition comes from two sources: American history and national mentality.

In accordance with the principles of fiscal autonomy and fiscal federalism that have historically developed in the United States, each part of the budget system has its own tax revenues enshrined therein. Between individual budgets the taxes are distinguished based on three approaches:

- exclusive right (tax is assigned to one of the budgets: federal, regular or local);
- coinciding law (different levels of power are entitled to the same tax; tax revenues are distributed among the budgets in a single installment or in the form of allowances; for example, in this order, a property tax is collected, the proceeds from which are distributed between regular budgets and local budgets of cities, counties, districts);
- delegated law or “Dilon rule” (from one level of authority to another together with certain powers are transferred adequate tax revenues necessary for their financing) (*Andrushchenko and Danilov, 2004*).

Among local taxes, first of all fiscal value has a tax on immovable and movable property. In the total amount of local taxes, the share of property tax in certain years exceeds 80%. For cooperative model decentralization of fiscal is characterized by cooperation between different levels of state power. Most of the authority, given to local administrations is delegated by central government agencies. The policy on the establishment and collection of taxes falls within the competence of the public authorities; most of the taxes are national and mandatory for procurement throughout the country. Local institutions of

governance are not endowed with significant powers and are not able to establish and use on their territories are not consolidated at the state level taxes. However, it should be noted that the state is interested in the uniform development of regions, ensuring the same social standards throughout the country. According to this type decentralization of fiscal is established a single approach to the formation of public expenditures on social and economic needs. A significant part of the necessary financial resources for the implementation of powers entrusted to local authorities is ensured through subventions and transfers. In accordance with the competitive model decentralization of fiscal, relations related to the realization of financial policy are based on the mechanism “center – region – local government”.

The state policy in the field decentralization of fiscal in Ukraine is distinguished by the features of a cooperative model decentralization of fiscal. For Ukraine, is typical the dependence of local budgets from the state budget, where transfers and equalization subsidies play an important role. Local authorities have only certain powers regarding the possibility of influencing the tax system. Territorial authorities are not able to introduce new taxes, set tax rates and use different mechanisms for calculating and paying mandatory payments. In Ukraine, such functions are entrusted to central organs of the legislative and executive branches of power and enshrined in the Tax Code of Ukraine. Regarding the administration of tax payments, we would remark that in each region there were created divisions of tax authorities that ensure the process of tax revenues to the budgets of the country. Each territorial fiscal authority is subordinated to the central apparatus of the State Fiscal Service of Ukraine. This once again confirms the author’s opinion about the need for application in Ukraine of a cooperative model decentralization of fiscal, where the main entity of tax policy implementation is the central level of government in our country. The central authority only delegates certain powers to local authorities in implementing tax policy.

2. Influence decentralization of fiscal on taxation in Ukraine

The main regulatory-legal document in the field of taxation is the Tax Code of Ukraine, which regulates and defines the functions, rights and duties of controlling bodies in the field of taxation, outlines features of functioning of the tax system, its structure, prescribed mechanisms for collecting and controlling the receipt of taxes to the state treasury (*The Verkhovna Rada of Ukraine, 2010b*).

The budget policy of Ukraine, the distribution of tax payments between the budgets are enshrined in the Budget Code of Ukraine, which clearly defines the features of enrollment of taxes and other state revenue, regulates the transfer policy in Ukraine (*The Verkhovna Rada of Ukraine, 2010a*).

Analyzing the structure of the tax system of our country in accordance with the provisions of the Tax Code of Ukraine, one can conclude that in the state are collected such two local taxes and two fees: property tax; single tax; parking fee for vehicles; tourist tax.

With regard to instruments of nationwide use (national taxes and fees), we note that in Ukraine are administered seven national taxes: corporate profit tax; incomes of individuals tax; VAT; excise tax; ecological tax; rent payment; toll.

Each of the taxes has its own specifics of collecting, administering, enrolling and distributing between different budget levels in Ukraine.

The tax system in Ukraine is formed and covers those effective instruments that are actually capable of ensuring taxation of all areas of activity of economic entities, capital, income and consumption. However, often the mechanisms for collecting a tax are not perfect and require qualitative changes to ensure the effectiveness of the tax.

It should be noted that according to the theory of taxation distinguish fixed and regulatory taxes, the feature of which is the possibility of redistribution of a payment in favor of individual budgets. A fixed tax is a payment that goes to a certain budget defined by the tax and budget law, while the regulatory tax may come to different budgets in accordance with predefined and fixed by the budget and tax laws of the shares. Mostly regulating are national taxes and fees (personal income tax, corporate profit tax, excise tax, VAT). Such taxes should reinforce the revenue side of local budgets for more effective functioning of local governments, guaranteeing grassroots levels of management of obtaining a financial resource for the implementation of their functions to ensure the growth of socio-economic standards on certain areas of our state and the country as a whole.

The local taxation instruments that have emerged in recent years, as well as strategic benchmarks of the Ukrainian government towards decentralization, have provided an opportunity to form a tax system in which local budgets play an important role in the development of economy in Ukraine.

As noted, the first significant steps towards decentralization of fiscal in Ukraine were made in 2014. In particular, according to the Budget

Code of Ukraine, from 2015, the personal income tax is distributed among the budgets in the following way (*The Verkhovna Rada of Ukraine, 2010a*):

- the state budget of Ukraine – 25%;
- regional budgets – 15%;
- local budgets – 60% (Figure 4.7).

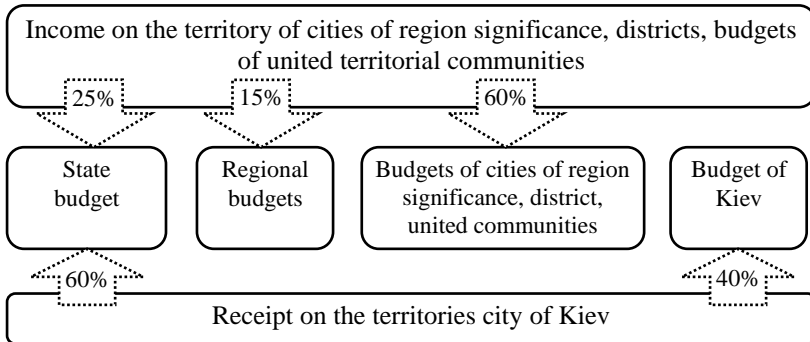


Figure 4.7 Normative shares of the distribution of personal income tax by budgets of all levels

Source: compiled according to the data given in (The Verkhovna Rada of Ukraine, 2010a)

Corresponding changes were made to the Budget Code of Ukraine by the Law of Ukraine “On Amendments to the Tax Code of Ukraine and some other legislative acts of Ukraine on passive incomes”, which changed the redistribution of the personal income tax for the benefit of the State Budget of Ukraine (*The Verkhovna Rada of Ukraine, 2014b*). However, the territorial communities that underwent the creation process have received an extremely effective tool for financing needs of a social and economic nature. Although it should be noted that the process of association of communities in Ukraine has been subject to certain barriers in the form of political and social controversies, which causes the country to slow down in the direction of decentralization.

An important element in favor of decentralization of fiscal is the distribution of corporate profit tax according to the provisions of the Budget Code of Ukraine and amended in 2014, bringing 10% of the tax to local budgets.

An effective fiscal instrument in the revenues of local budgets is the

introduction in 2015 of an excise tax on the retail sale of excisable goods (beer, alcoholic beverages, tobacco, petroleum products and other fuels). In accordance with the Law of Ukraine No. 71-VIII "On Amendments to the Tax Code of Ukraine and certain legislative acts of Ukraine on tax reform", 28.12.2014, introduced an excise tax on retail sales of excisable goods (beer, alcoholic beverages, tobacco, petroleum products and other fuels), the rates of which are set by the decision of the village, town or city council as a percentage of the value (VAT), in particular at the rate of 5% (*The Verkhovna Rada of Ukraine, 2014a*). The tax has changed the fee for the development of viticulture, horticulture and hopper and has become a powerful tool for attracting additional financial resources to local budgets. In particular, in 2015 to local budgets received 6545 million UAH, which is more than 5% of the total revenue of local budgets of Ukraine, while in 2014 local budget revenues from excise tax amounted to only 159 million UAH, and this is 41 times less than in 2015 (*Center for Socio-Economic Studies CASE Ukraine, 2019*).

The excise tax on the retail sale of excisable goods (beer, alcoholic beverages, tobacco products, petroleum products and other fuels) is actually a prototype sales tax, which has substantially increased the efficiency and financial independence of local budgets, which has led to an increase of local budgets indicators for income and has become a locomotive development of some types of economic activity in the regions.

Equally important instrument in the arsenal of local budgets is the property tax, which provides for the taxation of movable property and real estate. The tax consists of three payments: a tax on immovable property, different from the land plot; transport tax; pay for land.

However, according to the specifics of taxation, there are a large number of unresolved problems that prevent this payment from being fully effective. In particular, in Ukraine there is no effective mechanism for accounting for movable and immovable property, which prevents local authorities from having comprehensive information on the available tax base for this payment. The tax mechanism involves an annual tax period that affects the receipt of this payment, that is, it can be calculated as the tax of the next fiscal year. This causes, at the very first stages, the huge costs of administering it with insignificant amounts of revenues.

An extremely important instrument at the disposal of local authorities is the single tax that, according to the Tax Code of Ukraine is

attributed to local taxes. The fiscal role of the tax is rather high in the revenues of local budgets. The high fiscal significance of the payment can be substantiated by the large number of taxpayers who make it. According to the Tax Code of Ukraine, taxpayers may be entities of entrepreneurial activity with a certain limited level of annual income. Given the economic situation in our country, most economic entities are able to use the simplified tax system and use a single tax as a payment that taxes their income. However, simplified taxation technologies should be temporary and can not be the basis for revenue part of local budgets. World experience shows that the use of alternative taxes is possible only during the development of the economy of a country, a certain region or industry. After that, taxpayers must be taxed under the general conditions, be on equal terms of business with other entities. Accordingly, we can not consider a single tax as an effective instrument for building a country with a policy decentralization of fiscal.

The analysis of local taxation in Ukraine allows us to conclude that the domestic practices of local taxation use the same instruments as in most developed countries (the USA and Germany). In particular, the most effective local tax is the property tax, which has the highest fiscal significance in the revenues of local budgets of foreign countries. In Ukraine, the property tax should become one of the most powerful fiscal instruments in forming local budgets.

As for other local taxes and fees, we would like to note that now it is necessary to apply, first of all, foreign experience in building a system of local taxation. As noted, a single tax is only a temporary instrument, which should be administered on a temporary basis. The Ukrainian authorities need to focus on finding effective tax instruments that meet the specifics of economy in Ukraine, its tax base, concentrated in one region or another. Thus, based on the main provisions of the Budget Code of Ukraine, the general budget revenues of the cities of the republican Autonomous Republic of Crimea and region significance, region budgets, budgets of the united territorial communities include:

- the share of such taxes:

- 1) 60% of the personal income tax;
- 2) 25% of the environmental tax;
- 3) 10% of the profit tax of enterprises, except communal property;
- 4) 37% of the rent for the special use of forest resources in the part of the timber harvested in the order of cutting the main use;
- 5) 2% rent for the use of mineral resources for the extraction of petroleum, natural gas and gas condensate (except for rent for the use of

subsoil within the limits of the continental shelf and / or the exclusive (maritime) economic zone of Ukraine), which is credited to region budgets at the location extraction) of appropriate natural resources;

6) 3% rent for the use of subsoil for the extraction of petroleum, natural gas and gas condensate, which is credited to the budgets of the cities of the republican Autonomous Republic of Crimea and region significance, budgets of the united territorial communities at the location (place of extraction) of the corresponding natural resources;

7) 5% rent for the use of mineral resources for the extraction of minerals of national importance (except rent for the use of mineral resources for the extraction of petroleum, natural gas and gas condensate), which is credited to the budgets of the cities of the republican Autonomous Republic of Crimea and the region significance, budgets of the united territorial communities at the location (place of extraction) of the corresponding natural resources;

- 100% of such taxes and fees:

1) the excise tax on the sale by economic entities of excisable goods, which is credited to the budgets of the united territorial communities, city budgets;

2) a single tax;

3) profit tax of enterprises and financial institutions of communal property;

4) property tax (real estate, land, transport);

5) the state duty, which is credited to the budgets of local self-government at the place of commission and the issuance of documents;

7) a fee for parking vehicles;

8) tourist fees;

9) rent for the use of mineral resources for the extraction of minerals the local significance;

10) administrative fees: for state registration of real rights to immovable property and their encumbrances; for the state registration of legal entities, individuals – entrepreneurs and public organizations (*The Verkhovna Rada of Ukraine, 2010a*).

Consequently, local authorities should have more freedom and opportunity in making important tax decisions. Each region should be able to influence the construction of the tax system, and not only to be the executive of the tasks facing those central authorities. Due to the large territory, geographical features, a certain structure of the industrial potential of the regions, local authorities should independently determine the objects of taxation that are able to most effectively ensure

the process of filling the budgets of the country. That is why the central government in Ukraine has begun decentralization reform, which in the long run, due to the delegation of regional authorities to certain local taxes and fees, will allow, with effective management, to ensure the growth of revenue parts of local budgets in the regions of Ukraine.

References:

1. Andrushchenko, V. L. and Danilov, O. D. (2004) *Podatkovi systemy zarubizhnykh krain [Tax systems of foreign countries]*, Komp'ioter pres, Kyiv, Ukraine, 300 p.
2. Bashko, V. Y, Koshchuk, T. V., Ozerchuk, O. V., Petrakov, Ya. V., Sokolovska, A. M. (ed.), Tymchenko, O. M. and Yefymenko, T. I. (ed.) (2012). *Dynamika podatkovoho navantazhennia v Ukraini v konteksti realizatsii podatkovoi reformy [Dynamics of tax burden in Ukraine in the context of tax reform implementation]*, DNU "Akademiia finansovoho upravlinnia", Kyiv, Ukraine, 494 p.
3. Bird, R. M. (1991). *Tax policy and economic development*, The Johns Hopkins University Press, Baltimore, USA, 288 p.
4. Center for Socio-Economic Studies CASE Ukraine (2018), "Tax Revenue", available at: <http://cost.ua/en/budget/revenue/#1> (Accessed 24 May 2019).
5. Gashenko, I. V., Zima, Y. S. and Davidyan, A. V. (Eds.) (2019). "Optimization of the Taxation System: Preconditions, Tendencies and Perspectives", *Studies in Systems, Decision and Control*, vol. 182, 238 p., doi: <https://doi.org/10.1007/978-3-030-01514-5>.
6. Kaplow, L. (2010). *The theory of taxation and public economics*, Princeton University Press, New Jersey, USA, 496 p.
7. Krysovatiy, A. I. (ed.) and Desiatniuk, O. M. (ed.) (2016). *Napriamy formuvannia podatkovoi polityky Ukrainy v konteksti fiskalnoi detsentralizatsii ta rozshyrennia bazy opodatkuвання [Directions for the formation of the tax policy of Ukraine in the context of fiscal decentralization and expansion of the tax base]*, TNEU, Ternopil, Ukraine, 182 p.
8. Martynenko, V. V. (2018). "On the problem of tax system optimization in Ukraine", *Scientific Bulletin of Polissia*, no. 2(14), vol. 2, pp. 129–134, doi: [https://doi.org/10.25140/2410-9576-2018-2-2\(14\)-129-134](https://doi.org/10.25140/2410-9576-2018-2-2(14)-129-134).
9. Martynenko, V. V. (2019). "Assessment of favourableness for the tax system of Ukraine in the international context", *Baltic Journal of Economic Studies*, vol. 5, no. 2, pp. 124–130, doi: <https://doi.org/10.30525/2256-0742/2019-5-2-124-130>.
10. Morozova, E. A. (2009), "Models of fiscal federalism in developed

countries and features of their application in the Russian Federation", Doc. Thesis, World economy, Finance, money circulation and credit, Lomonosov Moscow State University, Moscow, Russia.

11. Reed, W. R. and Rogers, C. L. (2006). "Tax burden and the mismeasurement of state tax policy", *Public Finance Review*, vol. 34, issue 4, pp. 404–426, doi: <https://doi.org/10.1177/1091142106288406>.
12. Shykina, N. A., Kotsiurubenko, H. M., Drapaliuk, I. V. (2015). "Tax decentralization as a component of the formation of the tax potential of the region" *Teoriia i praktyka suchasnoi ekonomiky [The theory and practice of modern economics]*, *Materialy XVI mizhnarodnoi naukovo-praktychnoi konferentsii ChDTU [Materials of the XVI International Scientific and Practical Conference ChSTU]*, Cherkassy, Ukraine, pp. 37–39.
13. Slemrod, J. (1990). "Optimal taxation and optimal tax systems", *Journal of Economic Perspectives*, issue 4(1), 157–178.
14. Spengel, C., Zinn, Li, W., Zinn, B. and Finke, K. (2011). "The computation and comparison of the effective tax burden in four Asian countries", *Hitotsubashi Journal of Economics*, vol. 52, issue 1, pp. 13–39.
15. The Verkhovna Rada of Ukraine (2010a), *The Law of Ukraine "Budget Code of Ukraine"*, available at: <https://zakon.rada.gov.ua/laws/show/2456-17?lang=en> (Accessed 24 May 2019).
16. The Verkhovna Rada of Ukraine (2010b), *The Law of Ukraine "Tax Code of Ukraine"*, available at: <https://zakon.rada.gov.ua/laws/show/2755-17> (Accessed 24 May 2019).
17. The Verkhovna Rada of Ukraine (2014a), *The Law of Ukraine "On amendments to the Tax Code of Ukraine and certain legislative acts of Ukraine on tax reform"*, available at: <https://zakon.rada.gov.ua/laws/show/71-19> (Accessed 24 May 2019).
18. The Verkhovna Rada of Ukraine (2014b), *The Law of Ukraine "On amendments to the Tax Code of Ukraine and certain other legislative acts of Ukraine relating to passive income"*, available at: <https://zakon.rada.gov.ua/laws/show/1588-18?lang=en> (Accessed 24 May 2019).

Mavlutova Inese
Dr. Sc. Administr., Professor
BA School of Business and
Finance
(Riga, Latvia)

FINANCING FOR INNOVATIVE COMPANIES: POSSIBILITIES AND OBSTACLES

Access to funding is essential for starting any business and a production of new products. At the same time often an entrepreneur, especially in the business starting phase, faces the unavailability of external financing caused by the lack of stability, collateral or limited availability of the external funding.

Access to finance is an important issue for innovative business, both in establishing a new company and the introduction of innovative products in an existing company. The objective is to examine the needs for attracting financing and financing opportunities for innovative companies. The author examines the nature of innovative companies; compare the ways of financing them; including internal and external sources of financing; analyze the environment for innovation in Latvia.

To ensure adequate financial resources for developing the necessary infrastructure for innovative activity and the purchase of necessary equipment and technology as well as compensation and training of employees is vitally important for starting an innovative business or starting innovations in an existing company. Global experience shows that one of the main challenges of the innovation systems is financing problem for innovative activities. The innovative process is financially very consuming process therefore public funding and support becomes very essential. A small country (including such as Latvia) should carefully and in detail determine its priorities and assess its scientific potential and business opportunities. The country should focus on these issues, while in addition creating research centres. Recognizing this situation, as one of the priorities of the Latvian National Development Plan for years 2014 – 2020 is "Developed research, innovation and higher education" is financing of innovations.

Economic theory most often uses two definitions of innovation: Innovation as a process; innovation as a result (Harrington and Voehl, 2012) It is believed that the term innovation was introduced by the Austrian economist and political scientist Schumpeter (1942).

According to Schumpeter, innovation is changes aimed at introducing and using new types of consumer goods, new ways of production and means of transport, new forms of organising production. Vedula (2007) based on the theory of Schumpeter highlights forms of innovation in practical life: innovation as a process, innovation as a means of financing, innovation as a product, technological innovation and innovation as a social category.

Different authors use this concept very differently, applying it to various objects. The word 'innovation' is derived from the word 'novation', which means 'innovation', 'updating'. Oxford Business Dictionary (2002) defines innovation as a new approach to product design, production and promotion that provides the inventor or his company with an advantage over competitors. Nowadays, one can find many different explanations and definitions for the word 'innovation', for example, such as (Dimza, 2003): innovation is commercialisation of creativity; innovation is newly created or gained new application idea, activity or object; innovation is any idea or product that a potential innovator perceives or introduces as a new one or innovation is a new kind of business philosophy. Outputs include the scientific, technical, social, cultural or any other kind of ideas and developments, technologies and services; time of their evaluation and adoption; and the time that is devoted to create and keep competitive products and services on the market (Gupta, 2011).

Innovation as a means of financing – long term capital investment in equipment, machinery, technology replacement with new generation analogues, scientific and technological innovation development, promotion of priority inventions. Innovation as a product is geared to technologically new or improved products development and use. These products are generally created by using new technologies (Friedman, 2011). On the other hand, a technologically advanced product means that the existing product's qualities and value have been significantly improved. Improvements in work organization, finding new suppliers, as well as attracting new buyers play a significant role in product innovation. Another type of innovation is innovation as a social category. It takes the form of financial investment in education, fostering scientific research, innovative product development and other ways of improving social processes (Fortino, 2011).

However, it is important to find a common definition of what could be taken as a basis for developing concepts, innovative activities and support programs, both on national and international level. This

definition has been established by the OECD (Organisation for Economic Cooperation and Development). The OECD (2005) explains that technological product and process innovation includes introduced technologically innovative products and processes or significant technological improvements of the old products and processes. Innovation is related to the scientific, technological, organizational, financial and commercial activities. Since this definition is often used in concept development, the EU funds and public support are also focusing on technological innovation.

The Latvian Sustainable Development Strategy until 2030 defines innovation as the process by which new scientific, technical, social, cultural or any other kind of ideas, developments and technologies are being implemented in a competitive and demanded in the market product or service. The definition of innovation found in Latvian government documents is in line with the OECD definition, but in a slightly narrower sense, due to it does not include, such features as significant technological improvements of the obsolete products and processes.

In general innovation can be characterized by five features: relative advantages, compatibility, complexity and verifiability. Innovation is the specific instrument for entrepreneurs, the means by which they use the change as an opportunity. Entrepreneurs need to search for innovation purposefully (Drucker, 2004). Summing up the various explanations of the innovation term, the author came to the conclusion that innovation is a process based on the scientific research, technological, financial, social and business activities, by which in the end the entrepreneur acquires tangible competitive advantage over competitors because he offers to the market new goods or services meeting the needs of consumers; or the entrepreneur uses a new or significantly improved technologies. Latvian Ministry of Economics has stated that innovative enterprises generally are characterized by several preconditions: at least every three years, the company starts production of a new, competitive product or introduces new technologies to increase the competitiveness of their products; the new products and services have been created within the company - with the own knowledge and skills or in cooperation with research institutions (individual researchers) in Latvian or abroad; and the company's investment in a new product or service development each year is at least 2% of its turnover. The company is also seen as an innovative, if it fulfils at least two of the following criteria (Inovativs uzņēmums, 2019):

at least 25% of sales are derived from products that are not older than 5 years; profits from the products that are not older than 5 years, make at least 10% of the total annual profits; and volume of sales from new products or services annually increase by at least 5%.

Financing includes all business processes and problems, ranging from procurement up to making sales, as all business processes require cash flow, which is directly linked to financing (Cornwall et al, 2004). Classical financial management theories divide all the company's sources of financing into two large groups namely internal sources of financing and external sources of financing (Auzina- Melalksne et al, 2009). Internal sources of funding initially are within the company's administration, they are resulting from the company's business activities. Company's external sources of financing for their operations may be attracted from private or legal persons. The sources of financing for innovative enterprises can be divided into two categories depending on the type of property (Bolsakovs, 2008). The first category is state resources, including central government and municipal budget funds, extra-budgetary funds, state loans, shareholding, and state property; the second category is business subjects' resources, including businesses, organizations (funds), foreign investors, individual and other private resources.

Another distinction has to be made between traditional and alternative sources of financing. Innovative companies typically attract funding directly from the alternative sources of financing. The most common alternative types of resources include the following: grants; private investors and seed funds; venture capital; alternative loans (mezzanine, micro-credits) and stock markets. The national support programs and the European Union Structural Funds can be mentioned as a separate source for attracting financial resources to innovative enterprises. Companies may have several stages of development: the idea development, the company's creation stage, the early growth, the expansion growth and the stable growth stage. Different sources of financing are used for various innovative business development stages (Dimza, 2003). Figure 4.8 provides insight in different types of sources of funding depending on the company's stage of development.

As shown in Figure 4.8, financial resources and areas for using them can vary considerably depending on the type of company, business operation and development stages. For example, need for financial resources at the company's early stages of development are different from the reasons for the need for financing at the maturity stage.

<i>Company's stage of development</i>	<i>Idea development</i>	<i>Start-up</i>	<i>Early growth</i>	<i>Expansion growth</i>	<i>Stable growth</i>
<i>Sources of financing</i>	<i>Entrepreneur, family, friends, grants</i>				
		<i>Private investors and Seed funds</i>			
			<i>Venture capital funds</i>		
			<i>Alternative loans (mezzanine loans, micro-loans)</i>		
				<i>Private investment funds</i>	

Figure 4.8 The company's sources of financing, depending on the company's stage of development

Source: Mavlutova et al(2016)

Appropriate type of funding should be chosen according to the business performance stage and character. Companies with a high risk and hard to predict returns, weak cash flow, low or medium growth, inexperienced management for funding may choose personal financial means and bootstrapping.

The business owner has to evaluate the most appropriate type of funding, depending on the degree of risk and the estimated return. To develop rational structure of sources of financing, one has to try to find an optimal ratio between equity and borrowed capital that simultaneously ensures the lowest cost of capital and provides the highest return on own capital investment. As the company's capital structure is composed of various sources, the cost of capital depends on the respective share of capital source on the balance sheet. There are the three main sources for company financing: shareholders capital; returned earnings and borrowed capital. Table 4.1 composes advantages and disadvantages of shareholders' and borrowed capital.

Companies using the borrowed capital have a high financial potential and possibility for growth of return on their own capital, and at the same time they might face decreasing financial stability. Evaluating sources for attracting capital or financing sources and required amount, it is important to take into consideration the purposes for which the funds are

Table 4.1

Advantages and disadvantages of shareholders' and borrowed capital

Shareholders' capital	Borrowed capital
<u>Advantages:</u> easily attracted (decisions made by the company's equity holders); high return on equity according to profit margins ratio (no need to pay interest on the loan); low financial stability risk.	<u>Advantages:</u> wide range of capital raising options (for enterprises with the necessary collateral); opportunity to expand the scale of economic activity with borrowed capital; possible increase of the return on equity on the basis of economic expansion.
<u>Disadvantages:</u> using only shareholders' capital may reduce the return on equity; missing opportunity to increase cost-effectiveness of shareholders' capital at the expense of borrowed capital.	<u>Disadvantages:</u> the higher the level of external funding sources, the lower potential stability position from the creditors' point of view; Too high level of liabilities creates an increased risk of insolvency; complexity of capital attracting (depends on the decision of other economic entities); required provision of third party guarantees (insurance companies, banks, other companies); reduction in profitability of assets because of the loan interest paid; increased risk of insolvency.

Source: compiled by the author using Auzina-Melalksne et al (2009)

needed and how they will be used and for what duration, as well as whether they can be found internally, or they need to be attracted from external sources of financing.

Lack of financial resources is a major obstacle for many companies, that may have high development potential and be innovative, but they cannot economically successfully justify the need for financing resources and thus receive adequate funding.

Venture capital is one of the most widely used forms of funding provided for new companies or innovative projects. Venture capital is

usually aimed to innovative or knowledge-intensive industrial sectors (Latvian Private Equity and Venture Capital Association, 2019). Mezzanine loans are a type of source for acquiring funding for companies, they combine the best features from both, the bank loan and risk capital financing. Target market of Capital Growth Funds is fast growing companies. Funds operating in the Baltic countries, mainly engage in the capital growth investment. (Innovative Financial Advisers, 2014). In such cases, the goal of the fund is to acquire the company's majority share and preparation for the company's resale.

The European Commission's research as well as data analyzed within the Latvian Competitiveness Report have identified that the innovation performance of Latvia is of low significance in many analyzed dimensions. Simultaneously it had been stated that the innovation system infrastructure is insufficient, this has been proved by the identified lack of cooperation between the parties involved in the innovation process – higher education, research institutions and companies.

Latvia was ranked as the 19th regarding business environment rating in 2019 according to World Bank (2019). This measure is taking into consideration doing business and financing availability ratio. In 2018 Latvia was also ranked as the 19th that means that Latvia has stable position of business environment. In the field of starting a business in 2018 Latvia ranks in the 24th place compared with Lithuania 19th place. It means that in spite of the state support programs, there are still some barriers to starting a business and attracting funding in Latvia.

One of the most important challenges that should be addressed by the Latvian National Industrial policy is the low productivity and weak innovation performance. Latvian industrial productivity level is significantly below the EU average. It should also be borne in mind that technological developments are influenced by the globalization processes associated with competitive advantages. To maximize the productivity of the innovation process, it has to be linked to the creation of comparative advantages, particularly when Latvia is identifying and positioning itself in the prospective product markets.

Therefore, it is particularly important in the initial period to increase public expenditure for innovation and create motivational conditions for business, including the availability of financing to attract more and more investment in technology and research and development. Support instruments have to focus on cost and risk reduction and the promotion of cooperation.

Innovation and high technology requires specific forms of financing. Lack of financial resources is a major obstacle for many companies, that may have high development potential and be innovative, but they cannot economically successfully justify the need for finances and to receive adequate funding. The specifics of innovative companies, their development potential and their contribution to the overall economic development provide those opportunities for specific funding. Innovative companies have access to several alternative sources of financing, such as grants; private investors and seed funds; venture capital; alternative loans -mezzanine, micro-credits; stock markets. The alternative ways of financing are being used in accordance with the company development stage. The Latvian government has to carefully evaluate and determine in detail its priorities in scientific potential, business opportunities in addition to creating research centres.

In view of the identified problems and market failures regarding business research and innovation capacity building, it is necessary to continue to provide support to companies in the form of a grant for high-risk initiatives such as new product and technologies development, providing support for industrial research, experimental developments, industrial design, and endorsement of industrial property rights.

It is important to promote cooperation and improve technology transfer system, by supporting the private sector and scientific institutions in collaborative research, as well as providing support for the purchase of research services; to create a unanimous technology transfer platform strengthening cooperation in the innovations.

References:

1. Auzina-Melalksne, D. et al (2009). *No idejas līdz panakumiem. Alternatīvie finanšējuma avoti [From an Idea to Success. Alternative Sources of Finance]*. Riga: LID.
2. Bolsakovs, S., 2008. *Inovatīva darbība Latvijā [Innovative Activity in Latvia]*. Riga: Jumava.
3. Cornwall, R., Vang, O., Hartman, J., (2004). *Entrepreneurial Financial Management. An Applied Approach*. New Jersey: Pearson Education.
4. Dimza, V., (2003). *Inovācijas pasaule, Eiropa, Latvija. [World of Innovation, Europe, Latvia.]* Riga: Latvijas Zinatnu akademijas Ekonomika institūts.
5. Drucker, P., (2004). *Innovation and Entrepreneurship*. Cornwall: MPG Books.

6. *Innovative Financial Advisers*, (2014). *Financing attraction* [online]. Available at: <http://ifa.lv/en/corporate-finance/financing-attraction> [Accessed 29 April 2019]
7. Fortino, A., (2011). *The Innovator's Journey: Fulfilling the Promethean Promise*. *International Journal of Innovation Science*, 3(4), pp. 203-210.
8. Friedman, L., (2011). *Sustainability Driving Innovation / Innovation Driving Sustainability*, *International Journal of Innovation Science* 3, pp.1-2.
9. Gupta, P., (2011). *Leading Innovation Change - The Kotler Way*. *International Journal of Innovation Science*, 3(3), pp.141-150
10. Harrington, J., Voehl, F., (2012). *Innovation Management: A Break through Approach to Organizational Excellence*, *International Journal of Innovation Science* 4, pp. 231-243.
11. *Inovativs uzņēmums*, 2019. [online] Available at: <http://innovation.lv/inovacija/inovacija-biznesa/> [Accessed 05 May 2019].
12. *Latvian Private Equity and Venture Capital Association*, (2019). [online] Available at: <http://www.lvca.lv> [Accessed 29 April 2019].
13. Mavlutova I., Baltaca, B., Mavlutov, B. (2016) *Financing Opportunities for Innovative Companies in Latvia, Country Experiences in Economic Development, Management and Entrepreneurship* Proceedings of the 17th Eurasia Business and Economics Society Conference; Series Eurasian Studies in Business and Economics, Springer, pp. 619-636
14. OECD, (2005). *Oslo Manual Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition [online] Available at: http://www.oecd-ilibrary.org/science-and-technology/oslo-manual_9789264013100-en [Accessed 5 May 2019].
15. *Oxford Business Dictionary*, (2002). Oxford: Oxford University Press.
16. Schumpeter, J., (1942). *Capitalism, Socialism and Democracy*. 3rd ed. New York: Harper & Row.
17. Vedla, A., (2007). *Inovativas darbības organizācija*. [Organisation of Innovative Activity] Riga: Petrovskis un Ko.
18. *Latvian Private Equity and Venture Capital Association*, (2019). [online] Available at: <http://www.lvca.lv> [Accessed 29 April 2019].
19. *World Bank*, (2019). *Doing Business 2018*. [online] Available at: <http://www.doingbusiness.org/en/rankings> [Accessed 06 May 2019].

Payment indiscipline can be defined as deferred payments and debt defaults. Here, we refer to the delay in payment when it comes to exceeding balance terms or the agreed payment period, even though the corresponding deliveries were made on time (Commission of the European Communities 2009). Payment indiscipline is a major problem faced by all European companies, and the biggest problems are mainly for small and medium-sized enterprises. "Due to too long deadlines and payment delays, companies, especially SMEs, are heavily burdened with administrative and financial burdens. Moreover, these problems are the main cause of insolvency, which endangers the survival of enterprises, resulting in the loss of many jobs" (Official Journal of the European Union 2000, 226).

Delays in payments in commercial transactions have the following significant effects (Commission of the European Communities 2009 and Official Journal of the European Union 2011): Greater cost to credit companies, i.e. in particular, during limited and costly access to finance, the consequences of default payments for creditors are the burden of cash flow, increased financial costs, the limitation of investment opportunities, uncertainty (especially for small and medium-sized enterprises), reduced profitability if the creditor requires external financing, threatened competitiveness and endangered solvency. Furthermore, in free trade credits for debt companies, i.e. by default, the debtor company receives a free trade loan from a defaulting interest account from the supplier. Negative impact on intra-Community trade: in most European Union countries, companies consider that the sale of goods and services to companies in other countries of the European Union is associated with a greater risk of late payment than on the domestic market. This discourages them from selling products and services to other EU Member States.

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The negative effects of payment indiscipline increase considerably during periods of economic downturn, as access to finance is more difficult in those conditions (Official Journal of the European Union 2011). The reasons for payment indiscipline are usually attributed to poor business ethics, past inadequate legislation and ineffective judicial and enforcement procedures. Late payments arise due to the personal benefits of customers (due but outstanding receivables are part of their working capital) as well as due to liquidity problems that may be temporary or more durable (in the case of liquidity problems of a more lasting nature, this can lead to bankruptcy of companies). Payment indiscipline of a company can trigger e.g. a systemic effect that affects many economic partners both at home and abroad. If the public administration is delaying payments to the economy, then these late payments are known not only to suppliers of public administration, but also to their suppliers. It is precisely because of the significance of its primary position that it is crucial for the public administration to settle its obligations within the deadline. In order to avoid the problems caused by late payments (or at least alleviate these problems), appropriate legislation was adopted at the European Community level. From the Register of Consolidated European Union (2014) Regulations, it is evident that Directive 2011/7 / EU (Official Journal of the European Union 2011) replacing Directive 2000/35 / EC (Official Journal) is in the field of combatting late payments in commercial transactions European Union (2000). In 2000, the European Union adopted Directive 2000/35 / EC (Official Journal of the European Union 2000) aimed at ensuring the timeliness of payments, which entered into force on the day of its publication in the Official Journal of the European Communities on 8 August 2000.

The provisions of this Directive were used for payments that are "receipts related to commercial transactions" and not for dealing with consumers. The Directive was based on the assumption that late payment delay became financially attractive to debtors in most of the Member States of the European Union due to low interest rates on late payment and / or lengthy judicial redress procedures (Official Journal of the European Union 2000). Therefore, special attention was paid to precisely the interest. In addition to interest, the Directive also regulates the reservation of title and the recovery procedure of uncontested claims. The default interest belongs to the creditor (of course, assuming he fulfils his contractual and legal obligations) if he does not receive payment in due time (unless the debtor is not found responsible for the

delay) (Official Journal of the European Union 2000). Default interest is due on the day following the date of payment or the end of the payment deadline specified in the contract, but if the contract does not specify the date of payment (European Union, 2000), at least one of the following conditions take precedence: 30 days after receipt of the invoice, 30 days after receipt of goods or services in cases where the date of receipt of the invoice is doubtful or when the debtor receives the invoice upon receipt of the goods or the performance of the service, 30 days after verifying the conformity of goods or services where the conformity clearance procedure is established by law or contract and the invoice has been received before the conformity assessment procedure.

The so-called statutory rate of interest payable by the debtor is the sum of the interest rate applied by the European Central Bank (reference rates) and at least seven percentage points of mark-up, unless the parties to the contract decide otherwise. In addition, the Directive provides that the creditor has the right to claim appropriate remuneration from the debtor for all the costs he incurred in recovering the debt, while respecting the principle of transparency and proportionality in relation to the debt in question (European Union, 2000). The Directive provides that, in accordance with national provisions, the Member States must ensure that "the seller retains title to goods until they have been fully paid if the reservation of title clause was expressly agreed between the buyer and the seller before the delivery of the goods" (Official Journal European Union 2000). The Directive also requires Member States to ensure that "an enforceable title can be obtained irrespective of the amount of the debt, usually within 90 calendar days after the creditor files an action or a request to the court or other competent authority, provided that the debt or aspects of the proceedings are not in dispute (Official Journal of the European Union 2000). In this context, the term "enforcement title" is understood to mean "any decision, judgment or payment order.

Despite the directive (Directive 2000/35/EC), late payments in commercial transactions between companies based in the European Union remained a major problem (Commission of the European Communities 2009). Therefore, in 2008, the European Commission conducted a survey involving 408 companies which sought to obtain company opinions on the issue of payment indiscipline. The study made two very important findings (European Business Test Panel, 2008): Charging default interest is not popular (7% of enterprises always charge default interest, 18% of companies often charge default interest,

45% of companies rarely charge default interest, 30% of companies never charge late payments), and reasons why companies rarely or never charge interest for late payment are due to fear of deterioration of the business relationship with the buyer (the main reason given by more than 60% of enterprises), interest charging is too complicated (45%) and their competition does not charge interest (29%).

In the EU Business Test Panel, companies also responded to questions about the consequences of the payment indiscipline of their customers. The most commonly exposed consequences were (European Business Test Panel, 2008) waste of valuable time from recovery (67% of enterprises), the need for a bank loan (38% of enterprises), an obstacle to the growth and functioning of the company (30% of enterprises) and late payments to their suppliers (23% of enterprises).

The services of the Commission of the European Communities therefore analysed the various options to provide creditors with measures that will enable them to fully and effectively enforce their rights when they receive delayed payments and, at the same time, face the debtors with measures that will be effective to deter them from late payment (Commission European Communities, 2009).

The recommended measures were (Commission of the European Communities, 2009) the alignment of the payment deadlines of state authorities to companies and the cancellation of the EUR 5 threshold (i.e. to introduce charging for default interest also in cases which amount to less than EUR 5) and the introduction of a "late payment fee" and the introduction of a "late payment" allowance (the difference between the fee and the refund is that the fee is lower because it provides for only the recovery of recovery costs and the compensation is proportional to the amount of the claim, thus exceeding any savings in the form interest which the debtor would otherwise pay for the loan in the amount of the debt).

In 2011, the European Union adopted a new directive in the fight against payment delays, called Directive 2011/7 / EU (Official Journal of the European Union 2011) aimed at removing some of the ambiguities of the previous directive (Directive 2000/35 / EC published in the European Union 2000) and presenting additional measures. In its introductory text, it is stated, inter alia, that "a decisive shift to the culture of immediate payment is required" (Official Journal of the European Union 2011, 2). As with Directive 2000/35 / EC (Official Journal of the European Union 2000), Directive 2011/7 / EU (Official Journal of the European Union 2011) it also provides for charging

default interest, a reservation of title and obtaining an executive address within 90 calendar days. In addition to charging default interest, Member States should ensure that creditors would also be entitled to pay a fixed amount to recover the internal recovery costs of at least EUR 40 and to recover reasonable compensation for the costs of collecting the overdue claim beyond the fixed amount, for example hiring a lawyer or a debt collection agency.

In addition, the Directive also pays particular attention to transparency and awareness of legal remedies against late payment between undertakings through the following measures (Official Journal of the European Union 2011): imposing on Member States an obligation to ensure transparency regarding the rights and obligations arising from this Directive, including the publication of the applicable statutory interest rate for late payment, imposing an obligation on the European Commission to publish information on the statutory interest rates applicable to default interest on each website for each Member State, where appropriate, that Member States use professional publications, promotional campaigns or any other functional means in order to raise awareness of legal remedies against late payment between enterprises, and that EU Member States may encourage the introduction of immediate payment codes or other initiatives (such codes should clearly specify payment periods and an appropriate procedure for dealing with any disputed payments), which would contribute to the development of a culture of immediate payment.

If, therefore, a decisive shift to the culture of immediate payment is required (Official Journal of the European Union 2011), then the public administration must be the lead responsible party, not only because of the already mentioned perpetuation of the effect, but also in order to serve as an example to the economy. If we take the ethics of a company to be highly dependent on its management (Belak et al., 2010) and demand the actions of managers be consistent with their words (Trevino et al. 1999), where employees would otherwise follow the behavior of management rather than formal policies and goals (Falkenberg and Herremans 1995), then we can also hold a similar charge for the public administrations of the members of the European Community. If we want the economy to adhere to the legislation adopted with a view to improving payment discipline, then legislative measures are not sufficient, rather the public administrations of these countries must be timely payers and serve as an example to the economy. Just as ethical leadership of a company can lead employees, setting forth high ethical

standards, clearly defining the boundaries of proper operations and creating an appropriate ethical code (Halter et al., 2009) uniquely modelled on the primacy of ethical behavior, so too is legislation to improve payment discipline successful only where payment discipline is upheld and improved by the public administrations of the Member States of the European Union. However, if managers use unethical business practices in their work, then their subordinates are more inclined to use such unethical business practices as well (Hawkins et al., 2012). The same applies to the payment discipline of public administrations and the economy. Observing the payment discipline of the members of the European Union, we quickly notice that in countries where the public administration is quite late with payments, payment discipline in the economy is also worsening.

In this context, we analysed the changing payment discipline of public administrations in the 24 EU countries. Given that there is a huge difference in the payment discipline of the countries in the European Union, we have divided these observed 24 countries into four groups according to the payment discipline types: the group of eastern countries, the group of southern countries, the group of northern countries and the group of central countries (the grouping does not exactly follow such a clear geographical division of Europe). In the following, four figures show the movement of the average delay in payments by public administrations in the countries of each group.

Regarding the data presented in the above figures, it can be concluded that in the observed period from 2012 to 2018, the delay in public sector payments has improved in all observed countries of the European Union. However, the differences between countries are still considerable. The worst payment discipline across the entire observed period is in the group of southern countries. Although payment discipline improved considerably in the observed period for this group of countries, further improvement is indispensable in Italy and Portugal. In Italy, the average delay in public administration payments was shortened from 90 days in 2012 to 31 days in 2018, and in Portugal from 79 days in 2012 to 32 days in 2018. The average delay in public administration payments must necessarily surpass Belgium. In Belgium, the average delay in public administration payments in 2018 was 21 days, which means that longer average delays in payment occurred only in Italy and Portugal. In all other observed countries in 2018, the average delay in public administration payments was 12 days or less. The worst payment discipline in 2012 was in the public administration

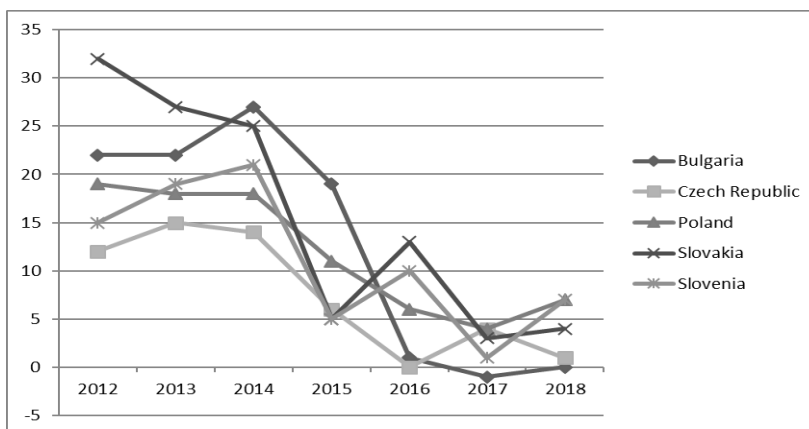


Figure 4.9 The trend of the average delay in payments by public administrations in the period from 2012 to 2018 in the group of eastern countries

Source: *Intrum Justitia*, 2012, pp. 18–45; *Intrum Justitia*, 2013, pp. 14–44; *Intrum Justitia*, 2014, pp. 22–54; *Intrum Justitia*, 2015, pp. 20–48; *Intrum Justitia*, 2016, pp. 18–46; *Intrum Justitia*, 2017, pp. 18–46; *Intrum Justitia*, 2018, pp. 18–51).

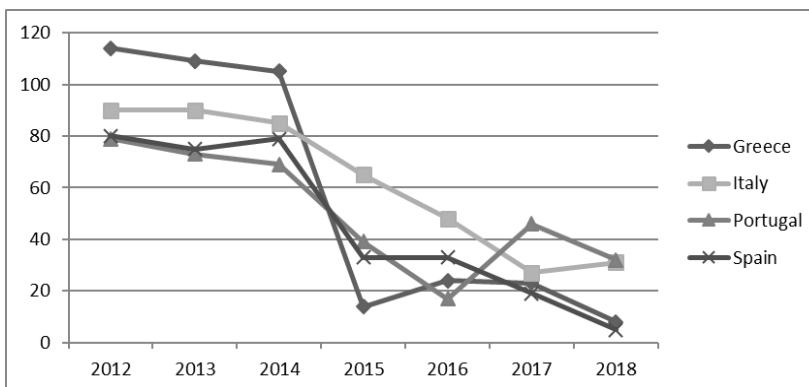


Figure 4.10 The trend of the average delay in payments by public administrations in the period from 2012 to 2018 in the group of southern countries

Source: (*Intrum Justitia*, 2012, pp. 18–45; *Intrum Justitia*, 2013, pp. 14–44; *Intrum Justitia*, 2014, pp. 22–54; *Intrum Justitia*, 2015, pp. 20–48; *Intrum Justitia*, 2016, pp. 18–46; *Intrum Justitia*, 2017, pp. 18–46; *Intrum Justitia*, 2018, pp. 18–51).

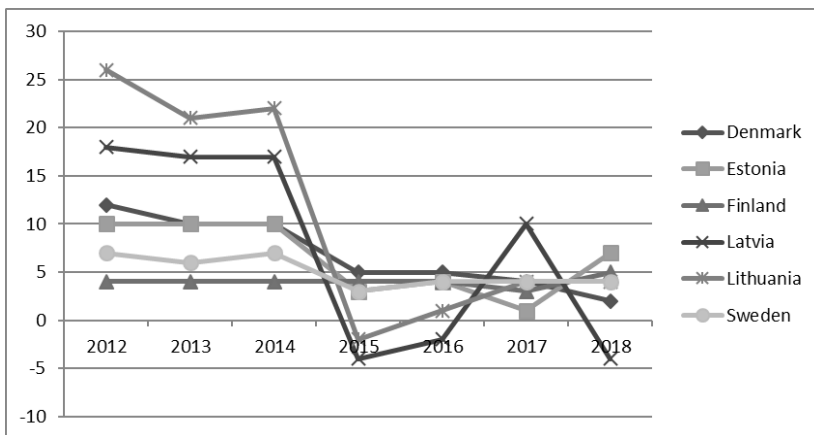


Figure 4.11 The trend of the average delay in payments by public administrations in the period from 2012 to 2018 in the group of northern countries

Source: (Intrum Justitia, 2012, pp. 18–45; Intrum Justitia, 2013, pp. 14–44; Intrum Justitia, 2014, pp. 22–54; Intrum Justitia, 2015, pp. 20–48; Intrum Justitia, 2016, pp. 18–46; Intrum Justitia, 2017, pp. 18–46; Intrum Justitia, 2018, pp. 18–51).

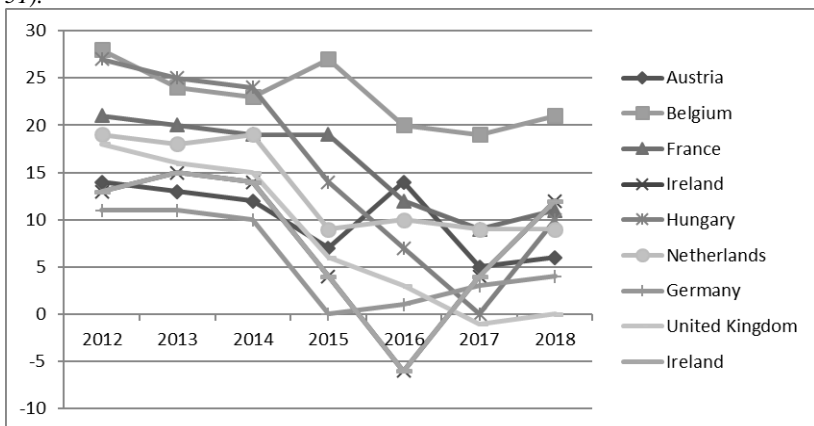


Figure 4.12 The trend of the average delay in payments by public administrations in the period from 2012 to 2018 in the group of central states

Source: (Intrum Justitia, 2012, pp. 18–45; Intrum Justitia, 2013, pp. 14–44; Intrum Justitia, 2014, pp. 22–54; Intrum Justitia, 2015, pp. 20–48; Intrum Justitia, 2016, pp. 18–46; Intrum Justitia, 2017, pp. 18–46; Intrum Justitia, 2018, pp. 18–51).

of Greece; namely, the average delay in payments was 114 days. However, the Greek public administration improved its payment discipline during the observed period, as the average delay in payments in 2018 amounted to only 8 days.

At the beginning of the observed period, the payment discipline of public administration was the best in Finland (the average delay in public administration payments in 2012 was 4 days) and Sweden (7 days). In 2018, the payment discipline of public administrations was best in Latvia (the obligations settle on average 4 days before maturity), Bulgaria and the United Kingdom (in both, public administration liabilities are on average settled on the day of maturity). In 2012, Finland was the only country in which public administration liabilities were settled with a delay of 5 days or less. In 2018, the average delay in public administration payments is less than or equal to 5 days in Latvia, Bulgaria, Great Britain and Finland, in the Czech Republic (average delay of 1 day), in Denmark (2 days), in Lithuania (1 day), in Germany (average delay of 4 days), in Slovakia (4 days), in Sweden (4 days) and in Spain (5 days). Despite the fact that the payment discipline of public administrations has improved in all the countries of the European Union, we cannot ignore the fact that "the economy has been growing solidly since mid-2013" (Bole, 2017), and in periods of growth, the financial means for ensuring liquidity are easier than in times of economic crisis (Vojinović et al., 2013). It is therefore important that payment discipline remain the priority of public administrations, and that it must be upheld in the event of economic stagnation or economic crisis.

References:

1. Belak, J., Duh, M., Mulej, M., & Štrukelj, T. (2010). *Requisitely holistic ethics planning as pre-condition for enterprise ethical behaviour*. *Kybernetes* 39(1), pp. 19–36.
2. Bole, V. (2017). *Gospodarska rast, inflacija in »nova paradigma«*. *Gospodarska gibanja* (500).
3. *Commission of the European Communities*. (2009). *Commission staff working document – Accompanying document to the Proposal for a Directive of the European parliament of the council on combating late payment in commercial transactions* (20.3.2012, EUR-Lex: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:0315:FIN:EN:PDF>).
4. *EU Directive 2000/35/ES*. (2000). *Directive 2000/35/ES of the European parliament and the council of 29 June 2000 on combating*

late payment in commercial transactions. European commission, 17/2000.

5. EU Directive 2011/7/EU. (2011). *Directive 2011/7/EU of the European parliament and the council of 16 February 2011 on combating late payment in commercial transactions*. European commission, L48/2011.
6. European Business Test panel (EBTP). (2008). *Late payment in commercial transactions*. (19.1.2014, Your voice in Europe: http://ec.europa.eu/yourvoice/ebtp/consultations/pay/pay-report_en.pdf).
7. European Commission. (2013). *Green paper on unfair trading practices in the business-to-business food and no-food supply chain in Europe*. (19.1.2014, EUR-Lex: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0037:FIN:EN:PDF>).
8. European commission. (2009). *Commission staff working document – Accompanying document to the Proposal for a Directive of the European parliament and the council on combating late payment in commercial transactions*.
9. Falkenberg, L., & Herremans, I. (1995). *Ethical Behaviours in Organizations: Directed by the Formal or Informal Systems*. *Journal of Business Ethics* 14(2), pp. 133–143.
10. Halter, M. V., Coutinho de Arruda, M. C., & Halter, R. B. (2009). *Transparency to Reduce Corruption? Journal of Business Ethics* 84(3), pp. 373–385.
11. Hawkins, T. G., Lewin, J. E., & Amos, C. (2012). *The influence of leader opportunism in B2B exchange*. *Journal of Business Research* 86(8), pp. 1112–1118.
12. Intrum Justitia. (2012). *European Payment Index 2012*. Stockholm.
13. Intrum Justitia. (2013). *European Payment Index 2013*. Stockholm.
14. Intrum Justitia. (2014). *European Payment Index 2014*. Stockholm.
15. Intrum Justitia. (2015). *European Payment Report 2015*. Stockholm.
16. Intrum Justitia. (2016). *European Payment Report 2016*. Stockholm.
17. Intrum Justitia. (2017). *European Payment Report 2017*. Stockholm.
18. Trevino, L. K., Weaver, G. R., Gibson, D. G., & Ley Toffler, B. (1999). *Managing Ethics and Legal Compliance: What Works and What Hurts*. *California Management Review* 41(2), pp. 131–151.
19. Vojinović, B., Mikac, M., & Oplotnik, Ž. J. (2013). *The Microeconomics of Regional Development: Measuring convergences of Local and Regional Business Cycles*. *Lex Localis – Journal of Local Self-Government* 11(3), pp. 777–797.

Chapter 5

INNOVATIVE STRATEGY FOR DEVELOPMENT OF ECONOMIC ENTITIES AS A FACTOR OF THEIR COMPETITIVE ADVANTAGES

Chovanová Supeková Soňa

PhD. in Economics,

Associate Professor

Krchová Hana

PhD. in Management

Pan-European University

(Bratislava, Slovakia)

THE COMPANY'S DEVELOPMENT BASED ON INNOVATION PROCESSES EVALUATION – CASE STUDY SLOVAKIA

Introduction

The success of each business and, ultimately, the whole country in the global competition will determine by the speed, speed, and complexity of change and change. Transform, but indiscriminately and mostly wrong, it is clear gambling. Wrong steps, their corrections, or even returns, complicate, make more expensive, and extend progress. Excessive prudentialism, the effort to design all advance into the smallest and finest detail, the amendments fatally slow down or prevent. Every day around the world gives birth to new sub-elements, at least a little better than the previous. Human progress is continuous. Slovakia is predominantly a rural country. Agriculture, food industry and forestry are strategic branches of economic policy. Slovak agriculture is characterized by a dual production structure - 82 % of businesses (mainly family-run) have 5 % of farmland and the remaining 18 % of businesses have 95 % of farmland. The structure of farms is characterized by large legal entities (cooperatives and business companies). A new Rural Development Programme of Slovak Republic for 2014 – 2020 (RDP SR 2014) has been approved as well, the priorities of which include supporting the transfer of knowledge and innovation in agriculture, forestry and rural areas, enhancing the viability and competitiveness of all types of agriculture, supporting innovative agricultural technologies and sustainable forest management.

RDP SR is also focused on supporting the efficiency of resources and transfer to low-carbon and climate-resistant agriculture, forestry and food industry.

It is indisputable that it can characterize the current period as an explosion of innovation and its application in the business sphere. A company that strives to maintain and merge its position on the market will not suffice with its pricing policy, advertising, and sales improvement initiatives. Priority role played by innovation and innovation not random but systematic innovation, which the authors of the allowance for basic and developmental momentum competitive and successful company. Innovative projects in companies typically include the development of new products and new processes (Bresnen et al. 2003), it associates which with opportunities for emerging new ideas and strengthening the potential of companies' innovative potential. It can see such projects as drivers of innovation and change, and organizations can innovate through projects (Davies & Hobday 2005; Shenhar & Dvir 2007). The joint transformation of all innovation projects is to create an adequate environment that enables people to create innovation (Winch 2010).

Slovak innovation environment

We can consider the situation in Slovakia in the terms of the ability to implement innovations complicated. On the one hand, it is because, according to the European Innovation Index, Slovakia ended in 23rd place (European Commission 2018). This current situation means that Slovakia is the last in creating knowledge, innovation, and entrepreneurship, and it gave only a slightly better rating to Slovakia in the group of innovative support, mainly because of the education of the young generation. Financing innovation is problematic from the evaluation. Slovakia heavily depends on EU funding for research and development.

One of the other possibilities of supporting the financing of corporate research and development was the introduction in 2015 of a so-called "super discount" at the height of 25%. It should be one of the main tools to motivate businesses to invest in research and development. After two years, for which data are available concerning the use of "super discount", however, it shows that the interest of companies is unexpectedly low. Real use lags the government's expectations by more than half. According to the CRIF - Slovak Credit Bureau's analysis in 2015, the super discount amount reached only 9.2 million EUR and in

2016 only 16.4 million EUR. The government counted to 24 million EUR. The amendment from 2018 brought several changes to the super discount system. The most significant is a fourfold increase in the super discount: from the current 25% to 100% of the tax-deductible expenses. In terms of small- and medium-sized enterprises, the corporate R&D expenditure in 2016 was 0.14%. This is below the EU average. As a result, Slovakia is making little progress in innovation. According to the European Innovation Scoreboard, Slovakia remains one of a Moderate Innovator (European Commission 2019).

The main factors limiting innovation activity are cost factors (Benešová et al. 2018). According to a survey by the Statistical Office of the Slovak Republic (SÚSR, 2019), the lack of resources financed within the enterprise is considered the highest innovation barrier by 29% of innovating enterprises, 25.9% too high costs of innovation and 10.2% of businesses.

The above information shows that the Slovak innovation environment still has a long way to go for an ideal situation. However, the right use of project tools in implementing innovations could make Slovak firms considerably more efficient.

Assessing the innovation potential of enterprises in Slovakia

The innovation process is a very costly process that binds most corporate finance over the longer term. The priority of companies is to return the invested funds in the shortest time. However, expert publications state that almost 35% of innovations fail (Koren & Palčić 2015). The cause of these failures lies largely in the initial erroneous decisions, which most times have been relatively easy to prevent.

We can also consider the reason for the failure of innovation actions to be that companies do not always meet the decisive assumptions for introducing innovation at all. It is important for every company to know the basic prerequisites for implementing innovation. The company should know what its innovation potential is, because if this innovation potential is not enough, it is first necessary to focus on eliminating these shortcomings and only then on the systematic innovations themselves. To evaluate the innovation potential of selected companies, a questionnaire and basic method were used, which were elaborated at the University of West Bohemia in Pilsen by the Department of Innovation and Projects within the Leonardo da Vinci Project Design and Model for a Joint University-Enterprise Innovation “Map of Prerequisites for Implementing Innovations in the Company” (Vacek 2005).

Methodology

We conceive the innovative or development potential of the company as a set of factors, both tangible and intangible, that affect the company's current and future success. The innovation potential is conceived as a six-component vector (strategy, technology, quality, logistics, human resources) that define the key areas of the company's organizational structure, with six characteristics being tracked within each component to develop the infrastructure of components to pass into other components. The purpose of this formulated model is to capture the definition of the main processes within the components. Clustered and multidimensional regression analysis was performed within the statistical methods used. The dependent variable was the innovative potential in the multi-dimensional regression analysis, and the partial variables of the innovation potential were independent variables.

We also evaluated the extent of informative ability of this methodology screening. After processing the results, we can state it, we can delete no component from the 6-component model. We showed a statistically significant relationship between individual variables. There are no correlation coefficients with an absolute value of 0.5 and greater in the model and we showed no correlation of components. The explanatory level of the variable-dependent variability is 99.5%. As a result, we can use the model for simplified models. Overall, it is possible to evaluate the questionnaire used as a questionnaire with high explanatory power. As part of our research, we have investigated into which we have included companies from the Slovak Republic with a restriction those industrial producers we preferred from the Bratislava region. We conducted the research in the period from May to July 2018. The final number of questionnaire respondents was 160 companies implementing projects in Slovakia (Table 5.1). Initially, we addressed 484 respondents with a response rate of 33%. Given the specifics of the study and method, we can consider the response rate satisfactory.

Table 5.1

Categorization of the companies by region; source: own elaboration

	Bratislava Region	Trnava Region	Trenčín Region	Nitra Region
Absolute frequency	69	40	32	19
Relative frequency	41,58%	23,68%	19,47%	15,27%

The evaluation of the individual components of the survey has extended the criterion of the size of enterprises. In the survey, there were 25.38% of small-sized enterprises, 43.85% of medium-sized enterprises and 30.77% of big-sized enterprises. Figure 5.1 shows the evaluation of the innovation potential from the point of view of their size.

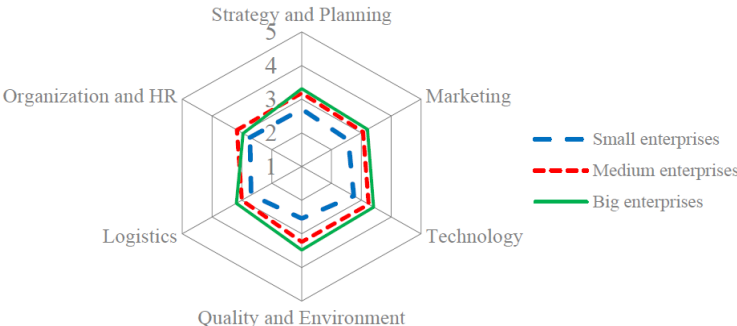


Figure 5.1 Assessing the innovation potential of enterprises by size
Source: own elaboration

We could say that there is a slight predominance of large companies in the areas of Technology, Quality and Environment, and Logistics and Marketing. Big-sized enterprises also achieved slightly better results in the area of Strategy and Planning. But what is absolutely surprise in the category of Organization and Human Resources, then outperformed medium-sized enterprises. These enterprises showed surprising results in the survey, as they are significantly closer to big-sized enterprises in all other areas. This shows us their prospective development now and soon, and that medium-sized companies already know of the importance of systematic innovation and they are trying to be prepared for this situation.

At the beginning of the evaluation, we expected that the gap between medium-sized and big-sized enterprises would be significantly greater. Conversely, enterprises that have confirmed our expectation were the small-sized enterprises. They have achieved average results in all areas. This is mainly because of the overwhelming lack of financial resources for else them ordinary activities by most small-sized enterprises. We performed a cluster analysis and multivariate regression analysis in the research. The dependent variable in the multidimensional regression analysis was the innovation potential, the independent variable sub-

component of the innovation potential. The basic model shows the regression model expressed by:

$$\text{Innovation potential} = -0.0037 + 0.1809 \times \text{Quality and Environment} + 0.1683 \times \text{Logistics} + 0.1938 \times \text{Marketing} + 0.1488 \times \text{Organizations and HR} + 0.1775 \times \text{Strategy and Planning} + 0.1305 \times \text{Technology}$$

$$\text{Border innovation potential} = 2.7944 \pm 0.006528$$

Besides the boundary innovation potential, two auxiliary values we have established. A company that achieves a worse result than $IP = 2.3835 \pm 0.011487$ we considered a business without innovation potential, and not only is it considered being non-innovative according to the border innovation potential, but its equipment is so bad that one needs to think seriously its existence. It is possible to speak about the developed innovation potential if the companies reach at least $IP = 3.1051 \pm 0.0102$.

The research allows, thanks to the set levels, a clear presentation of the results of a specific enterprise in all the examined areas. We can see the overall assessment both as a calculation of the overall innovation potential and the subsequent display of the results in the web graph, highlighting the boundaries of "non-innovation potential", "border potential" and "developed potential".

Case Study – Agricultural Company X in Slovakia

In order to compare the results of the survey in Slovak companies, we chose the company X doing business in agriculture and food (based in Bratislava region). The company employs 120 people in primary agricultural production with plant and livestock production, services and small butcher production. The meat products and fresh beef and pork are handed over to the farm in its own farm. The beef production is certified as Organic Farming. Farming in agriculture is very specific, as the farmer is doing business on his own but also on rented land, businesses are dependent on the EU's Common Agricultural Policy and also on the national agricultural policy of the state in which they operate. Agriculture is dependent on birth conditions, weather and many other specific factors. The company in which we carried out the questionnaire seeks to innovate some processes in primary production, but it depends on the economic result and it is dependent on the harvest that affects the weather.

When applied to a specific enterprise, we can display the results as shown in the following figure. The company has gained IP potential of $2,459348714 \pm 0,029556286$. It means, that Overall rating = Non-innovative potential of the selected company. The graphical representation (Figure 5.2) can consider as a supportive method for determining the aimed level of equipment of an enterprise where, based on the evaluation of the questionnaire, the company can get results within the same distribution and supplement the information to the evaluated innovation potential by the regression model.

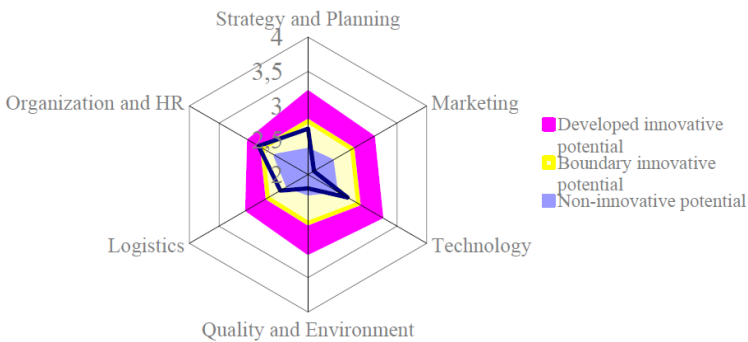


Figure 5.2 Practical application of the map of innovation potential in the company X

Source: own elaboration

The answers of the representative manager of the company X we could declare and comment as follows:

1. Area of Strategy and Planning

The results of the evaluation of the analyzed company indicate that there is a rather charismatic leadership in the company. This means that the goals that society sets out are often not very specific and are not further elaborated at all. It should be noted that without a written record, the prerequisites for sharing them can not be established. Here we can understand the attitude of the leadership to the strategy, just in agriculture, planning is often dependent not only on climatic conditions, but also on the basis of changes and decisions of the state. Innovation activities in the analyzed company are not seen as an objective necessity, but a forced randomness, which needs to be subsequently

sourced. Nevertheless, we can say that there is an environment in the company that allows for the proper use of employee potential. Here is the focus of the bottom-up initiative. The ability to actively participate in shaping the future of the company creates prerequisites for the use of motivational factors and for the continuous building of corporate culture. The results of the questionnaire suggest a charismatic model of corporate governance. This also corresponds to the absence of a specific strategy in the company. The main benefit of employees is their work performance. Responsibility is centralized, decision-making is quick and momentary benefits are superior to longer-term impact. The company probably understands the innovations in its other activities. They do not perceive innovations separately and do not pay them the proper attention. If the future effect is to be stronger, it also seeks new sources. If we look at the depth of planning and management processes in the company, we can say that it is a company that is in the forefront of increasing its performance. Despite the above, innovation opportunities are perceived as one of the sources of performance enhancement and are therefore incorporated into innovative variants of plans and projects. The results show that it is a company that has an operative approach as a priority and seeks to provide an environment for permanent changes. However, their effectiveness can be questioned. If any information leads to an innovative incentive, it is not a process driven, but a guided process. The intuitiveness of the impact of such innovations carries a high risk, which can lead to an existential threat to the company.

2. Area of Marketing

The second evaluated area is marketing. The company's results show that it lives mainly by presence, which means that the company has focused on current problems of its current existence. We can reiterate that this is a consequence of the specificities of agricultural production and food. The company focuses only on the region's market and managers say that due to the sale of virtually all production of meat products and fresh meat, the planned marketing activities are not needed. The postponement of the cardinal question of whether a firm will be competitive and thus alive in the future is currently precluding the stabilization of society and, rather, making it a one-off capital turnover with the anticipated effect. Developing innovations for such a thinking enterprise is neither current nor too effective. At the same time, the competitive position is understood to be a struggle to obtain a business case where the business terms of the offers are often changed

unconventionally and also rely on "non-commercial" means of influencing the customer. The company monitors competition activities in the market whenever a company has to take a major decision that may affect its future development. By not setting its target market position, the company becomes a universal market player fighting against all current competitors. Comparing to unmatched competitors can be a source of misguided management decisions. The company believes in the success of its products. And so much that he believes he doesn't need to take into account the customer's opinion. This attitude poses a risk of neglecting one of the market factors that may have an appreciable effect on existing customer preferences. The results show that the company is responding to its products in a non-systematic way. The information that is obtained in this way is reduced and many times do not address all the important circumstances of customer decision-making processes. Response parameters must be chosen so that the effects of the individual phenomena can be well separated, which is very difficult for narrowly unspecified companies. On the contrary, the company builds on the know-how of its employees. The problem may arise when the worker leaves. Failure to provide information leads to worker value growth and pseudo-key positions in the company. Overall, we can say that it is a company that does not purposefully manage its future market position, does not deal with marketing activities planning. Un planning and not tracking marketing costs can distort the economic outcome of a business case by not generating a gross margin high enough to cover all costs, including marketing. This limits the company's innovative potential.

3. Area of Technology (production and products)

The results of the questionnaire show that it is a company that wants to maintain its competitiveness at the lowest cost and therefore exerts indirect pressure, most often in the form of material incentives, on the creative activities of workers to pursue the development of the business themselves. The un relatedness of the results of the activities of creative workers and other activities in the company (especially marketing and logistics) often results in a narrow focus on product innovation, which is then not available to the company for unclear reasons. From this perspective, the company seeks to apply functionally feedback in order to monitor and evaluate change processes. Unfortunately, this is just an intention and these changes are monitored and evaluated only randomly. The incentives to change themselves are handled unsystematically, and so valuable initiatives in the company can also be forgotten. The

enforcement of a stimulus is often tied to its wearer's charisma and interpersonal relationships within the company, which can generally distort change processes. The evaluation found that the activities of innovation activities are tied to a narrow circle of workers (or one worker). The maturity of innovative activities is limited by the capabilities of this worker. There is some methodology in the company for determining production costs. According to it, the costs which ultimately may differ from the anticipated costs are determined. The analysis determines whether the cause is the methodology or unforeseen circumstances. If an error in the cost of production methodology is found, the company can correct it, so the error is no longer accumulating in other projects. The company also applies financial management means to its development programs and therefore appeals to them with the same weight as the projects under implementation. The disadvantage is that the company cannot determine its production costs more accurately and therefore has to hedge the reserves, which increase the price, respectively, reduce profit. Following on from previous information, the company has to reconcile itself with the fact that in the future, due to competition in its activities, it will not be effective and will have to reassess the content of its business or adopt explicitly defensive strategies. On the other hand, we have to say that the company is aware and understands the necessity to generate resources for its development and so far it lacks the order of priorities that they must inevitably manage from their resources and which are dependent on other resources.

4. Area of the Quality and Environment

Based on the results, the company respects the importance of standards (very strict in the food industry, as well as in organic farming, which forms a significant part of the company's production), but does not comprehend them comprehensively and limits their scope to isolated problems only. Such solutions take particular account of the technical approach. The organizational component is suppressed, reducing the final effect. On the contrary, the company has created conditions for the introduction of a certified quality management system. Employees' individual contribution to quality in the company is also appreciated in terms of long-term trends, which is also reflected in the company's built culture. In the course of its business activities, it establishes the satisfaction of its customers to meet the conditions of the concluded business contract. It is a company that has to comply with regulations

laid down and controlled by state administration authorities. The aim of the firm's activities is to avoid sanctions from non-compliance prescribed by regulations and monitored by the authorities concerned. If the company has to incur costs, they are only planned at the necessary level and aimed at meeting the current needs of state and EU legislation. The facts found point to an imperfect transfer of information in the company. Information obtained from quality monitoring is only transmitted at the product level, where it can also be a source of innovation. Another level that can open new impulses in the area of organization and logistics in society cannot be directly influenced by this information. Although the company follows the development of legislation and standards, their influence is adapted passively in order to meet them and not to actively transform their content sense into a potential opportunity. However, we must say that it is also very demanding from the point of view of the sector in which the company operates.

5. The Area the Logistics

The company considers it too risky to optimize its supply and distribution channels. Distribution channels are not evaluated by the company and therefore cannot compare their effectiveness. They consider them unchangeable. This may lead to an increased risk of the decisions taken, which is mainly due to a lack of time to carry out sound analyzes. The results show that it is a company with a continuing line of organizational structure and without a properly functioning information system. From the logistics perspective, the company intends to remain on its existing logistics connections. This can only be afforded if it is part of a product chain for a product that has a privileged position on the market. Otherwise, the company is at risk of losing its future competitiveness. In the company, it is possible to monitor the benefits of innovations received in logistics in financial management analyzes. However, this is possible only after a certain closed period, or without the possibility of actively influencing the course of innovation implementation. However, we must state that this area is equally specific, and the collection of strategic commodities is ensured by long-term customers on the basis of long-term contracts and partnerships. The production of fresh meat and meat products is on sale within a radius of 50 km from the company.

6. Area of the Organisation and Human Resources

In the area of organization and human resources, the company has a system for collecting employee information and can continue to work with this information. But working with information is not more specific. Freedom in the way we respond to the information we provide provides room for formalism. Emphasis is placed on professional and professional growth of employees. The company gives its employees the opportunity to realize their expertise and thus bring benefits to the company. The climate for creativity and innovation development is most favorable here. Resolving workplace conflicts is the responsibility of the closest manager. According to its nature, it depends on whether the conflicts will be uncompromisingly suppressed or analyzed and solved. Given the hierarchy of working relationships, it is most common that top-level management of conflict is not informed, thus limiting the scope of the causes of conflict as opportunities for change in society. It actively seeks to involve workers in the use of information transfer capabilities implemented by the information system. It is not clear from its setup whether it is possible to evaluate the efficiency of the information transfer and how much time the worker spends while working with the information. The company is trying to build its image in public. The attitude is wrong in that the growth of management is separated from the growth of the company's employees. This difference is then perceptibly perceived and reduces the degree of identification of workers with society.

Conclusion

It is important to realize that entrepreneurship and especially innovative entrepreneurship is above all a way of thinking. It includes the motivation and ability of an individual either alone or within an organization to identify opportunities and track them to create something new or to achieve economic success. It requires creativity or innovation, to enter and compete in existing markets, or to change or even create new markets. For a business idea to be successful, it is necessary to link creativity to innovation with solid management. There must also be the ability to adapt the business to the optimum course of project implementation. This goes beyond everyday management: economic ambitions and strategies. As Braha, Quineti & Serenčėš (2015) claim, competitiveness is one of the major benefits that innovation generates. The main deficiencies of the Slovak competitiveness are related to the areas where the governmental

influence is dominant.

The investigation also shows that medium-sized companies try to systematically improve their position. As the results show, they are largely successful in their efforts. Small businesses have problems. However, their problems are because of their lack of resources. As they say, "if we had the money, it would be better". Unfortunately, the money will not solve all the problems of small businesses. The survey revealed yet another circumstance they "blame" the lack of resources on failures in human resources, marketing, strategy, and planning, etc.

The article shows how it is possible to evaluate the company's readiness to implement innovative projects. The methodology developed includes an evaluation of preparedness in the following problem areas: Strategy, Marketing, Technological Process, Quality, Logistics, and Human Resources. With this methodology, it is possible to evaluate individual companies and, thanks to subsequent benchmarking, point to areas that can cause major problems in implementing innovative projects. By using the partial indicators part of this research, it is possible to identify specific problematic nodes in relation to innovation projects. The rating also shows the company's strengths in relation to innovation. The Case Study of selected agriculture company X shows that however results of the questionnaire and used methodology of analyses are non- innovative potential for the researched company, the company has few positive characteristics, and the charismatic leadership and management building company's culture. The researched company operate in the specific area of business and the company is one of the most important employer in the region.

References:

1. Benešová, D., Kubičková, V., Michálková, A., Krošlákova, M. (2018). *Innovation activities of gazelles in business services as a factor of sustainable growth in the Slovak Republic. Entrepreneurship and Sustainability Issues, Entrepreneurship and Sustainability Center, 2018, Vol. 5, Issue 3, pp. 452 - 466. [https://doi.org/10.9770/jesi.2018.5.3\(3\)](https://doi.org/10.9770/jesi.2018.5.3(3))*
2. Braha, K., Quineti, A. & Serenčes, R. (2015). *Innovation and economic growth: The case of Slovakia. In: Visegrad Journal of Bioeconomy and Sustainable Development. Vol. 4, Issue 1, pp. 7-13.*
3. Bresnen, M., Edelman, L., Newell, S., Scarbrough, H., & Swan, J. (2003). *Social practices and the management of knowledge in project environments. International Journal of Project Management, Vol. 21, Issue 3, 157-166.*

4. Davies, A., & Hobday, M. (2005). *The business of projects: Managing innovation in complex products and systems*. Cambridge, UK: Cambridge University Press.
5. European Commission (2018). *European Innovation Scoreboard 2018*. Available at: [http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en_\(accessed 5 May 2019\)](http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en_(accessed 5 May 2019))
6. European Commission (2019). *European Semester: Country Reports*. Available at: [https://ec.europa.eu/info/publications/2019-european-semester-country-reports_en_\(accessed 5 May 2019\)](https://ec.europa.eu/info/publications/2019-european-semester-country-reports_en_(accessed 5 May 2019))
7. Koren, R., & Palcic, I. (2015). *The impact of technical and organisational innovation concepts on product characteristics*. *Advances in Production Engineering & Management*, Vol. 10, Issue 1, pp. 27-40.
8. Markechová, D., Stehlíková, B. & Tirpáková, A. (2011). *Štatistické metódy a ich aplikácie*. Nitra: Univerzita Konštantína Filozofa v Nitre. 534 p. ISBN 978-80-8094-807-8.
9. Shenhar, A. J., & Dvir, D. (2007). *Reinventing project management: The diamond approach to successful growth and innovation*. Boston, MA: Harvard Business School Publishing.
10. Stehlíková, B. (2004) Fuzzy zhluková analýza ako prostriedok hodnotenia rozdielov. In: *Štatistika a integrácia, 12. Slovenská štatistická konferencia*, Bratislava, 2004, Slovenská štatistická a demografická spoločnosť, p. 165-169, ISBN 80-88946-37-9
11. Štatistický úrad Slovenskej Republiky (ŠÚSR). (2018). *Innovation activity of enterprises in the Slovak Republic 2014 – 2016*. Available at: https://slovak.statistics.sk/wps/wcm/connect/252f80f5-0daf-49c5-b315-5a296e69dad/Inovacna_aktivita_podnikov_v_Slovenskej_republike_2014_2016.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-252f80f5-0daf-49c5-b315-15a296e69dad-munA5VE (accessed 5 May 2019)
12. Vacek, J. (2003). *Hodnocení inovačního potenciálu firmy (manuál)*, ZČU Plzeň Available at: <http://www.kip.zcu.cz/USME/dotaznik.pdf> (accessed 3 April 2018)
13. Winch, G. M. (2014). *Three domains of project organising*. *International Journal of Project Management*, Vol. 32, Issue 5, pp.721-731.
14. Slovak Republic towards green economy. 2016. Slovak Environmental Agency. Available at: https://www.enviroportal.sk/uploads/files/zelene_hospodarstvo/zelene_hospodarstvoSR.pdf (accessed 5 April 2019)
15. Krchova, H. (2019). *Evaluation of the company's readiness to implement innovation in Slovakia*. In. *the International Conference on "Modern Challenges and Prospects of Science and Education"*, Tbilisi 10 May 2019 (in the print)

Eisingerné Balassa Boglárka

PhD., Assistant Professor

Rámháp Szabolcs

Assistant Professor

Széchenyi István University

(Győr, Hungary)

**INNOVATION
DEVELOPMENT METHODS
FOR SMALL- AND
MEDIUM-SIZED
ENTERPRISES BASED ON
THE TRENDS /
REQUIREMENT OF
INDUSTRY 4.0**

INTRODUCTION

The role of small- and medium-sized enterprises (SMEs) has been appreciated worldwide for the previous one or two decades. It was mainly the large enterprise processes that intensified the economic role of SMEs as in global competition only those big companies were able to survive that – to decrease their costs – outsourced a majority of their activities to foreign markets. “It is also a characterising change that while earlier SMEs operated almost only in the local economy, mainly in residential services, nowadays we can also see SMEs entering the global market, especially in case of innovative business services based on digital network. SMEs nowadays play an increasingly determining role in the development of an area. Recognizing this, forcible political efforts have been seen for the past decade to strengthen the competitive advantages of SMEs.” (Buzás et al., 2003, p. 5.)

According to the new trend of SME development, “competitive disadvantage should not be compensated with income transfer, but the competitiveness of enterprises deserving support must be strengthened”, so instead of a market replacement model the market developing model is effective. (Buzás et al., 2003)

For the past few years an intensive development work has begun at Széchenyi István University to effectively cooperate with SME sector as well as to reach favourable synergy effects as a result of the joint work. The foundation-stone of the University’s Centre for University-Industry Cooperation (henceforth the Hungarian abbreviation, FIEK in used) was laid down in July 2017. The project contained three main development elements. The Management Campus (MC) building (total area is 2514 m²): the three-storey building provides space for one large and several smaller lecture halls, offices and the previously requested creative

places. The Packaging Testing Laboratory (total area is 759 m²) is basically a technology nature building during the designing of which it was a main aspect to design it in accordance with functional efficiency, and to which a two-storey office part is connected. Finally, the Testing-Bench Building (total area is 1464 m²).

The Management Campus of the University as a research and education institution was established in January 2018, and forms an independent competence centre. Its purpose is to create original and pointing forward scientific results as well as to disseminate them in international publications by researching and analysing product development and organizational development problems at the level of both large companies and SMEs. All these have come true by the funding of Economic Development and Innovation Operative Programme (henceforth the Hungarian abbreviation, GINOP in used).

This project aims to accomplish two constant results: (1) from the part of the Centre for University-Industry Cooperation (FIEK) the final aim of the project is to develop a service portfolio for SMEs which fits to local economic environment and which is a complex product-package of the university that works as an industrial order and which includes training, product and organizational development services. (2) The Management Campus as a research and education institution creates original and pointing forward scientific results and disseminates them in international publications by researching and analysing product development and organizational development problems at the level of both large companies and SMEs.

The synthesis and the synergic effect of the two results ensure the formation of the international competitiveness of SMEs as well as the close and long-term sustainable cooperation between industrial-economic actors and higher education.

The research projects of the Management Campus are aimed to create original scientific results targeting high international levels. Within the frames of FIEK GINOP project, the subproject aiming at the development of SMEs focuses on the development of SMEs' innovation ability the key elements of which are the followings: (1) university lecturers generate innovation projects in cooperation with SMEs, (2) business case studies and pilot projects come true, (3) innovation ability and leadership development trainings will be introduced.

The aim of the "Innovation Workshop" is to cooperate with the small- and medium-sized enterprises of the area, to find innovative solutions to actual corporate problems, to come to know the corporate

culture, to get practical experiences for university students and lecturers, to use the learnt subjects, and to work in interdisciplinary teams. The task of the Innovation Workshop is (1) to support the international competitiveness of SMEs; (2) its means: education, research, training, consultation, information, building business relations, communication for the SMEs of the region. All these can come true by the introduction of new, innovative research methods and by the involvement of the SME sector.

In our present study we introduce the industrial environment in which Hungarian small- and medium-sized enterprises must hold on. We present in details the philosophy and the requirements of industry 4.0 as well as the requirements related to small- and medium-sized enterprises. We introduce the Lean Service Creation method which we used in the innovation of small- and medium-sized enterprises within the frames of the Management Campus.

1. THE INDUSTRIAL BACKGROUND OF SMALL- AND MEDIUM-SIZED ENTERPRISES

Western civilization has experienced three industrial revolutions so far. Martin (2017) distinguishes these based on the technology that had the largest impact on economy. According to this, the first industrial revolution took place between 1760 and 1840 when the most important invention was steam-engine that exempted significant labour force with the mechanization of agriculture, and the joint effect of these two enabled the launch of mechanized industrial production. Mechanic weaving loom revolutionised textile industry. The second industrial revolution took place approximately between 1870 and 1914. The most important technological invention of that era was electric current and its extensive spread, which partly contributed to the spread of mass production. The third industrial revolution began between 1960 and 1970, which was the era of electronics, information and communication technology, and also that of automation of production. (Martin, 2017).

The importance of innovations based on these fields instantly became frank. Factors that are hard to define in numbers – e.g. creativity and qualification of workforce or the state of the environment gained a more and more important role in decision making. In summary, it can be stated that nowadays complex, interdependent site-decisions are made. (Filep et al., 2010)

After steam-engines, assembly lines and automation, now a new, fourth industrial revolution has been taking place. What makes it

different from the third industrial revolution is that physical machines and tools are connected to an information network and economic actors are integrated into a single, enormous, intelligent information system. (Czirják – Klemensits, 2018) So the fourth industrial revolution is triggered by the internet. Communication between humans and machines in Cyber-Physical-Systems is allowed through internet. (Brettel et al., 2014). Figure 5.3 illustrates the system of industrial revolutions.

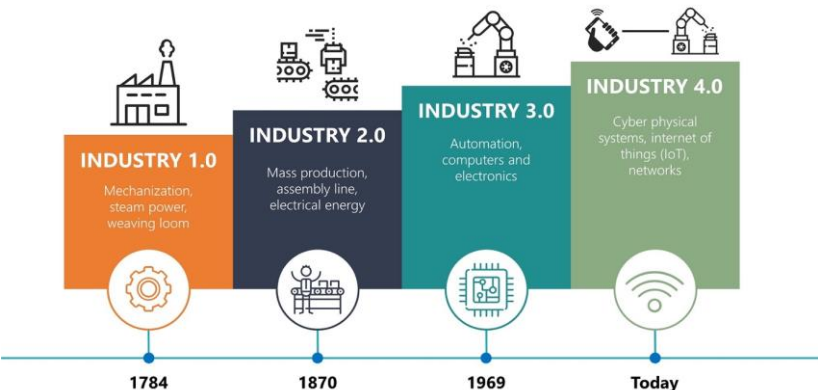


Figure 5.3 Industrial revolutions

Source: Trillium Network (2017)

As a result of the fourth industrial revolution, “work is taken by smart robots, and the modern technology which enables this is digitization, thus the “steam-engines” of this industrial revolution are cyber-physical systems and digitization. This briefly means that new scope of activities, new products, supply chains, manufacturing processes are born, information specialists and information knowledge will be even more valued. For that very reason, probably those economies will be the big winners that deal with high value-added digital production that requires a lot of investments. The new world will have different requirements related to future workers as according to the study of World Economic Forum, 5 million jobs may come to an end in the world until 2020 – however, there will be 2.1 million new ones as well. Of course, the terminating and the new jobs do not require the same skills, thus the education policies of the countries have a huge responsibility in training the competitive future workforce” (Husi, 2016,

p. 30.)

The originally German initiation has become the basis for the industrial development strategy of the European Union by now. (Davos-Klosters, 2015)

In a study, based on analysis conducted in 20 countries and 30 industrial sectors, published in 2013 the McKinsey Global Institute determined those twelve technologies that will have revolutionised the economy by 2025. These technologies are as follows:

- Mobile Internet
- Automation of knowledge work
- Internet of things
- Cloud
- Advanced robotics
- Autonomous and near-autonomous vehicles
- Next-generation genomics
- Energy storage
- 3D-printing
- Advanced materials
- Advanced oil and gas exploration and recovery
- Renewable energy (McKinsey, 2013)

According to Andrew McAfee, economist, much of the jobs we know today probably will be taken over by robots. (McAfee – Brynjolfsson, 2012) According to Tomorrow Today Global Institute, an American future research centre, in 2025 there will be no need for layers, private bankers, accountants, and even for soldiers sent to front line: robots and software will replace them. (Tomorrow Today Global, 2019) Besides new industrial sectors, the majority of the already existing ones will apply new technologies in the future, which will lead to the formation of new jobs.

Consequently, for the SMEs the most significant changes and challenges are the emergence of new technologies, the rapid development of info-communication technologies, the need of adaptation to new market conditions and the constant pressure of competition with new business models (Konczosné et al, 2018, p. 80.).

1.1. The response of the developed world: The Industry 4.0 perspective

Europe has lost a lot out of the weight of its industrial output during the past two decades. While in 1991 Europe accounted for 36% of world

industrial added value, by 2011 it was only responsible for only one fourth of it. The same trend could be observed in Japan and North-America, while developing countries doubled their industrial value-added output. In 2012 the industrial strategy of the European Commission set sights on reviving the decreasing role of industry in Europe, and increasing its ratio in GDP from 16% to 20% by 2020. Europe must create 500 billion euro added value and 6 million new industrial workplaces. (Európai Bizottság. 2012) Industry 4.0 is thus an opportunity for developed countries, as high level automation is one of the most effective ‘weapons’ against emerging countries competing with low wage.

The expression, Industry 4.0 derives from German speech area. This is a conception which gives responses to the challenges of the new revolution mainly by the full digitization of industrial processes. All these bring along the paradigm shift of business processes. As a result, this affects both big companies and the SME sector. (Czirják – Klemensits, 2018)

The flexibility in value-creating networks is increased by the use of cyber-physical production systems (CPPS). Within this machines and plants – through their own optimisation and reconfiguration – “gear their behaviour to changing orders and operating conditions. Cyber-physical systems – as the extensions of today’s mechatronic systems – are supplied with intelligent sensors to detect their environment as well as with actuators so that it could be influenced. What makes them different from existing technical systems is their ability to interact with their environment to be able to plan and accommodate their behaviour to this environment and also to learn new methods of behaviour and strategy as a result of which they optimise themselves”. (Ziegler, 2013, pp. 3-4.)

PwC has surveyed 2000 big companies worldwide about Industry 4.0, and the main conclusions are as follows: (1) companies will spend nearly 907 billion USD, approximately 5% of industrial income, on Industry 4.0, especially on sensors, network devices and software, however, 55% of investments will payback within 2 years; (2) companies expect an average 3.6% cost reduction, nominally a saving of 427 billion USD from the Industry 4.0 developments; and (3) a 2.9% increase of income, namely 421 billion USD. (PwC, 2018)

The achievements of Industry 4.0 are: (1) cyber-physical systems – horizontal as well as vertical integration, (2) internet of things (IoT), (3) internet of services (IoS), (4) smart factories – virtualization, decentralization, real-time capability, unique mass production,

modularity, service orientation, (5) Big data – structure data collection, web and content management, virtualization. (Brettel et al., 2014; Lee et al., 2014; Lee, 2015)

The achievements of Industry 4.0 highly change the future workplace. Quality management based on big data will appear, which will eliminate the quality diffusion among the manufactured products. Due to the spread of robot-supported production, the tasks of blue-collar workers will be taken over by smart devices with cameras and artificial intelligence. Because of autonomous logistics vehicles several machine-operators, drivers may lose their job. In the future manufacturers will become service-providers, so instead of selling their products they will support the use of their products with services and settings. Production line simulation enables the virtual planning of each manufacturing process without applying engineers for this task. (Martin, 2017)

1.2. Smart Factory

Internet has changed the society and cooperation for the past years, and facilitated the development of some industrial production systems, while robotics changes the industry as a whole by inducing factories and logistics platforms to perform and adapt at new levels. In the following years the joint work of humans and robotic machines will become a completely everyday phenomenon, thus eliminating education obstacles in this field is of importance.

One of the highlighted innovation fields of Industry 4.0 is Smart Factory which is built on internet as well as on the intelligent network of systems and machines. In the digital system, the communication between smart devices minimises lead times, awaiting times and the necessary human input as well, while it can work in such a complex system in product manufacturing which provides wider opportunities for manufacturing unique components and products. At the same time, a much larger selection of units can be made with a given amount of input, since the infrastructure of smart factory can handle the additional difficulty, namely the increasing information complexity. In the innovation conception creating the new generation of factories the following new requirements will appear for corporate governance, thus for production controlling and production management: (1) automation becomes possible in case of ever smaller series – in spite of this, human work remains an important part of manufacturing process, (2) production flexibility remains a key factor – companies must be prepared to be able to react flexibly in a shorter timeframe in the future,

(3) flexibility must be more targeted (“general / lump sum flexibility” is not enough any longer), (4) future includes intelligent data collection, data storage, data distribution – Big Data enable diverse evaluations, (5) the role and importance of decentralised management mechanisms has been increasing – nevertheless, a fully comprehensive autonomy of autonomous objects is unimaginable within reasonable time, (6) aspects of safety & security must be taken into consideration during the design of intelligent means of production, (7) the tasks of traditional production workers and knowledge workers are mixed, (8) production workers take over multiple product development tasks, (9) workers must be educated/qualified on-the-job for short-term, less predictable work activities. Among the technologies used by smart factories the followings can be found: (1) product lifecycle management (PLM), (2) manufacturing execution systems (MES), (3) industrial automation, robotics, (4) M2M (machine to machine) communication, (5) Big data analytics, (6) Cloud computing, (7) supervisory control and data acquisition (SCADA), (8) 3D visualisation, (9) 3D printing.

1.3. Intelligent factories in practice

Nowadays an excellent example is the factory of Siemens in Amberg (Germany), where the new innovation conception can be seen in practice. 1000 manufacturing units communicate with the use of web in the 108 thousand m² factory building. Siemens produces tens of thousands of product variations annually, while 75% of the factory’s 1150 workers work in IT system as the majority of the physical tasks was automated.

Audi applies Industry 4.0, especially the elements of smart factory method in its factory in Böllinger Höfe. 492 employees work in the 230 thousand m² factory building. Similar to Siemens, the majority of manufacturing work is done by machines communicating with each other, however, the conception of Audi treats the innovative use of human resource in the implementation of Industry 4.0 as a priority. Audi placed human factor as the implementer of the last steps in their innovative manufacturing process. Employees are on the last lap on vehicles and control the so-far done tasks. The experienced human resource complements the automated systems and also makes them more effective. In the last phase, the workers of the factory correct the small manufacturing defects deriving from fast mass production with micro millimetres accuracy, ensuring this way the high quality of their vehicles.

Mercedes applies an Industry 4.0 method which is similar to that of Audi, however, according to their statement, they intend to incorporate the essence of the conception into every element of the value chain, and not only into manufacturing processes. In connection with their factory in Rastatt it is interesting that they can retrieve the manufacturing data of any other factory building through the cloud-based system, including those of their factory in Kecskemét, and they adjust the production to the acquired data. Their project introduced in 2015, titled “Concept IAA”, presented the opportunities of Industry 4.0 beyond manufacturing. By harmonising physical and digital elements, they have been working on a vehicle which, as a smart device, is able to change its aerodynamic features according to specific needs.

As it can be seen, there are several examples of the adaption of smart factory innovation in Europe, especially in Germany, which is mainly due to the global competition. German economy intends to compete with the competitors’ advantages deriving from their cheaper workforce by increasing its quality, uniqueness and effectiveness. Nevertheless, nowadays there are examples of similar solutions in other continents as well, like the Chinese Huawei. Their Big Data-based solution significantly diminishes the maintenance costs of manufacturing. Through their developing Big Data technologies which they created to support manufacturing, new opportunities were created in the field of services as well. By using the developing solutions, they also provide remote device testing service some for products, increasing this way the consumer experience.

Other examples: General Dynamics, Honeywell, Mitsubishi Electric, Rockwell Automation, Schneider Electric, GE, Bosch, Dell Electronics.

1.4. Hungary and Industry 4.0

In Hungary Industry 4.0 initiative is still at the very beginning, we are rather below the average in preparation for this. Within the region, the Czech Republic and Slovakia outpace us, according to Roland Berger’s (2014) “Industry 4.0 Readiness Index” which is illustrated by Figure 5.4.

The government has determined some important purposes in the Irinyi Plan in favour of the digitization of industry: (1) domestic industry development must shift towards high value-added activities, (2) the expansion of innovation and digital transformation in certain industrial sectors must be encouraged, (3) domestic SMEs must be connected to these processes.

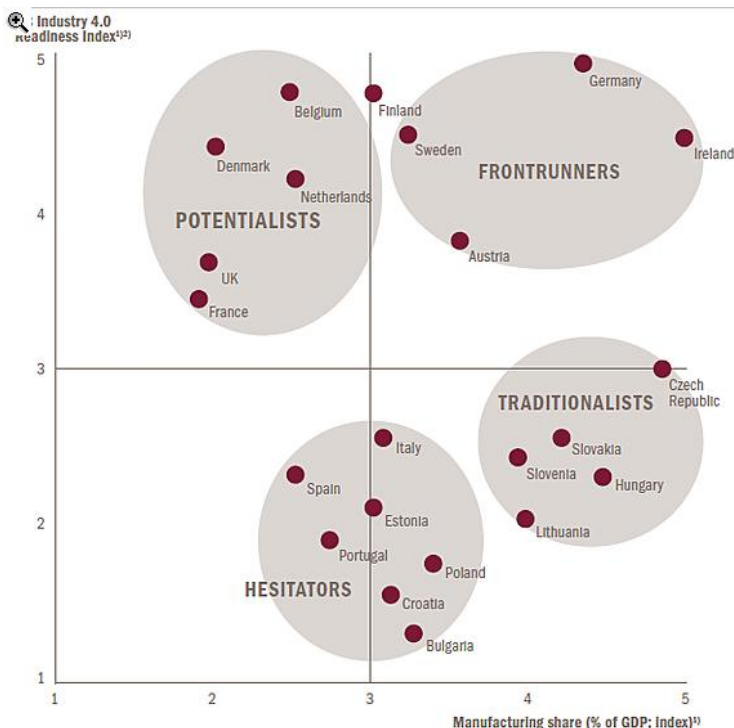


Figure 5.4 RB Industry 4.0 Readiness Index

Source: Roland Berger (2014)

“In May 2016 the Industry 4.0 National Technological Platform was founded with the participation of nearly 40 companies having domestic sites, research institutions, organisations and education institutions organised by the Ministry of Finance and the Hungarian Academy of Sciences Institute for Computer Science and Control with the active support and commitment of Hungary’s Government” (Simon, 2017, p. 493.). Today it operates as a legal entity in the form of association under the control of the Ministry for Innovation and Technology.

The Platform was founded as it was recognised that in the past years the industry in Hungary has entered a new technological era in which internet-based economy drastically changes manufacturing and the related logistics systems. This process expects the building of bridges between physical and digital world, special innovation adaptation, and faster responses to the challenges than ever before from economic

actors, especially in the key sectors of government industrial policy, but also from state economic policy and the institutions of innovation ecosystem. Among the stressed purposes of the Platform the followings can be found: (1) the recognition and dissemination of the strategic importance of Industry 4.0 paradigm among SMEs which, as suppliers of leading international big companies, have special importance in strengthening the competitiveness of the country, (2) the dissemination of digitalization technologies, (3) the development of the related skills, (4) expert activities, (5) the establishment of sample laboratory networks, (6) the facilitation of getting the best practices of Europe, especially the most developed German examples, (7) the elaboration of a qualification, which is recognised in state tender system and is based on an own methodology, for the Industry 4.0 readiness of industrial companies, (8) the facilitation of renewing the entire Hungarian training of professionals.

The theoretical and practical problems to be solved are so diverse that the cooperation of domestic university and research institute sphere with industrial companies is essential as well as international cooperation. This latter priority is in accordance with the current European trends.

1.5. Innovation and higher education

The transition to knowledge economy resulted radical changes in education. In the 21st century knowledge is a resource of strategic importance. Thus, higher education institutions dealing with the production, distribution and reproduction of knowledge have become the most important institutions of knowledge society. (Tamándl et al., 2014) “The carriers of knowledge are the institutions of higher education. Encouraging innovation and innovation have priority, because they contribute to development.” (Rechnitzer – Filep, 2010, p. 579)

Martin Trow (1974) examined the termination of the eras of higher education and linked it to the rate of participation in higher education. He defined the end of elite training with over 15% participation, which is followed by the era of general higher education. In case of participation with over 50% we can talk about mass higher education. According to the data of OECD (2018), in Hungary 30.2% of the 25-34 age group had higher education qualification in 2017, thus we can talk about general higher education in Hungary. Trow (2000) examined the problems of the transition to mass higher education. In the era of mass

higher education, the conditions for admission to higher education, the selection, the curricula, the form and methods of education, the form of examination, and the nature of available qualification have been changing significantly. But the students' motivations, the recruitment and the socialisation of lecturers, the standards as well as their enforcement, the moral questions, the student services, the support for job search, the funding, the institutional governance and administration, the relationship with secondary education, and the research for education also have been changing. According to Ildikó Hrubos (2014), the expansion of higher education had begun in the United States in the 1950s, however, it began a decade later in Europe. By contrast, in Hungary we can only talk about an increase in the participation in higher education after the regime change.

In traditional university models, higher education institutions have a dual role: "on the one hand, they perform their education tasks as the main activity, and on the other hand, they also take part in research tasks. This dual role could have emerged because these two activities could be done together in a more cost-effective manner due to the synergic effect of research and education." (Rámháp, 2017, p. 102.) Nowadays the role of higher education institutions has been revaluated all over Europe, and as a result of this, economic and social tasks with new approaches have been emerging. Nowadays the interrelation of society, universities and industry has an increasing role in economy. It stems from the new needs of knowledge economy that nowadays higher education does not only have to do education and research tasks, but new service functions as well. (Hrubos, 2012) Literature often titles the university model expanded with these functions as the expanded university model (Hrubos, 2004) or entrepreneurial (i.e. service-provider) university model (Clark, 1998), while new types of institutions are called third generation universities. Therefore, besides their traditional education-research functions entrepreneurial universities must also be the engine of economy. (Clark, 1998) The new roles of entrepreneurial institutions include the participation in innovation processes, conducting applied research, and providing other economic-business services. (Rámháp, 2017)

One of the most known models related to entrepreneurial universities is the Triple Helix model. The essence of the conception is that the tripartite relationship of the university, the economic organisations and the governmental organisations forms a complex innovation factor. The most important conclusion of the model is that the cooperation of all

three actors is needed for innovation. (Leydesdorff – Etzkowitz, 2000) Higher education institutions have a key role in the development of their region, not only through education and the reproduction of workforce, but also due to the strengthening of innovation, R&D activity and industrial relations, the establishment of cross-border international cooperations, the attraction of EU funds to the region, the enhancement of language knowledge, and the facilitation of mobility (Rechnitzer – Smahó, 2007) Nevertheless, innovation also affects the competitiveness of institutions, and the main aspects of competitiveness are: a paradigm shift in pedagogy in line with the needs of mass education, renewal of education methods, institutional excellence, innovation and research, keeping domestic talents, and the qualitative attraction of foreigners. (Barakonyi, 2014)

As for the domestic education system, according to László Palkovics (2016), minister for innovation and technology, two-thirds of the current students will work in a profession we do not know yet, and they have to learn new things several times in their lives. According to Zoltán Pokorni (2014), former minister for education, besides this, in the future the current students may as well work in ten or twenty different positions, in professions which do not exist at all now. One of the main challenges of the education system today is how students could be prepared for doing such tasks and solving such problems that we do not know yet.

2. THE LSC (LEAN SERVICE CREATION) METHOD

In our study and in the project work too we introduce the Lean Service Creation method which was developed and elaborated by Sarvas-Nevanlinna-Pesonen (<https://leanservicecreation.com>). This method is used as a proven method in more universities, and more student-corporate innovation project were successfully implemented by using this method. The elements of this method are scientifically based, and during its introduction we also mention the actual original sources. We describe LSC method and disseminate the practical experiences step by step, related to the method. As the method is available and downloadable, we encourage everyone to try it or to apply it to their own university image.

Lean Service Creation (LSC) method is a manual, an instrument with the help of which project-based education can be implemented effectively. The method helps its users efficiently organise and systemise their thoughts. It facilitates the simple way to find solutions,

furthermore, it provides help in structuring information and filtering useless information and solutions. LSC is an active method combined with movement, which suggests diverse actions and changes old mechanisms and way of thinking. The use of LSC forms a way of thinking and contributes to the change of attitudes, moreover, it distracts participants from their comfort zones.

The creators of LSC method think that their method does not only help generate innovations, but also affects the transformation of corporate culture. The method expects the leaders at different levels of leadership (both inside and outside the team) to bear the responsibility of their team (at upper-middle or team leader level too) and to be role models for colleagues. Colleagues trust them and follow them in everyday processes. They do not do so as they are below the leaders in hierarchy, but because leaders gain the respect of their colleagues with their good example.

LSC method is available and learnable for everyone. Its creators' aim was to generate effects, through its extensive use, not only at the level of innovations, but also at the level of team processes, corporate culture and social responsibility.

As we talk about an agile method, it means a simple, but eventful system for the participants. According to us, it highly contributes to the project not being boring, but full of turns, and in this way we can get to the solution with methods different from traditional ones. In our present innovation project, we looked for answers to several questions. LSC method is very useful to find new directions, and also to respond to business questions, to implement client-centred thinking, according to literature, while start-up companies may use this method to communicate their ideas structurally. LSC method has proved to be very effective in case of multidisciplinary teams. As the method can be followed easily, step-by-step and forms a joint methodological platform within the team, the knowledge content and competencies inherent in team members can be effectively identified.

2.1 The detailed introduction of LSC innovation method

We introduce the steps of LSC method in details below. These steps can be followed easily by SMEs and can be applied effectively in their innovation processes.

1. Immersion

At this stage – before the actual innovation work begins – several questions need to be answered. Innovation work strongly builds upon

ideas, and it is an important aspect not to impede or restrict brainstorming. However, immersion must happen right before starting brainstorming. In the multicultural team we look for answers to the following questions or topics: (1) the strongest assumptions regarding the customers' problems, (2) the analysis of competitors from the viewpoint of customers, (3) competitors outside their business field, market, (4) the potential start-up partners, (5) how to confuse your business, (6) important people who may help your enterprise, (7) inspiring services and products, (8) public debate in the topic. With the help of our questions proprietors could rethink their previous answers and solutions regarding their enterprises.

2. The data

After the enterprise was known in details, the data collection begins. For this, corporate data and secondary sources are also needed. During data collection it may be reasonable to ask the users of the product. At this stage we may get more ideas regarding the innovation of the product too, which we can test with the help of other partners in the future. During data collection, it is worth focusing on data related to the competitors besides user data, as potential competitive advantages become identifiable easily.

3. Customer grouping

The definition of customer groups may generate big debates within the enterprise. The refinement of customer groups may occur continuously almost during the whole project period. It is affected by the research carried out, in-depth interviews, and the comments received occasionally from the company. It is important to understand that customers' feedbacks should be further opportunities in the group, and not problems. This may give further ideas and inspirations to carry out innovation task.

4. Insight

We can find a different interview guide in LSC model to understand insight. At this stage it is very important to really understand customers' problems or motivations, to take these into consideration, and to build these into future development directions. It is also worth considering those group's ideas that are too unimaginable at first.

5. Ideation

At this stage the team dealing with innovation presents their potential ideas, concerns and questions by mentioning the pros and cons. For this we can use a worksheet based on customer problems. It is important to mention the pros and cons of the idea. Ideas must be approached entirely

from the customer's side. We had to be able to dismiss those ideas that were nice, but irrelevant from the customer's side.

6. Concept and value proposition

Project members choose the relevant concepts out of the collected ones together. Here not only the customers' aspects are taken into consideration, but the current potentials of the enterprise as well. In case of some marketable concepts it came up that the company could not implement them in its current structure. In this case, it is worth mentioning them and proposing solutions to these difficulties.

7. Profiling the concept

At this stage the so-far collected concepts need to be rethought. In the project work a talk was made (however, it is not a part of LSC model). Project leaders, the representatives, the leaders and the owners of the company were present in this talk. The participants of the innovation process were not allowed to use any means for the presentation, and their time was restricted (2 minutes/person, and 5 minutes for introduction). This event had lots of positive results: (1) external viewers could form opinion and ask questions regarding the work done so far, (2) the collected concepts can be rethought and we could evaluate them, (3) we could think about very composed reports and concise solutions due to the tight time frame.

8. Fake advertisement

This stage may slightly overlap the previous stages, but it is natural in case of the innovation process. Mainly the revision and the evaluation of online and offline communication must be thought about. Communication elements may become accommodated to the previously revealed customer expectations through thorough work.

9. Validation

This stage serves to face with concepts. According to the method, we must be very critical so that the best and most potential solutions could be elaborated. LSC highlights that the minimisation of costs is an aspect of importance. Customer groups are involved also in this stage to help evaluate the elaborated solutions. At the end of the stage, based on the incoming feedbacks, concepts and critiques, the group may decide which concepts they will use and which ones they will not use.

10. Customer

The good product is not enough to create and keep customer loyalty. For this, it is necessary to elaborate such complementary services to the products, which are able to keep and maintain customer satisfaction. The current and the future product users may share several concepts with use

at the stage of research. We must systemise these concepts and think over which ones could be implemented in the current situation of the company. Such ideas may arise which require the involvement of further partners for its implementation. LSC suggests the test of the services before their extension.

11. Business model and market size

According to LSC, when creating the business model, it must be taken into consideration who pays for who, which income model we create, what is the customer's price perception, how much they are willing to pay for the given product/service. How can we characterise this market and what other target markets can be? Here it is worth concentrating on both the domestic and the international markets.

12. Service blueprint

Service blueprint method is well-known from different management literature. This simple but effective method is not accidentally popular among theorists (Ostrom, 1972) and practical experts. Its usability is diverse. In this case, we used it to describe corporate processes. With the help of the model the internal erratic processes and the development potentials could become transparent (Osborne et al., 1992, 2013, 2014, 2015). As the model ensures transparency, it is relatively easy to find solutions to the problems occurred. Blueprint method examines the following aspects: (1) activities, (2) front office, contact points and activities, (3) back stage, internal processes, (4) supporting external processes. In terms of activities, we separate the steps of the process from the activities of the clients.

13. Concepting

This stage is about the actual implementation whether it is marketing, selling or product innovation. Here it is needed that participants should design and visualise the diverse concepts. It must be considered as well what path the customers and the potential clients will follow, to where they will arrive and from where, and through what steps. Process description which is modelled with the help of blueprint method can be a good basis for this. By using the process description, we are able to respond to the above questions. In LSC method a large – endless – worksheet, which provides opportunity for creating the concept, belongs to this stage.

14. Experimenting

At this stage, the project participants must review diverse sources, case studies, and data. These topics may get into the pieces of information from the viewpoint of business, customers or that of

technology. At this stage, we collect the best practices, and marketing research is conducted as well. It is important to reject those assumptions which are proved not to be true, and they should not be passed on the process.

15. Minimum lovable product

Literature mostly mentions it as minimum viable product (MVP), thus this is the first operating prototype that can be made in the fastest way. At this stage, the aim is to create a product which can be launched to the market as fast as possible by concentrating on the most important product features and by ignoring factors like design or secondary product functions. The aim is to get to the market as soon as possible, to test core functions in case of top buyers with whom joint pilot can be launched, the experiences of which can be channelled into the further phase of development (Lead user research). The question is what the key customer expects from the given product, because we will provide that. According to the LSC Handbook makers, MLP is a better term than MVP, because it emphasises what is that minimum product with which the customers fall in love. In case of start-up companies, it is expressed what is that product which is not nice-to-have for the customer, but pain category, i.e. it meets a need that is crucial.

16. MVP backlog

A so-called experienced commission tests the concepts at this stage. It means that a commission consisting of experts tests the concepts occurred as well as the conditions needed for implementation. The team presents it to the commission who comments on it. The commission tests the potential solutions, the target group, the competitiveness, and whether the development is in line with the clients. In the project it happened through more conciliations which we conducted with corporate professionals (mandators) and the project leadership.

17. What to measure?

We can measure many things about the success of a project. The elaborated concepts will become active and successful if we can prove them with indices. In LSC method basically three measurement criteria are taken into consideration: (1) regular value measurements among customers. Are those values that are really important for the customers conveyed? This question must be tested continuously. (2) The measurement of services. First of all, we do it in case of the most important product. What is the most important element of the product? How can we measure the satisfaction related to it? What suggestions can we make after the evaluation of the measurement? (3) Business

measurement. In this case we must step back to business purposes. What business purposes were determined at the beginning of the project? What was the basic business problem? Were we successful in implementing all these in the business plan? Answers to these questions are looked for. If in the plan there is a point which does not prove to be appropriate regarding the questions, we must re-evaluate them, or by chance revise them, or look for other instead of them.

All in all, it can be stated that LSC method lived up to the expectations. It mainly means that it gave an interesting project process that constantly looks for new challenges to Generation Y. With its provocative questions it did not let students follow the wrong direction, meanwhile, supported extensive and creative thinking. According to us, it is very important to make interim and end-of-project presentations. We definitely recommend that these should be built into the process. Although LSC method does not require to have constant contact with the commissioning company, we suggest it to student teams in some certain points. Nowadays it is a requirement of project procedures to provide relevant, active and useful solutions to companies. LSC is able to manage a student-corporate project. It does not overload the creative team with administration, yet it helps the advancement of the processes.

Moreover, LSC is superbly appropriate for managing innovation-type projects and framing concepts. It is easily understandable and effectively introduces the details of the project as well as its final results to the participating enterprises. If we want to give greater self-dependence to our multicultural team, it is also possible. We can even use it that we convey the main steps and requirements of the project to the team members, then we have the project members fill in the worksheets constantly. We may describe and discuss the worksheets in team discussions. Worksheets help determine the next steps and assist students' work effectively. Another great advantage of LSC method is the effective usage of time management. Nowadays the effective management of discussions means a challenge – in case of each project –, but LSC method enables it.

SUMMARY

The purpose of our study was to introduce an inspiring, project-based educational method. At the beginning of our research we discussed the Hungarian situation and challenges of small- and medium-sized enterprises. We also presented those tendencies which have an impact on SME sector. We introduced those mainly theoretical pieces of

research that establish and emphasise the importance of project-based educational methods.

We emphasised that the role of universities has changed by now, and they have to act as generators in the development and the innovation processes of SME sector. These challenges require new approaches from universities and lecturers. The above purposes cannot be implemented with traditional educational methods. The importance of project-based education has become more important with the appearance of Generation Y in higher education institutions. The member of Generation Y cannot be engaged for a long time with frontal educational methods. They need such active, agile and complex methods in which they can gratify their creativity and on-the-job abilities, and can improve their practical knowledge. After graduation students can effectively use the learnt and practiced project methods in the corporate sphere as well. Students who participated in project-based education can faster adapt to corporate processes in those companies where project methods are used. Students working for small- and medium-sized enterprises can bring new practices and methods to the life of the enterprise.

In our study we introduced an actual project-based innovation method which can be used for educational purposes and is based on agile methodology. This method is the Lean Service Creation the methodological description of which was shown. We presented an actual student project in which we used the above method, and with its help we solved an actual innovation tasks stemming from SME sector. This task involved significant challenges for the multicultural student team. However, the mindful project work and method helped divide the complex task into pieces and solve it in parts. Worksheets developed in the method belonged to each project step and project task, and these worksheets helped the team come up with a solution. Worksheets may as well be printed in size A3, and may be pinned to the wall of the project room, thus they can be seen at each stage of the project. The worksheets structure the innovation concepts, and give a frame to the work. According to us, this can also be a means of developing and teaching effective time management. In case of project-based educational activities students must step out of the usual educational methods and frameworks, which requires an open student team. In connection with LSC method we found it advantageous that it supports the formation of multicultural student teams. There is an opportunity for this at Széchenyi István University due to the diverse range of programmes. If the method is wanted to be used at a university where

the conditions for multiculturalism are not given, it is practical to create a project together with other universities.

LSC method can be used efficiently in generating and managing innovation processes. Therefore, it can be a useful means in the cooperation of corporate and student teams, but also in generating and implementing innovation processes within the company.

References:

1. Barakonyi Károly (2014): *Felsőoktatási versenyképesség és stratégia*, *Educatio* 2014/4. sz. p 555-566
2. Brettel, Malte – Friedrichsen, Niklas – Keller, Michael – Rosenberg, Marius (2014): *How Virtualization, Decentralization and Network Building Change the Manufacturing Landscape: An Industry 4.0 Perspective*, *International Journal of Information and Communication Engineering*, 8(1), p37-44 ISSN 1466 6642
3. Buzás Norbert – Kállay László – Lengyel Imre (2003): *Kis- és középvállalkozások a változó gazdaságban*, Szeged
4. Clark, Burton R. (1998): *Creating Entrepreneurial Universities, Organizational Pathways of Transformation*, IUA Press Pergamon, Paris
5. Czirják Ráhel – Klemensits Péter (2018): *GeoDebates: A negyedik ipari forradalom hatása a fejlődő világra*, Pallas Athén Geopolitikai Kutatóintézet. Letöltve: http://www.geopolitika.hu/hu/2018/03/12/geo-debates-a-negyedik-ipari-forradalom-hatasa-a-fejlodo-vilagra/#_edn1 (2019. 04. 29.)
6. Davos-Klosters (2015): *The World Economic Forum, Industrial Internet of Things: Unleashing the Potential of Connected Products and Services*, January 2015
7. Drájkó László (2014): *21 századi készségek*, Előadás, Széchenyi István Egyetem
8. Európai Bizottság (2012): *A bizottság közleménye az Európai Parlamentnek, a Tanácsnak, az Európai Gazdasági és Szociális Bizottságnak és a Régiók Bizottságának erősebb európai ipart a növekedés és a gazdasági fellendülés érdekében*. Brüsszel, 2012.10.10. COM(2012) 582 final
9. Filep Bálint – Földesi Péter – Csík Árpád: *Competitiveness of cities, searching for a model to optimize cities* In: *Acta technica Jaurinensis*, 2010. (Vol. 3.) No. 3. pp383-393.
10. Hrubos Ildikó (2014): *Expanzió – határok nélkül*, In *Educatio* 2014/2. sz. *Felsőoktatási expanzió*, p205-215
11. Hrubos Ildikó (ed.) (2004): *A gazdálkodó egyetem*, Felsőoktatási

Kutatóintézet–Új Mandátum, Budapest

12. Hrubos Ildikó (ed.) (2012): *Elefántcsonttoronyból világítótorony, A felsőoktatási intézmények misszióinak bővülése, átalakulása*, AULA, Budapest
13. Husi Géza (2016): *Ipar 4.0. Debreceni Egyetem Műszaki Kar*, <https://www.researchgate.net/publication/301607839>, Letöltés ideje: 03.03.2019.
14. Konczosné Szombathelyi Márta – Reisinger Adrienn – Ablonczyné Mihályka Livia – Rámháp Szabolcs – Bite Pál – Polster Csilla (2018): *Családi vállalatok: regionális beágyazódás és nemzetköziesedés. Prosperitas*, 2018(3), p. 77-96.
15. Lee, Jay – Kao, Hung-An – Yang, Shanhu (2014): *Service Innovation and Smart Analytics for Industry 4.0 and Big Data Environment*, *Procedia CIRP*, 16 p3-8, ISSN 2212 8271
16. Lee, Jay (2015): *Smart Factory Systems*, *Informatik Spektrum*, 38(3) p230-235, ISSN 0170 6012
17. Leydesdorff, Loet. – Etzkowitz, Henry (2001): *The Transformation of University-Industry-Government Relations*, In *Electronic Journal of Sociology*, 5(4)
18. Martin: *Industry 4.0: Definition, Design Principles, Challenges, and the Future of Employment*. Letöltve: <https://www.cleverism.com/industry-4-0/> (2018.04.30.)
19. McAfee, Andrew – Brynjolfsson, Erik (2012): *Race Against the Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy*. Digital Frontier Press, Lexington, Massachusetts
20. McKinsey Global Institute (2013): *Disruptive technologies: Advances that will transform life, business, and the global economy*. Online elérhető: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/disruptive-technologies> (2016. 08. 28.)
21. OECD (2018): *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris
22. Osborne, D. – Gaebler, T. (1992): *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*, Reading, Mass.: Addison-Wesley
23. Osborne, S. – Radnor, Z. – G. Nasi (2013): "A New Theory for Public Service Management? Toward a (Public) Service-Dominant Approach.", *The American Review of Public Administration*, 43(2), p135-158
24. Osborne, S. – Radnor, Z. – Kinder, T. – Vidal, I. (2015): "The SERVICE Framework: A Public-service-dominant Approach to Sustainable Public Services.", *British Journal of Management*, 26(3),

pp. 424-438

25. Osborne, S. – Radnor, Z. – Vidal, I. – Kinder T. (2014): “A Sustainable Business Model for Public Service Organizations?”, *Public Management Review*, 16(2) pp. 165-172
26. Ostrom, E. (1972): “Metropolitan Reform: Propositions Derived from Two Traditions.”, *Social Science Quarterly* 53, p474-493
27. Palkovics László (2016): Kerekasztalbeszélgetés a versenyképes oktatásról. II. Versenyképes Oktatás Konferencia, Budapest, 2016. október 11.
28. Palkovics László (2019): A 27. Magyar Innovációs Nagydíj ünnepélyes átadásán tartott beszéde, Magyar Innovációs Szövetség Hírlevele, 29(7) 2019. április 2.
29. Pokorni Zoltán (2014): A Tanárképzés és tanári életpálya – tapasztalatok, kihívások és bevált módszerek finn és magyar szemmel. Konferenciaelőadás, Finn Nagykövetség, Budapest, 2014. március 21.
30. PwC (2018): *Industry 4.0: Global Digital Operations Study 2018 - How industry leaders build integrated operations ecosystems to deliver end-to-end customer solutions*, Letöltve: https://www.strategyand.pwc.com/media/file/Global-Digital-Operations-Study_Digital-Champions.pdf (2018.05.01.)
31. Rámháp Szabolcs (2017): Felsőoktatási továbbtanulási motivációk Magyarországon a változó ifjúság és a piacosodó felsőoktatás tükrében, Doktori értekezés, Széchenyi István Egyetem, Győr
32. Rechnitzer János, Filep Bálint: *Position and Possibility of Large Hungarian Towns in the Hierarchy of the European Towns*. In: Manfred SCHRENK , Vasily V POPOVICH , Peter ZEILE (ed.) *REAL CORP 2010.: Cities for Everyone: Liveable, Healthy, Prosperous*. p.1384 Vienna, Austria, 2010.05.18 -2010.05.20. Schwechat: CORP - Competence Center of Urban and Regional Planning, 2010. pp. 575-580.
33. Roland Berger Strategy Consultants (2014): *Industry 4.0 -The new industrial revolution - How Europe will succeed?* Letöltve: <https://www.rolandberger.com/en/Publications/Industry-4.0—the-new-industrial-revolution.html> (2019. 05. 13.)
34. Ryan – O'Reilly – Luoma (2017): *Lean Service Creation*, Letöltve: <https://leanservicecreation.com/material/LSC%20Handbook%201.82.pdf> (2019.03.21.)
35. Sarvas, Risto – Nevanlinna, Hanno – Pesonen, Juha (2017): *The Handbook for Lean Service Canvases*, Letöltve: www.leanservicecreation.com (2017.05.15.)
36. Simon, János (2017): A negyedik ipari forradalom – Industry 4.0, In: *Államtudományi Műhelytanulmányok, A magyar tudomány napja a*

Délvidéken. https://www.uni-nke.hu/document/uni-nke-hu/WP_2017_19_A%20magyar%20tudomány%20napja%20a%20Délvidéken.pdf, letöltés ideje: 2019.02.14.

37. Tamándl László – Kovács Zsolt – Rámháp Szabolcs – Nagy Dávid (2014): *A felsőoktatás térbeli szerkezete az Észak-Dunántúlon*, In: *A városi rendszer működése: Közösségi szféra, oktatás és Győr jövőképe.* (ed.: Dusek Tamás) Universitas-Győr Nonprofit Kft., Győr, 2014 p104-134
38. *Tomorrow Today Global* (2019): *Tomorrow's world today: The disruptive forces shaping the world right now, and how we should respond.* Letöltve: <http://www.tomorrowtodayglobal.com/2019/01/29/tomorrows-world-today/> (2019. 05.13.)
39. Trillium Network (2017): *The rise of big data and industry 4.0.* Letöltve: <http://trilliummfg.ca/the-rise-of-big-data-and-industry-4-0/> 2019.05.15.
40. Trow, Martin (1974): *Problems in the Transition from Elit to Mass Higher Education. from the general Report on the Conference on future structure of postsecondary education, Carnegie fundation of higher education. Berkeley, California*
41. Trow, Martin (2000): *From Mass Higher Education to Universal Access, American Advantage.* University of California, Berkeley.
42. Ziegler, Stefan (2013): *PC-alapú vezérlés: „A dolgok internetének” ideális technológiai platformja Ipar 4.0 - megvalósítás ma, bizonyított vezérlési architektúrákkal,* [ttps://www.beckhoff.hu/hu/publications/pcc_0213_industrie40_hu.pdf](https://www.beckhoff.hu/hu/publications/pcc_0213_industrie40_hu.pdf), letöltés ideje: 2019. 03.06.

Nyéki Emőke

PhD Student

*Budapest University of Technology
and Economics*

(Budapest, Hungary)

THE PRICE OF GOSSIP

Gossip is present both in work life and private life, but it has rarely been a topic of management or economic research. As it is known, there is positive gossip and negative gossip, too. Marketing experts have tested and measured the effect of positive gossip and marketing strategies usually use this effect as one of the most effective marketing tool. At the same time the effect of negative gossip is palpable. The best employer reputation can become a victim of gossip, employee engagement may be low and turnover may be high if that is part of the organisational culture. There are some typical features of the meaning of gossip that are pointed out in our survey and the available data allow us to deduce the cost of rumour culture.

Market competition, the pursuit of business success, encourages employers to make their employees satisfied and committed to delivering the best performance. From surveys such as the Great Place to Work for All measures such as high levels of trust, credible and respectful leadership, pride in the work, and camaraderie come to light which are considered an important part of organisational culture by employees. Nowadays it is not enough to provide high salaries and motivational benefits but employees want high levels of trust and camaraderie with colleagues they spend a lot of time with. Relationship quality is the degree to which a relationship is characterized by mutual support, informal influence, trust and frequent information exchange. Direct information in the presence of all concerned increases trust and employee satisfaction. At the same time the informal exchange of information (positive or negative) about absent third parties means gossip. (Foster 2004) Employees who have a habit of gossiping with each other, for example, can be characterized as having a high relationship quality. Much of the literature on relationship quality pertains to supervisor-subordinate dyads or leader-member exchange theory, but one can also characterize peer relationships in terms of relationship quality. (Lee, 1998) Employees characterized by gossip

have more and closer working relationships. Much of the literature on the quality of the relationship relates to the theory of vertical work relationships, but in terms of the quality of relationships, they can be interpreted by the same level of the organization. (Dansereau, Graen, Haga, 1975) Those employees who have more important, accurate and less known information have higher reputational power and they have a greater ability to influence positive or negative judgment of others in the workplace. (Krackhardt 1990) The impact of gossip is influenced by the quality of the relationship between the participants in the communication. If the connection works at a high level of trust, the rumour confirms it. (Kurland and Pelled 2000) An important factor influencing the presence of gossip in the workplace is organizational culture, the leading values that determine the patterns of behaviour to be accepted and followed within the organization. (O'Reilly and Chatman, 1996) Regular, consistent, open and honest communication of managers discourages and eliminates the spread of gossip. (Smeltzer and Leonard, 1994) Nevertheless it is important to distinguish between positive and negative gossip. The most important difference is the effect. If we share positive information about someone who is not present and later becomes aware of the information given, it will bring joy. On the contrary, sharing negative information, especially if it is not real, means bad feeling, pain for the person concerned, who often does not welcome the negative rumour or the person who shared the information with others. Brain research (Eisenberger, 2012) has led to the conclusion that there is a so-called reward system in the brain, where joy measurement is induced. And this can be triggered by a chemical agent as a natural source of joy. In both cases, dopamine, the most powerful hormone that triggers pleasure is released. It can be such a natural source of joy when we feel physical satisfaction (security), we work together (togetherness), we have good news (important, valuable), we have fair treatment (trust), we help, we donate (we have security reserves = well-being). The brain's pain center is activated when we feel physical pain (lack of security) or feel excluded by our narrower or broader environment (lack of togetherness or attachment), which is an ancient fear of man, death in traditional ancient societies, mourning (loss), abandonment (unfair treatment), discrimination (we do not expect). The reason for this comes from ancient times when we were unable to survive alone. When we felt valuable and important, we felt that the community needed us. Belonging to the community was a promise of survival. The influence of the positive gossip still provokes the same reaction in the brain as in

ancient times: we are important to the community. Of course, the opposite is true. And there is another very important difference between the two kinds of gossip: while in the absence of the person concerned we share the positive information in the form in which it was said, we would not confess the content of the negative rumour or (make it different) distort it. The anonymous online questionnaire, which was completed by employees of Hungarian business enterprises, examined the opinion about rumours. The questionnaire was filled in by 224 businesses, each of them was a profit-oriented organization, and the distribution of respondents by size of company was determined as shown in Figure 5.5.

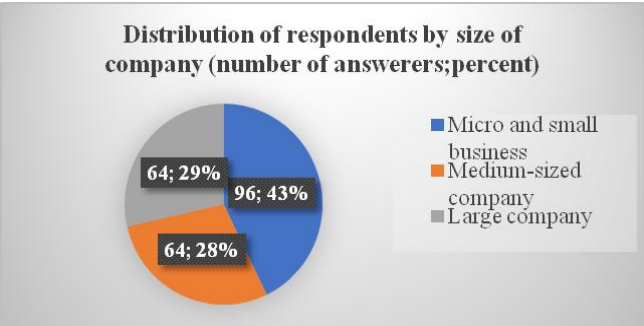


Figure 5.5 Distribution of respondents by size of company

In the questionnaire, respondents tick their level of workplace in the organizational hierarchy. Figure 5.6 shows the distribution

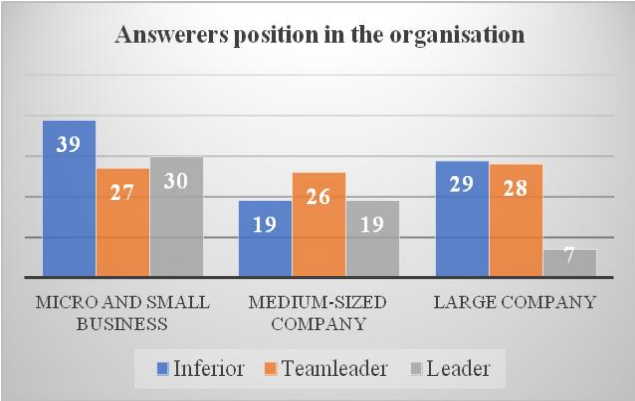


Figure 5.6 Answerers position in the organization

Our first hypothesis was that, with regard to rumour, we are more indulgent to ourselves and, in other words, we are more sensitive to the negative behaviour of others than if we were talking disrespectfully about ourselves. The first question was: *On a 1-10 scale, how true is it that you speak about others in their absence as they would in their presence?* The mean value of the first answers was 7, 491 on the scale of 1-10. The second question was: *On a 1-10 scale, how true is it for your organization that they speak about others in their absence as I would in their presence?* The answer to this question was 5,419 – this is lower than 2.071 as a response to individual behaviour. Our first hypothesis has been confirmed, respondents feel that although they do not always talk about what they would do in their presence, the situation in the organisation is worse than their behaviour. SPSS methodology was used to analyse the distribution of responses, the difference in behaviour within the organization and the perception of one's own behaviour, subtracting the value of behaviour in the organization from the value given to one's own behaviour. Table 5.2 shows the values obtained and their distribution.

Table 5.2

The difference between the perception of one's own behaviour and one's behaviour within the organization

		Frequency	Percent	Valid Percent
Valid	-6	1	0,4	0,4
	-4	1	0,4	0,4
	-3	2	0,9	0,9
	-2	3	1,3	1,3
	-1	12	5,4	5,4
	0	43	19,2	19,2
	1	22	9,8	9,8
	2	52	23,2	23,2
	3	36	16,1	16,1
	4	24	10,7	10,7
	5	11	4,9	4,9
	6	9	4	4
	7	6	2,7	2,7
	8	1	0,4	0,4
	9	1	0,4	0,4
	Total	224	100	100

Figure 5.7 shows the difference between the self-perception of behaviour and the perception of behaviour within the organization and the frequency of differences.

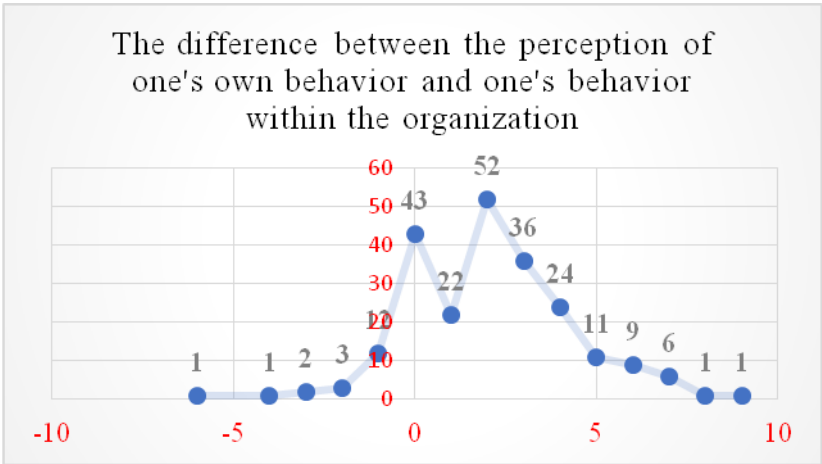


Figure 5.7 The difference between the perception of one’s own behavior and one’s behavior within the organization

The two figures clearly indicate that only 8.4% of the respondents were more critical of themselves than others, while half of the respondents on the 1-10 scale rated themselves 2-3-4 higher than others speaking in their absence as they would in the presence of those involved. Figure 5.8 shows the answers and their distribution to the question of how important it is for respondents to talk about others in their presence as in their absence. Compared to the normal distribution (0), the data show a peak of 1.67216.

On a 1-10 scale, how important do you think it is to talk about others in their absence as I would in their presence?

N	Valid	224
	Missing	0
Mean		8,8438
Median		9
Std. Deviation		1,67216
Minimum		1
Maximum		10

Figure 5.8

46% of respondents rated the examined behaviour 10 on a scale of 1-10, while 87.5% of them rated 8-9-10 at the time of their response – as shown in Figure 5.9.

On a 1-10 scale, how important do you think we should talk about others in their absence as I would in their presence?

	Frequency	Percent
1	4	1,8
3	1	0,4
4	1	0,4
5	5	2,2
6	5	2,2
7	12	5,4
8	36	16,1
9	57	25,4
10	103	46
Total	224	100

Figure 5.9

Our second hypothesis was that we consider behaviour to be more important than what we consistently do. When examining the responses received, examining the responses of each filler, the value given to individual behaviour was subtracted from the value given. Figure 5.10 shows that the average of the difference of values is positive, so our hypothesis was generally true. Respondents consider respectful communication in the absence of others an average of 1.3527 more important than their own in everyday life. The standard deviation of the responses is 1.8668, so the response deviation from the mean is low.

Importance – Individual behaviour	
Valid	224
Missing	0
Mean	1,3527
Median	1,0000
Std. Deviation	1,86680
Minimum	-7,00
Maximum	9,00
Sum	303,00

Figure 5.10

The following two questions concerned the impact of respectful behaviour in the absence of others on employee commitment and workplace atmosphere. The responses are shown in Figure 5.11, where it appears that respondents considered both effects to be strong.

On a 1-10 scale, how does this behaviour affect your employee commitment in your organizational culture? (either positive or negative)			On a 1-10 scale, how does this behaviour affect your workplace atmosphere in your organizational culture? (either positive or negative)		
N	Valid	224	N	Valid	224
	Missing	0		Missing	0
Mean		7,1696	Mean		7,5848
Median		8	Median		8
Std. Deviation		2,08298	Std. Deviation		2,03599
Minimum		1	Minimum		1
Maximum		10	Maximum		10
Sum		1606	Sum		1699

Figure 5.11

During the survey, the third hypothesis was that people who work in larger organizations, where many people work and have fewer working relationships or are in the middle of the organizational hierarchy were the most sensitive to the behaviour in the absence of others - they also considered it important for their subordinates and leaders to communicate respectfully in the absence of stakeholders. We examined the importance of responses according to the size of organizations and the position of respondents within the organization, looking for the answer to the question for whom is it most important to talk about others in their absence as they would do it in their presence? The result is shown in Figure 5.12.

If it happens to people who speak about others in their absence, as they would do in their presence, because they think this behaviour is important, that they experience something different in the organization and we accept the respondents' opinion that this affects their commitment and the atmosphere they experience in the workplace, it is possible that these people may leave the organization. Figure 5.12 shows that the middle management of large companies is most at risk.

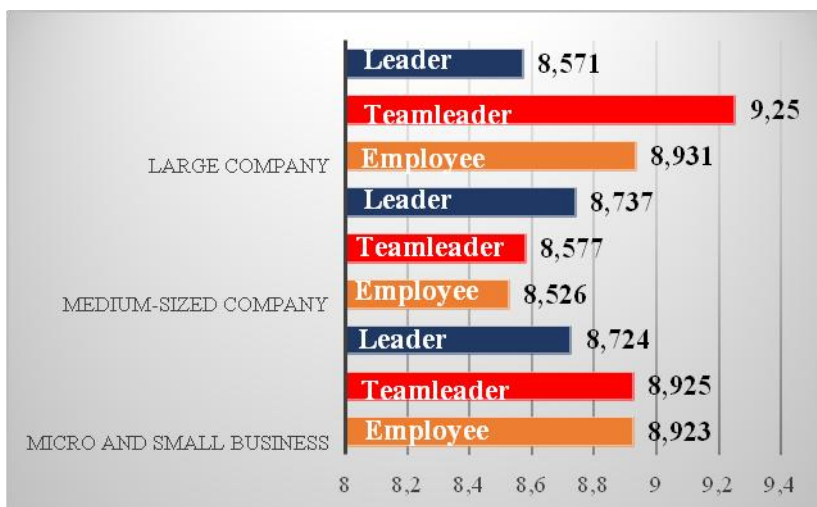


Figure 5.12

As the respondents were Hungarian workers in Hungarian organizations, we used Hungarian statistical data to determine the potential cost of this risk. In Hungary, the cost of turnover produced by a shift manager – irrespective of industry – is calculated on the basis of the average wage³¹ of 21700 EUR.³² Although we cannot assume that a team leader would leave the employer solely because of the frequent presence of gossip, however if we accept that it is important for the employees to have a respectful tone and consider it important or lacking, then one of the reasons for leaving the organisation can be gossip, leaving a significant cost to the employer. Restricting gossip by formal policies seems to be a very sensitive solution although some organisations tried to use this management tool.

So the cost of gossip is not visible in the balance sheet, although organizations can pay a very high price due to its presence. Regular, honest and conscious formal and non-formal communication is a rewarding investment by top managers and a solution to reduce the

³¹ <https://www.fizetesek.hu/fizetesek/menedzsment/muszakvezeto> Retrieved 27.05.2019

³² <https://evolutiongroup.hu/hr-evolution/fluktuacio-kalkulator/> Retrieved 27.05.2019

importance and frequency of gossip. At the same time leaders have to talk one-to-one with their colleagues who transmit (privileged) confidential information about others to anyone, and explain that they cannot be trusted by others and that their credibility will be questioned.

We must tolerate the fact that gossip is a genuine human habit. At the same time the question is worth considering if the employee's habit is in harmony with the values and culture of the organisation or not. If the answer is no maybe send-off/removal is the best decision. If managers understand the causes and costs of informal communication channels within the organization, the causes and results of gossip, it can help them develop an effective organizational culture, support managers' conscious behaviour and communication, and maintain high levels of trust with their colleagues.

References:

1. Dansereau, F., Graen, G., Haga, W. J. 1975. *A vertical dyad approach to leadership within formal organisations. Organisational Behavior and Human Performance*, 13: 46-78.
2. Eisenberger, N. I. (2012). *The pain of social disconnection: Examining the shared neural underpinnings of physical and social pain. Nature Reviews Neuroscience*, 13, 421-434. Eisenberger(2012)NatRevNeuro.pdf
3. Fehr D. and Sutter M 2016. *Gossip and the Efficiency of Interactions Discussion Paper No. 9704*
4. Foster, E. (2004). *Research on gossip: Taxonomy, methods, and future directions. Review of General Psychology*, 8(2): 78-99.
5. Kálmán A. (2016) *Learning – in the New Lifelong and Lifewide Perspectives TAMK University of Applied Sciences Tampere 2016 ISBN 978-952-5903-80-5*
6. Krackhardt, D. 1990. *Assessing the political landscape: Structure, cognition, and power in organisations. Administrative Science Quarterly*, 35: 342-369.
7. Kurland N. B and Pelled L. H. 2000. *Passing the word: Toward a model of gossip and power in the workplace Academy of Management. The Academy of Management Review*; Apr 2000; 25, 2; ABI/INFORM Global pg. 428 – 439.
8. Lee, J. 1998. *Maintenance communication in superior-subordinate relationships: An exploratory investigation of group social context and the „Pelz effect” Southern Communication Journal*, 63: 144-159.
9. Smeltzer, L. R., and Leonard, D. J. 1994 *Managerial communication: Strategies and applications. Boston: Irwin*
10. O'Reilly, C.A., III, and Chatman, J.A. 1996. *Culture as social control: Corporations, cults, and commitment. In B. M. Staw and L.L. Cummings (eds), Research in organisational behaviour*, vol. 18: 157-200. Greenwich, CT: JAI Press.

Petříček Martin

Ph.D. in Business Economics,

Assistant Professor

The Institute of Hospitality

Management in Prague

Chalupa Štěpán

Ing. in Hospitality Management,

PhD. Student

University of Hradec Králové

(Prague, Hradec Králové,

Czech Republic)

USING BUSINESS MODELING AND SIMULATION FOR HOTEL OPERATIONS INNOVATION (CASE STUDY)

Introduction

The modelling of hotel processes is becoming an essential aspect of business understanding and operations simulation with a focus on business optimisation or innovation. For a description of hotel processes, two different approaches are being used, service blueprinting and BPMN (Business Process Modeling Notation). (Kazemzadeh, Milton, & Johnson, 2015)

Service blueprinting is used for the understanding of current services, their innovation, and planning new services. The whole concept of service blueprinting was developed to let all the stakeholders understand process notation and its communication (Bitner, Ostrom, & Morgan, 2008). Service blueprinting focuses on customers interaction with a company, including all used technologies and employees. All the processes and contact point are noted to represent and understand the difference between firms and customers point of view (Alonzo-Helton, Fletcher-Brown, & Stephens, 2013) during product (service) delivery (Ojasalo, 2012). According to Fleiss and Kleinaltenkamp (2014), service blueprint consists of two dimensions. The horizontal axis that represents the chronology of activities conducted by service providers to service consumers and the vertical axis is being used to distinguish between different action areas. Figure 5.13 represents the notation of Hotel Stay using service blueprinting.

Using service blueprinting can lead to a better understanding of hotel operations, identification of error points and the possibility of addressing (and solving) the problems before they even occur.

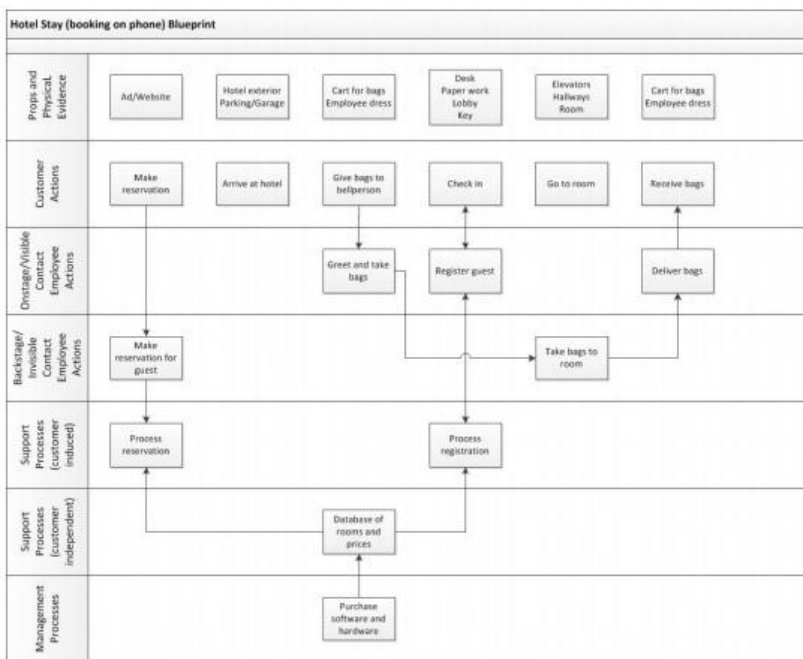


Figure 5.13 Service blueprinting – hotel stay (adopted from Kazemzadeh, Milton, & Johnson, 2015)

The whole notation can be as well used during hotel staff training to describe the complexity of hotel operations and connection of onstage and backstage activities with a focus on customer satisfaction. BPMN is, on the other hand, used to model the whole operations and to understand a firm's processes with a focus on the support of information and communication technologies and their impact on processes support and process automation.

When the service process is well described, modelled, it can be used within computer-based simulations. According to Render&Stair (1997), simulation and modelling are well-established techniques that duplicate appearance, features and characteristics of the business or other complex systems through and iconic models. According to Thompson & Verma (2003) simulation can replace wasteful and unreliable practice of verification of managers ideas through trial and error methods. Simulation can also be used to determine the best way to schedule and deploy hotel resources and to control the customer and material (resource) flow. Process simulation can be applied and used as

appropriate analysis tool if the system has one or more interdependent, random variables, the system dynamics are extremely complex and the objective is to observe system behaviour during a period of time.

Pegden, Shannon, & Sadowski (1990) describes simulation as one of the most powerful analytical tools available to managers for modelling complex processes and system and their performance based on real and forecasted data. Other authors (Cacic & Olander, 1999; Field, McKnew, & Kiessler, 1997; Palmer, 1999) are using Monte Carlo simulation for evaluation of hotel construction loans, buffet-style restaurant operations comparison and developing strategies for business development.

More extensive range simulation application can be found within hospitality management education and business games. Thompson & Verma (2003) describe several ways, how modelling and simulation can be used within hospitality management education. Authors distinguish between numerical and discrete-event simulation.

Only a few studies are focused on simulations use within the real hotel or restaurant operations. For example, Church & Newman (2000) are focusing on the simulation of a fast-food restaurant and its delivery services (processes), Parkan (1987) focuses on dissatisfied customers in a fast-food restaurant, and problem-solving processes, Swart & Donno (1981) are focusing on improving operations, planning and productivity of fast-food restaurant.

Based on previously mentioned outputs of other research papers and studies, using simulation can be beneficial if the operations of hotel or restaurant is highly standardized (fast-food restaurants, buffet-style operations etc.), using wide range of predefined rules and procedures. Using the same approach within hotel offering wide range of highly personalized services can be connected with the need big amount of data and their deep statistical evaluation.

Case study

Process modelling and simulation experiments can be used for supporting the managerial decision-making process within job activities optimisation, process planning and business processes redesign. Typically, business processing is being used for job reductions or on the other hand, employees' responsibilities development. Simulation of operations processes can support the following decisions. „What will be the output of process redesign? Where are risks and threats?“.

A used case study is based on the following situation. Manager of the four-star hotel located in the city centre of Prague is currently running a

hotel restaurant with very low occupancy. The goal is to decrease cost ineffectively spend on restaurant operations during lunch and dinner period, where no more than 10% occupancy is being reached. As the hotel is part of the hotel chain, the manager and his employees need to serve their clients not only during breakfast but they need to offer their clients the „hot meal“ during lunch and dinner period.

Following solutions were presented by the hotel manager as a base for process modelling, their simulation and redesign proposal. The hotel will reduce the operations of the restaurant to breakfast-only mode. During the lunch and dinner period, the meals will be arranged by the employee making simultaneously another job (porter) in the form of food delivery and service from the cooperating restaurant close to the hotel. The whole simulation should answer the question if the rearrangement of porters responsibilities can decrease the operating costs with maintaining the standard quality of guest service a guest satisfaction.

For modelling and simulation, Tecnomatix Plant Simulation software from Siemens was used. Partial processes connected with porters job description were modelled with respect to software specifics (discrete simulation). Figure 5.14 describes the notation of processes (activities) maintained by porter within selected system.

To run the simulation experiments, all the processes maintained by porter needed to be identified, described and measures. Following processes were identified and describes current state of art before simulation experiments (C in bracket means connection to customer, S stand-by activities with lower priority level).

- Clean-up (S)
- Security activities (S)
- Post services (S)
- Laundry (S)
- Break (S)
- Baggage care – service (C)
- Car Parking – Check-in (C)
- Extra Bed Preparation (C)
- Twin Room Preparation (C)
- Car Delivery – Check-out (C)
- Room Service (C)
- Car Delivery – during stay (C)
- Car Parking – during stay (C)

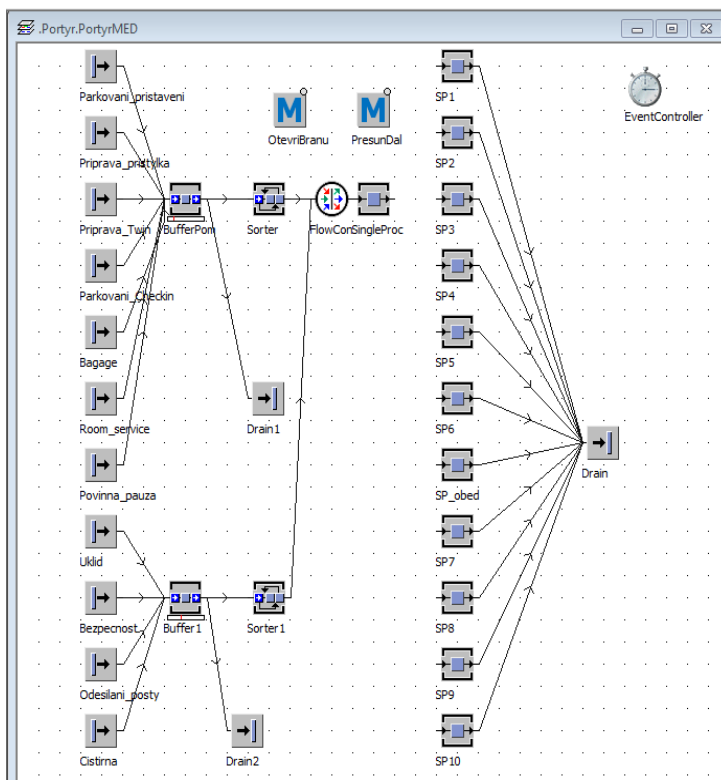


Figure 5.14 Notation of processes in Tecnomatix Plant Simulation

For all the processes, priority was set based on their effect on customer's satisfaction. The highest priority levels were assigned to processes directly connected to customer and planned services. Processes with low level of priority were queued after higher priority ones. For precise simulation, number of requests connected with presented processes was observed during the week to collect reliable data in low, average and high occupancy. According to hotel manager, the higher the occupancy is, the higher is the number requests for porter services.

Not only was the count of request observed. One of the key characteristics of processes is processing time. The minimum, average and maximum times were measured and the appropriate distribution model was fitted (within this case study, the normal distribution was

used). Processing times and distribution models were used as inputs for simulation experiments. Last characteristic, the request acceptance period, was directly connected with hotel operations. Figure 5.15 shows relative number of processed activities and their time consumption during 12 hours porter shift.

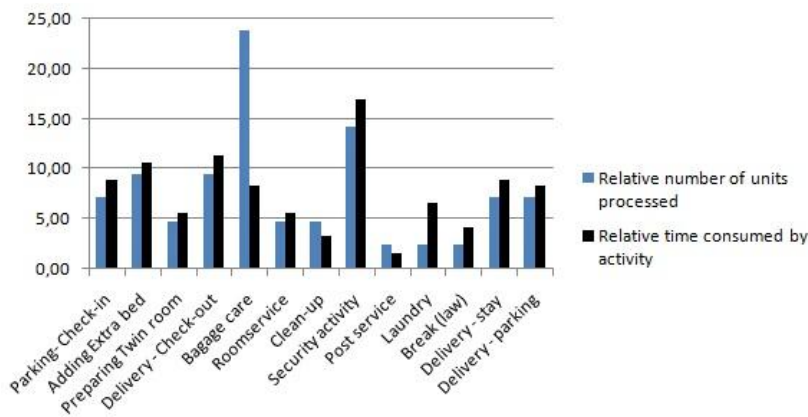


Figure 5.15 Relative numbers of processed units and time consumed by activities


These input data were collected from PMS system where evidence of customer request is being maintained. Data were later used for running simulation experiments to verify collected data and processing times.

Table 5.3 displays number of processed and unprocessed tasks after simulation experiments based on input data without food delivery and service. Presented data were confronted with the employee and hotel manager to verify model a simulation outputs, which very marked as realistic and reasonable. Occurrence of unprocessed tasks in low occupancy is caused by the maximum length of queue (which was set for 3). The tasks were processed by other employees outside the range of their responsibilities. These tasks represents possible decrease in hotel guest satisfaction, decrease in online reputation and later in revenue loss.

To run the simulation experiments with implementation of food delivery and service tasks, the whole process of these tasks were described and measured. Based on historical data of occupation of restaurant during lunches and dinners, the model was updated and simulation experiments were prepared for low, medium and high hotel occupancy.

Table 5.3

Count of processed and unprocessed tasks based on current situation

 Task	Number of tasks processed		Total number of unprocessed tasks		Total time consumed by activity	
	Low occupation	High occupation	Low occupation	High occupation	Low occupation	High occupation
Delivery - Check-out	4	7	1	2	1:21:10	2:22:23
Delivery - parking	3	4	—	—	0:59:16	1:25:07
Parking- Check-in	3	4	—	—	1:03:23	1:22:35
Delivery - stay	3	3	—	1	1:03:40	0:59:32
Adding Extra bed	4	3	—	—	1:15:52	0:58:17
Baggage care	10	9	—	3	0:59:56	0:53:59
Laundry	1	1	1	1	0:46:57	0:46:57
Security activity	6	3	—	1	2:01:47	0:45:55
Room service	2	2	—	1	0:40:01	0:40:01
Preparing Twin room	2	2	—	1	0:40:00	0:40:00
Break (according law)	1	1	—	—	0:30:00	0:30:00
Post service	1	1	—	—	0:11:13	0:26:13
Clean-up	2	1	—	1	0:23:59	0:11:35

The results shows, that number of unprocessed tasks increased by 4 (to 6) in low occupancy and by 5 (to 16) in high occupancy. Mayor problem is connected with the structure of these unprocessed tasks, where the porter is not able to maintain service tasks like security checks and laundry services as well as the maintenance of premises, as well as the tasks directly connected to consumer oriented tasks.

Conclusion

Presented case study shows the possible use of process modelling and simulation within hospitality industry not only for teaching and studying purposes, but as well for supporting managerial decision making based on real data.

Before running the simulation experiments the first valuable output was identified. Brainstorming, observation and simulation of current situation led to identification of processing errors and need for process redesign or service creation for ensuring high level of customer satisfaction.

Simulation experiments conducted after added tasks showed unfeasibility of intended processes and process redesign due to the conspicuous reduction of service quality. Strong reduction of labor costs (jobs reduction and concentration) led to prominent increase in

unprocessed tasks count, higher occurrence of maximum queues and decrease in customer satisfaction.

The outputs of simulations were respected by the hotel manager. New processes and process redesign was suggested to ensure smooth operations, minimization of revenue loss and ensuring appropriate level of consumer satisfaction.

Discussion

Research paper deals with process modelling discrete-event simulation of activities connected to porter job position. Results were successfully implemented in hotel operations. Simulation experiment directly supported decision making process of hotel manager.

Further studies and applications of process modelling and simulation should reflect following bottlenecks. Accuracy of abstract and simulation model and simulation experiment conditions settings.

The similarity of simulation model with real hotel (as perceived as a complex system) directly determines validity of the model and applicability of simulation results in hotel operations. As it can be seen in previous chapter of this study whole modelling is based on abstraction to current real system and some level of uncertainty. This problem can be affected by proper usage of statistical and mathematical models, but without considering extreme values and risks. Results of simulation experiments depend on used data and initial simulation settings.

References:

1. Alonzo-Helton, M., Fletcher-Brown, T., & Stephens, N. (2013). *Service Blueprinting. Parking Professional*, 29(1), pp. 26-29.
2. Bitner, M., Ostrom, A. L., & Morgan, F. N. (2008). *Service blueprinting: a practical technique for service. California Management Review*, 50(3), pp. 66-94.
3. Cacic, I., & Olander, R. (1999). *A hotel appraisal comparison study: Using the Monte Carlo simulation to find the probability range of project outcomes. Acta Turistica*, 11(1), pp. 57-70.
4. Field, A., McKnew, M., & Kiessler, P. (1997). *A simulation comparison of buffet restaurants: Applying Monte Carlo modeling . The Cornell Hotel and Restaurant Administration Quarterly*, pp. 68-79.
5. Fleiss, S., & Kleinaltenkamp, M. (2004). *Blueprinting the service company. Journal of Business Research*, 57(4), pp. 392-404.
6. Church, I., & Newman, A. J. (2000). *Using simulations in the*

- optimization of fast food service delivery. British Food Journal, 102(5/6), pp. 398-405.*
7. Kazemzadeh, Y., Milton, S. K., & Johnson, L. W. (2015). *Service Blueprinting and Business Process Modeling Notation (BPMN): A Conceptual Comparison. Asian Social Science, 11(12), pp. 307-318.*
 8. Ojasalo, J. (2012). *Constrasting theoretical grounds of business process modelling and service blueprinting. Proceedings of the 7th Global Conference on Business and Finance, 7, pp. 410-420.*
 9. Palmer, M. (1999). . *Get it right: Use Monte Carlo simulation when projecting hotel construction loans. Journal of Lending and Credit Risk Management, 81(5), pp. 38-45.*
 10. Parkan, C. (1987). *Simulation of a fast-food operation where dissatisfied customers renege. Journal of the Operational Research Society, 38(2), pp. 137-148.*
 11. Render, B., & Stair, R. M. (1997). *Quantitative analysis for management. Upper Sandle River, New Jersey: Prentice Hall.*
 12. Swart, W., & Donno, L. (1981). *Simulation modeling improves operations, planning, and productivity of fast food restaurants. Interfaces, 11(6), pp. 35-47.*
 13. Thompson, G. M., & Verma, R. (2003). *Computer Simulation in Hospitality Teaching, Practice and Research. Cornell Hotel and Restaurant Administration Quarterly, 44(2), pp. 85-93.*

Popek Biškupec Petra

PhD Economics, Senior Lecturer

University of Applied Sciences

Baltazar Zaprešić

Hercig Filip

spec.oec

Krakić Ana-Marija

univ.spec phil., Lecturer

University of Applied Sciences

Baltazar Zaprešić

(Zaprešić, Croatia)

**MANAGING
CHALLENGES AND
LONG-TERM
SUSTAINABILITY OF
START-UP PROJECTS –
CASE OF CROATIA**

Independence and potential financial benefits make entrepreneurship an attractive career choice. However, many people are reluctant to become entrepreneurs due to lack of formal education and professional experience, lack of capital or the risk of bankruptcy. For the unemployed, however, entrepreneurship is often a financial necessity which becomes a business challenge and a possibility of realizing one's own creativity (Česić i sur., 2006). Although there is no surefire recipe for success, two elements have surfaced as crucial: one must be different and one must innovate. An enterprise that keeps operating in the same way that it did yesterday runs the risk of not being here tomorrow. Although innovation probably is not the only way of creating value for customers, other companies and the community, it is in many cases the only way of survival on the market (Golob, 2009). A sustainable path for long-term growth is creating "a factory of innovations" which uses the lean start-up methodology to continually create breakthrough innovations. Lean start-up means that the organization was founded with intent to create new products and services in conditions of great uncertainty (Ries, 2011).

After starting a business it is really important to create a long-term sustainable business atmosphere and ensure stable sources of finance. Every entrepreneur has to constantly balance decisions about investment, financing and adequate asset management. Turbulent business environment requires both constant vigilance on entrepreneurs' part and continual search for innovative solutions in improvement of their business and production processes.

The sector of small and medium size enterprises (SMEs) is the most dynamic sector in all developed economies and it is the generator of development and economic growth. SMEs have a higher employment rate than large enterprises, they have a higher return rate on investment, and they are more innovative and flexible. On the other hand, SMEs have a high rate of failure, i.e. a short lifecycle, which can be explained by lack of adequate professional knowledge and skills connected with management, lack of experience and realistic judgment, inadequate use of marketing tools and lack of strategic goals and priorities for the development of their business. (Bošnjak, 2011)

At the moment, entrepreneurial environment in the Republic of Croatia is not favourable, which is clearly indicated by a high unemployment rate, growing outflow of human capital to economically more developed countries and inadequate use of EU funds. Additionally, entrepreneurial environment is further negatively affected by ineffective policies and development strategies for agriculture and tourism – the primary industries on which the development in the Republic of Croatia is based.

According to Česić et al. (2006) most people have a more or less pronounced need for self development, creativity and independence, i.e. they aspire to recognition in both professional and social sphere. One of the best ways to fulfil such needs is to start one's own business. However, running a business is a challenging operation and overcoming the challenges requires hard work and knowledge. As knowledge, innovation and information are crucial in today's environment, and demand is segmented into many specific areas, Česić et al. (2006) claim that finding a place on the market is much easier with a creative idea. "Entrepreneurship is a process of creating new value thorough different activities in which the entrepreneur identifies a business opportunity, starts and runs an enterprise, raises the capital necessary for realisation of the opportunity, manufactures the product, penetrates the market, sells the product, distributes the (newly) created value and indentifies a new business opportunity." (Brusić et al., 2009, p. 19)

"Start-up enterprises have limited business experience. Generally, these are newly-founded developing businesses in search of markets and ways to offer their products and services. In most cases they have a business idea, a business model, a prototype of a product or even a fully functional product. What they lack is primarily knowledge and experience of how to transform these into cash" (Nikolić and Zorić, 2014, p. 98.). According to Ries (2011), start-ups are founded to create a

new product or service in conditions of extreme uncertainty. Given their turbulent business environment, they must be adaptable in order to achieve long-term sustainability.

Based on existing practice and theoretical research there are certain common characteristics that contribute to the success of every start-up project. According to Levar and Nikolić (2012) the success of numerous start-ups is based on several key elements:

1) relationship with customers; the entrepreneurs must not only know the needs of their customers, they must also anticipate and create them, i.e., find out about customers' preferences and research their needs and wants. Starting a start-up in Croatia requires caution because the Croatian market is not big, however it has a potential for expansion to foreign markets, which means that it is necessary to build quality relationships with customers abroad and be familiar with their habits, attitudes and values.

2) simplicity of use of the product offered by the start-up; the number of options that a product offers is not as important as the fact that it solves a problem or satisfies a need that the customer has. The founders of the start-up should reduce the number of options in favour of simplicity of use. The potential path to success includes finding an option that consumers like and then sticking with it in further development of the product.

3) continuous investment in innovations; in today's modern business environment innovations connect new knowledge and economic growth.

Along with the above mentioned elements, there are certain skills and competencies that founders of successful start-ups also exhibit. Most prominent ones are the right choice of timing to start the venture, courage, persistence, estimation of risk and rationality in risk taking, high motivation, and knowledge and expertise in their chosen field of interest.

Many start-ups face great risk in their operation. Statistics show that on average only one third of start-ups are successful³³. In order to minimise the risk of operation, it is necessary to define potential problems and challenges that a start up is likely to face before embarking on a venture.

³³ De Franceschi, V. (2014) *Mirovinski fondovi imaju veliku ulogu u pokretanju startupova* (Pension funds play an important role in starting start-ups), available at: <http://www.poslovni.hr/startup-i-vase-price/mirovinski-fondovi-imaju-veliku-ulogu-u-pokretanju-startupova-281019>, [03/05/2019]

In 2018 the authors conducted a research entitled “The challenges of starting, developing and sustaining start-up projects in the Republic of Croatia”. The research was based on a sample of 200 respondents aged 24 to 50.

Table 5.4

Potential problems and challenges of start up projects in the current business environment

Problems related to operation of start-ups
High tax burden and tax policy with adverse effects on entrepreneurship
Overwhelming bureaucracy
Unavailability of information about financing possibilities and inadequate information about opportunities for grants
Inadequate contribution of elementary and secondary education in development of entrepreneurial competences of young people
Low transfer level of scientific research results to the business sector
Corruption
Challenges related to operation of start-ups
Overcoming cultural and social differences when entering the foreign markets
Lack of free time on the part of the entrepreneur
Source of additional stress for entrepreneurs and high level of uncertainty related to business operation
Market instability
Achieving financial literacy

Source: Authors' interpretation based on the conducted research entitled “The challenges of starting, developing and sustaining start-up projects in the Republic of Croatia”

According to the research, market instability, high taxes, overwhelming bureaucracy, uncertainty, stress and lack of free time, are the main drawbacks of embarking on an entrepreneurial venture, while the ability to independently make decisions and organise work, as well as the feeling of self-accomplishment are the main advantages.

Respondents stated that the most hindering factors were the adverse effects of the government’s tax policy regarding SMEs, poor support from public institutions, inadequate contribution of elementary and secondary education in development of entrepreneurial competences of young people, as well as low transfer level of scientific research results to the business sector. A research conducted by Singer et al. in 2017 yielded similar results.

Considering measures which would encourage entrepreneurship and stop the outflow of young people, entrepreneurs suggest lowering of

taxes and contributions on wages and salaries – lessening the burden of employers would enable them to raise the pay of their workers; in addition to that, they suggest higher incentives for young entrepreneurs, less bureaucracy and increased pay of people involved in professional training.

In spite of the stated problems and challenges, almost half of respondents (47,6 %) claim they would rather choose to start their own venture than work for an employer. Furthermore, there is a higher rate of those who have an intention to turn their hobby into a business in the next ten years, in comparison to those that don't. Similarly, a larger number of respondents is confident that they will invest their savings into their own start-up (39,6%), in comparison to those that have no such plans (25,5%), while the rest of respondents are neutral regarding that question (34,9%).

More than two thirds of respondents agree with the claim that they would rather buy domestic products because they find them to have better quality. This indirectly indicates that most respondents would buy domestic products, which represents another positive impulse to start a venture.

Overall, respondents have a positive attitude toward starting their own business. However, what they identify as a problem are considerable bureaucratic and administrative obstacles, complications related to the process of founding a company and lack of required knowledge and information. 38,5% of respondents confirmed that they were considering starting and developing their own business. They stated that, in spite of difficulties, they never give up and always keep looking of the optimal solution. They are also open to new technologies and innovative solutions.

Table 5.5

Elements of good business practice that ensure long-term sustainability of start-up projects

A good idea that the entrepreneur believes in
A trusted team of associates
Self-confidence
Creating a positive and creative work environment, positive and inspiring relationship with employees
Solid relationship with suppliers
Continual investment in innovations

Source: Authors' interpretation based on the conducted research entitled "The challenges of starting, developing and sustaining start-up projects in the Republic of Croatia"

Long-term sustainability depends on maintaining a consistent product quality level. The research helped identify several elements necessary for long-term sustainability of start-up projects. Relationship with customers based on mutual trust and respect emerged as the key element. After successfully launching a start-up, it is crucial to focus on developing strong customer relationships from the moment the start-up's product becomes available on the market – the customers' perception of the product will best promote the product and drive sales. Furthermore, fair relationship and communication are important for building trust.

Maintaining good seller – buyer, i.e., service provider – service receiver communication implies openness and fairness in discussing and dealing with any problems that may come up.

Relationship with employees is also vital for success. Long-term stability depends on creating and sustaining employee loyalty, and it is achieved by continually investing in talent through education and training.

Last, but not less important relationship for long-term sustainability is the relationship with suppliers. Transparency, openness and honesty in a working relationship lead to effectiveness and efficiency.

Another factor affecting long-term sustainability of start-ups is continual investment in product development. It is of crucial importance not to stop testing and improving the product even after it achieves success on the market. It is important to introduce new products, conduct market research and be aware of the needs of target customers in order to ensure that the product(s) and the company follow market trends and consumer preferences.

Finally, in order to succeed and achieve long-term sustainability, every business venture requires investment in knowledge, expert skills and product development. However, continual innovation of all the components of the business process has also become a necessity. In the modern business world it is no longer enough to focus on innovativeness of products and services, which was up to now considered to be the foundation for creating new products (and services). Today, it is necessary to change business processes and introduce new technologies, which means that in order to achieve long-term sustainability enterprises must continually innovate their business model (Golob, 2012). Innovation and motivation for continuous improvement guarantees success and sustainability of a business. If an enterprise operates on the principles of innovation, it can always and without high costs keep up with market trends and respond to requirements of the complex business environment.

References:

1. Bošnjak, S. (2011). *Poslovni inkubatori kao generatori razvoja poduzetništva. Praktični menadžment: stručni časopis za teoriju i praksu menadžmenta*, 2(2), 51-56. Downloaded from <http://hrcak.srce.hr/76452> (14/11/2017).
2. Brusić, A., Cvitanović, V., Gregov, Z., Kutnjak, V., Tomić, D. i Žanić, V. (2009). *Poduzetništvo 1 (textbook)*. Zagreb: Biblioteka Business Class
3. Česić, Z., Divić, J., Dulčić, Ž., Hajdaš, S., Horvat, Đ., Javorović, M., ... i Vulić, N. (2006). *Primijenjeno poduzetništvo*. Zagreb: Cera Prom, Split: Beretin.
4. De Franceschi, V. (2014) *Mirovinski fondovi imaju veliku ulogu u pokretanju startupova*, available at <http://www.poslovni.hr/startup-i-vase-price/mirovinski-fondovi-imaju-veliku-ulogu-u-pokretanju-startupova-281019>, [03.05.2019.]
5. Golob, B. (2009). *Inovacija od ideje do tržišta*. Rijeka: Dragon d. o. o.
6. Golob, B. (2012). *Inovacija poslovnih modela*. Enterprise Europe network. Downloaded from <http://www.step.uniri.hr/wp-content/uploads/2014/12/Inovacija-poslovnih-modela-Step.pdf> (27/12/2017).
7. Hercig, F., Popek Biškupec, P, Krakić, A. (2018) *Research: „Izazovi pokretanja, razvoja i održivosti start-up projekata u Hrvatskoj“, Zagreb, Septembar and October 2018.*
8. Levar, M. i Nikolić, M. (2012). *Inovacije i razvoj kao uzrok i posljedica poduzetništva. Učenje za poduzetništvo*, 2 (1), 64-68. Downloaded from <http://hrcak.srce.hr/130176> (6/4/2017)
9. Ministry of Regional Development and EU Funds (2016). *Strategija regionalnog razvoja Republike Hrvatske za razdoblje do kraja 2020. godine. Strategy of Regional Development of RoC for period until 2020* Nacrt 03. Zagreb: EIZ. Downloaded from: <https://razvoj.gov.hr/UserDocsImages/O%20ministarstvu/Regionalni...razdoblje%20do%20kraja%202020.%20godine.pdf> (2. 1. 2018.).
10. Nikolić, G. i Zorić, D. (2014). *Razvoj start-up kulture u Hrvatskoj u funkciji razvoja gospodarstva. Praktični menadžment: stručni časopis za teoriju i praksu menadžmenta*, 5(2), 98-102. Downloaded from <http://hrcak.srce.hr/135710> (31. 12. 2017.).
11. Ries, E. (2011). *Lean Startup*. Zagreb: MATE d. o. o.
12. Singer, S., Šarlija, N., Pfeifer, S. i Oberman-Peterka, S. (2017). *Što čini Hrvatsku (ne)poduzetničkom zemljom? Global Entrepreneurship Monitor Croatia*. Downloaded from <http://www.cepor.hr/gem-global-entrepreneurship-monitor/> (18. 10. 2018.).

Chapter 6

STATE AND REGIONAL POLICY OF MANAGEMENT INNOVATION DEVELOPMENT AND DIRECTIONS OF IMPROVEMENT

Bezpartochnyi Maksym

*Doctor of Economics, Professor at the
Department of Economics and Marketing,
Faculty of Soft Engineering and Business
National Aerospace University named
after N. Zhukovsky "Kharkiv Aviation
Institute"*

Britchenko Igor

*Doctor of Economics, Professor,
Faculty of Technical and Economic
Sciences
State Higher Vocational School Memorial
of Prof. Stanislaw Tarnowski in
Tarnobrzeg*

Jarosz Piotr

*Dr. Inz., Vice-Rector for University
Development
Higher School of Social and Economic*

Radochonska-Jarosz Renata

*(Kharkiv, Ukraine; Tarnobrzeg,
Przeworsk, Poland)*

MODERN APPROACHES TO FORMATION THE MECHANISMS OF MANAGEMENT AND REGULATION THE ACTIVITY OF TRADE ENTERPRISES

Formation the mechanisms of management and regulating the activity of trade enterprises ensure their increased competitiveness on the consumer market and development in the future. The conditions of operation the trade enterprises form a certain competitive environment, business activity of economic entities of the trade sphere, economic relations between the entities of the market infrastructure. Modern

economic relations, which are oriented towards social mechanisms, provide for the need to protect the interests of consumers, create civilized relations between trade partners, improve level the quality of service, development of trade processes, etc.

In our opinion, in modern conditions there is a need to improve these mechanisms, due to the following aspects:

- dynamics of macroeconomic indicators in the country and their influence on retail trade (formation of effective demand, satisfaction of ever-growing needs, improvement of the structure of sales of goods);

- changes in the growth rate of retail turnover and other economic indicators of certain sectors of the national economy (domestic production of consumer goods, the volume of imports of food and non-food product groups, the volume of agricultural production);

- acceleration of the innovation development of the retail sector, the intensification of trade enterprises (especially foreign trade networks), etc.

The sphere of trade as an object of management and regulation is a complex developing economic system with a large number of various elements, connections, relations. Important for management of the features of the sphere of trade are the multiplicity and a large variety of types and kinds of trade enterprises of various legal forms of ownership. The features of the trade should also include the probabilistic nature of a number of processes (supply and demand, assortment policy, pricing, purchase and consumption of goods, level of service), which makes it difficult to obtain the information necessary for management and regulation.

The process of management and regulation of trade enterprises is considered as a two-level organizational system, namely:

- macro level (in the scale of the territory, region, city) – characterized by government regulation of trade activity, focuses on the general problems of the formation of market trade policy, issues of economic and social development of the trade sector;

- micro level (level of a economic entity) – characterized by the creation and development of trade enterprises, the formation and effective use of the resource potential, the provision of quality trade services, including the implementation of a set of management functions.

At the macro level, the implementation of mechanisms of management and regulation the activities of trade enterprises should be aimed at:

creation of conditions for increasing business activity on the consumer market;

providing targeted support to trade enterprises;

the creation of joint socio-economic projects aimed at uniting trade enterprises;

developing and implementation of sales promotion programs for regional producers;

control of the activities of all participants in the trade process, ensuring rational distribution of shopping facilities in the region;

formation of an effective system to protect the rights and interests of consumers.

This level of management and regulation of activities will allow trade enterprises to form the most rational management decisions by issues on their own development, diversify various areas of their activities and ensure high efficiency of the final results of operations.

Management and regulation of the trade sphere should be focused on the strategic goals of development of the territories where trade enterprises is operated. At the same time, the main focus should be to ensure high rates of development of trade enterprises in a strategic perspective and increase their competitive position on the consumer market.

Given the above, we propose a mechanism of management and regulation of trade enterprises at the macro level, the scheme of which is shown in Figure 6.1.

The data in figure shows that the elements of the mechanism of management and regulation of trade enterprises at the macro level form a system of organizational-economic levers of activities the economic entities that allow them to effectively use their own resource potential.

We have presented the characteristics of the main elements of the mechanism of management and regulation of trade enterprises at the macro level.

State regulatory-legal management and regulation trade enterprises should be aimed at improving trade licensing requirements, legislation regarding consumer protection, regulating the rules for selling food and non-food goods in the retail network, tax regulation, and reorganizing trade enterprises taking into account the new organizational-legal forms of activity.

Information ensuring of management and regulation of trade enterprises is aimed at the formation of complete and high-quality information necessary for the preparation of sound management

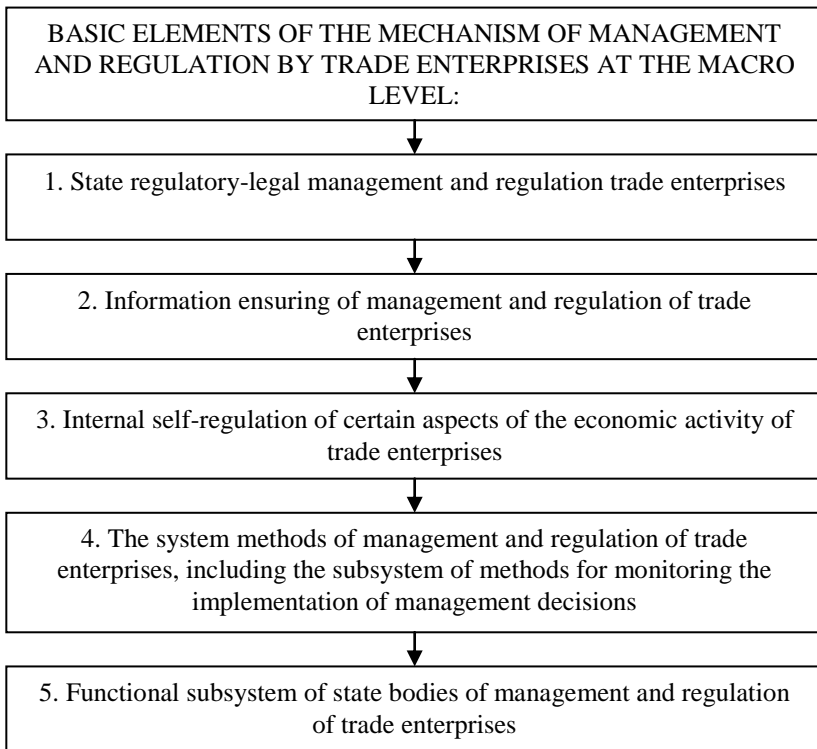


Figure 6.1 The main elements of the mechanism of management and regulation of trade enterprises at the macro level

decisions on all major aspects of trade activities. The system of internal and external sources of information should be based on the operational and statistical reporting of individual functional services of trade enterprises, indicators of conjuncture the consumer and other markets.

Internal self-regulation of certain aspects of the economic activities of trade enterprises is formed within the framework of the entities themselves, respectively, regulating certain operational management decisions. Thus, a number of aspects of economic activity can be regulated by the requirements of the charter of a trade enterprise. In addition, at a separate trade enterprise can be developed and approved a system of target indicators, internal standards and requirements for individual aspects of the organizational, economic and financial areas of its activity.

The system of management and regulation of trade enterprises, including the subsystem of methods for monitoring the implementation of management decisions, combines instruments for assessing the current state and effectiveness of the trade system management system. The composition of these methods is based on an extensive arsenal of methods of economic analysis of various aspects of trade activity and is determined by the organization of a monitoring system for the results of this activity.

Functional subsystem of state bodies of management and regulation of trade enterprises is a developed economic strategy – the most effective ways to achieve the long-term goals of trade enterprises through state regulators. The formation of such a strategy is based on the prediction of individual conditions of trade activity, the developing of scenarios for the development of trade enterprises, and alternative management decisions. The algorithm for the formation of the economic strategy of management and regulation of trade enterprises is presented by us in Figure 6.2.

Based on the data of figure, the proposed algorithm for the formation of the economic strategy of management and regulation of trade enterprises can serve as an element of ensuring the investment attractiveness of the entities of this sphere, as well as the territory. Such a strategy provides for the scale of the activities of trade enterprises; includes important indicators of marketing, economic and financial activities; amounts of financial resources and terms of return on investment; risks associated with the implementation of development strategy.

The economic strategy of management and regulation of trade enterprises should be consistent with the elements of the retail development program. In our opinion, the main points of such a program should be:

- organizational forms of functioning of trade enterprises;
- analysis and forecast of the consumer market situation;
- planned volumes and composition of trade turnover;
- planned nomenclature of additional trade service;
- security of trade turnover and trade service with material, labor and financial resources;
- financial plan and financing strategy;
- risk assessment and forms of their insurance;
- program implementation control scheme.

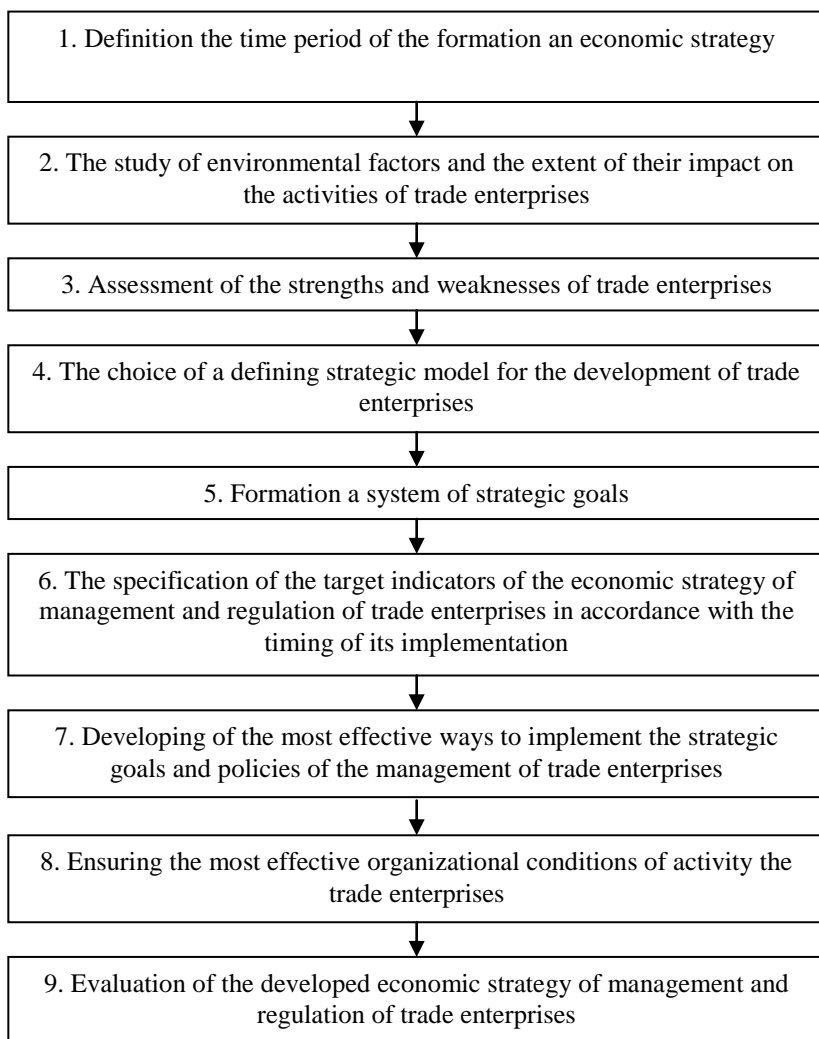


Figure 6.2 The algorithm of formation of the economic strategy of management and regulation of trade enterprises

Thus, the use of modern approaches to the formation of mechanisms of management and regulation the activities of trade enterprises allows us to develop an economic strategy, taking into account the macro and micro level of influence, which ensures the effective use of the resource

potential of entities trade sphere in order to meet the growing needs of customers, increases their business activity and competitiveness on consumer market.

References:

1. Bezpartochnyi M. *Methodological tools for assessing suppliers of trade enterprises. Formation strategy of economic structures: the tools and practices: [Collective monograph] / edited by A. Berezin, M. Bezpartochnyi.* Riga: «Landmark» SIA, 2016. P. 110–120.
2. Брітченко І.Г. Маркетинг у банках: навч. посіб. /Брітченко І.Г., Белявцев М.І., Тягунова Н.М.// Полтава: РВЦ ПУСКУ, 2008. - 345с.
3. Bezpartochnyi M., Živitere M., Riashchenko V. *Modern vision of effective functioning and development of tourist enterprises. Mechanisms and models of development of entities tourist business: collective monograph / edited by A. Berezin, M. Bezpartochnyi.* ISMA University. Riga: «Landmark» SIA, 2016. P. 8–14.
4. Брітченко І.Г., Момот О.М., Саєнко В.Г. *Економічні проблеми розвитку підприємницької функції в секторах економіки національного господарства / під наук ред. проф. Брітченко І.Г. – Донецьк-Полтава: ООО «Техсервіс», 2012. – 640с.*
5. Мікловда В.П., Брітченко І.Г., Кубіній Н.Ю., Дідович Ю.О. *Ефективність стратегічного управління підприємствами: сучасні проблеми та перспективи їх вирішення. - Полтава: ПУЕТ, 2013. - 240 с.*
6. Bezpartochnyi M., Živitere M., Riashchenko V. *The modern concept of operation and development of retail. Innovative approaches in the management of competitiveness of businesses: collective monograph / edited by A. Berezin, M. Bezpartochnyi.* ISMA University. Riga: «Landmark» SIA, 2016. Vol. 2. P. 8–14.
7. Брітченко І.Г. *Маркетинг менеджмент: новые решения / АА Шубин, РК Перепелиця, ГИ Брітченко. - Донецк: ДонНУЕТ им. М. Туган-Барановского, 2007. - 326 с.*
8. Bezpartochnyi M., Živitere M., Riashchenko V. *Use of cluster analysis to ensure the effective functioning and development of retail. Innovative approaches in the management of competitiveness of businesses: collective monograph / edited by A. Berezin, M. Bezpartochnyi, in 2 vol.* ISMA University. Riga: «Landmark» SIA, 2016. Vol. 2. P. 51–55.
9. Брітченко І.Г. *Преимущества применения новых кредитных технологий // Схід. – № 3 (53). – 2003. – С. 55–58.*
10. Bezpartochnyi M. *European model of consumer protection. Legal mechanisms to ensure the activities of economic entities: collective*

- monograph. ISMA University. Riga: «Landmark» SIA, 2016. P. 50–65.*
11. Брітченко І.Г., Князевич А.О. *Контролінг: навч. посіб. // І.Г. Брітченко, А.О. Князевич. - Рівне: Волинські обереги, 2015. – 280 с.*
 12. Князевич А.О. *Кластерний підхід до створення інноваційної інфраструктури країни / А.О. Князевич, І.Г. Брітченко // Науковий вісник Мукачівського державного університету. – Серія «Економіка». – Вип. 2(4). – Ч. 2. – 2015. – С. 24-28.*
 13. Bezpartochnyi M., Živitere M., Riashchenko V. *Management and strategies of financial activities of trade enterprises. Organizational and economic mechanisms of development of the financial system: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2016. P. 101–117*
 14. Брітченко І.Г. *Концепція виробничого менеджменту підприємства // Зб. наукових праць “Торгівля і ринок України”. – Випуск 12. – Том II. – Донецьк: ДонДУЕТ, 2001. – С. 31-36.*
 15. Bezpartochnyi M., Živitere M., Riashchenko V. *Specific features of personnel management system of trade enterprises. Theoretical, methodological and practical foundations of human resources management: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2016. P. 10–18.*
 16. Брітченко І.Г. *Формування системи державного управління інвестиційним процесом як головна передумова економічного зростання в Україні / Брітченко І.Г., Кужелєв М.А. // Вестник ДонГУЕТ- №12 - Донецьк: ДонГУЕТ, 2001. - С. 15-22.*
 17. Bezpartochnyi M., Živitere M., Riashchenko V. *Creating a marketing strategy on agriculture market. Formation of modern social, economic and organizational mechanisms development of entities agrarian business: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2017. P. 52–68.*
 18. Брітченко І.Г. *Вплив малого бізнесу на регіональний розвиток // Науковий вісник ПУЕТ. - № 4 (43) / 2010 – Полтава: ПУСКУ, 2010. – С. 15 - 19.*
 19. Bezpartochnyi M., Živitere M., Riashchenko V. *Organizational and legal aspects of free trade zone between Ukraine and the European Union /// Transformation of international economic relations: modern challenges, risks, opportunities and prospects: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2017. Vol. 1. P. 176–186.*
 20. Bezpartochnyi M., Britchenko I. *Development the wholesale enterprises region through business process reengineering. Transformational processes the development of economic systems in conditions of*

globalization: scientific bases, mechanisms, prospects: collective monograph / edited by M. Bezpartochnyi. ISMA University. Riga: «Landmark» SIA, 2018. Vol. 1. P. 10–22.

21. Bezpartochnyi M., Britchenko I., Jarosz P. *Reengineering business processes as a modern innovation of development wholesale enterprises region. Management of innovative development the economic entities: collective monograph / edited by M. Bezpartochnyi, I. Britchenko. Higher School of Social and Economic. Przeworsk: Wydawnictwo i Drukarnia NOVA SANDEC, 2018. Vol. 1. P. 10–24.*
22. Bezpartochnyi M., Britchenko I., Jarosz P. *Economic diagnostics in ensuring of competitiveness the economic entities. Conceptual aspects management of competitiveness the economic entities: collective monograph / edited by M. Bezpartochnyi, I. Britchenko. Higher School of Social and Economic. Przeworsk: WSSG, 2019. Vol. 1. P. 10–19.*
23. Rjashchenko V., Živitere M., Bezpartochna O. *Reengineering of business processes at enterprises of consumer co-operation. Conceptual aspects management of competitiveness the economic entities: collective monograph / edited by M. Bezpartochnyi, I. Britchenko. Higher School of Social and Economic. Przeworsk: WSSG, 2019. Vol. 2. P. 85–98*
24. Ножова Г.В., Брітченко І.Г. Інноваційна діяльність в контексті стратегічного управління // Науковий вісник ПУЕТ. - № 6 (51) / 2011. Частина 1 – Полтава: ПУЕТ, 2011. – С. 34 –39.
25. Брітченко І.Г., Гаврилко П.П., Завадяк Р.І. Стратегічне управління інноваційною діяльністю як основа конкурентоспроможності // Науковий вісник УжНУ. – № 35/2012. Частина 1. – Ужгород: УжНУ, 2012. – С. 27 – 32.
26. Князевич А.О., Брітченко І.Г. Сутність та специфіка формування соціально-орієнтованої інноваційної інфраструктури // Науковий журнал "Менеджер". Вісник донецького державного університету управління. - № 3 (65)/2013. – Донецьк: ДонДУУ, 2013. – С. 68 – 73.
27. Bezpartochna O. *Pedagogical managements as a road to successful international teaching and learning / Transformational processes the development of economic systems in conditions of globalization: scientific bases, mechanisms, prospects: collective monograph / edited by M. Bezpartochnyi, in 2 Vol. // V. Riashchenko, M. Zivitere, O. Bezpartochna / ISMA University. – Riga: «Landmark» SIA, 2018. – Vol. 1. – P. 32-344.*
28. Кужелев М.О., Брітченко І.Г. Корпоративний контроль інсайдерської ренти // Науковий вісник ПУЕТ - № 1 (56) / 2014 –

Полтава: ПУЕТ, 2014. – С. 281 – 285.

29. Князевич А. А. Организационно-правовые основы регулирования деятельности субъектов инновационной инфраструктуры Украины / А. А. Князевич, И. Г. Бритченко // Новая экономика. – Минск (Беларусь). – № 1(63). – 2014. – С. 137–142.
30. Bezpartochna O. The main trends in the development of tourism in Latvia / Rjashchenko V., Živitere M., Bezpartochna O. // Management mechanisms and development strategies of economic entities in conditions of institutional transformations of the global environment: collective monograph / edited by M. Bezpartochnyi, in 2 Vol. / ISMA University. – Riga: “Landmark” SIA, 2019. – Vol. 2. – pp. 284-293
31. Бритченко И. Модернизация инновационной инфраструктуры Украины в процессе конвергенции с ЕС / И. Бритченко, А. Князевич // The international journal «Sustainable development». – «Технический университет», г. Варна (Болгария). – № 6 (27). – 2015. – С. 4–10.
32. Брітченко І.Г. Передумови сталого розвитку національних соціально-економічних систем, що формують Європейський Союз / Брітченко І.Г., Стьопчкін А.І. // Економіка і організація управління. Збірник наукових праць ДонНУ - Вінниця. - Випуск № 3 (23). - 2016. С. 40-49.
33. Бритченко И.Г. Бизнес в Украине: Социально-экономические процессы ориентированные на внешнеэкономические связи / Бритченко И.Г., Саенко В.Г. // Науковий вісник УжНУ. Серія: Міжнародні економічні відносини та світове господарство - № 10 Ч. 1. - Ужгород: УжНУ, 2016. - С. 64-70.
34. Бритченко И.Г. Виртуальные банки и их связь с реальной банковской системой // Наука, религія, суспільство. – № 2. – 2001. – С. 3–10.
35. Bezpartochna O. Diagnostic the innovation potential of Latvia / Mechanisms of interaction between competitiveness and innovation in modern international economic relations: collective monograph / edited by M. Bezpartochnyi, in 4 Vol. // M. Bezpartochnyi, M. Živitere, V. Riashchenko, O. Bezpartochna / ISMA University. – Riga: «Landmark» SIA, 2017. – Vol. 1. – P. 62-70.
36. Бритченко И. Модернизация инновационной инфраструктуры Украины в процессе конвергенции с ЕС / И. Бритченко, А. Князевич // The international journal «Sustainable development». – «Технический университет», г. Варна (Болгария). – № 6 (27). – 2015. – С. 4–10. (Наукометрическая база JIFACTOR).
37. Брітченко І.Г., Перепелиця Р.К. Оцінка кредитоспроможності

емітента корпоративних облігацій // Вісник НБУ. – № 11 (117). – 2005. – С. 32–37.

38. Брітченко І.Г. Підвищення конкурентоспроможності банків на ринку банківських послуг України // Науковий вісник УжНУ (Серія економіка). Випуск 1 (45). - Том. 1/ 2015. - С. 176-180.
39. Iryna Diachuk, Igor Britchenko, Maksym Bezpartochnyi Content marketing model for leading web content management // *Advances in Social Science, Education and Humanities Research*, volume 318, pp. 119-126. – 3rd International Conference on Social, Economic, and Academic Leadership (ICSEAL 2019), Web of Science
40. Serhii Tkachenko, Igor Britchenko, Maksym Bezpartochnyi Leading methods for promoting finished product quality // *Advances in Social Science, Education and Humanities Research*, volume 318, pp. 99-106. – 3rd International Conference on Social, Economic, and Academic Leadership (ICSEAL 2019), Web of Science

Gróf Katalin

PhD Student

*István Széchenyi Management and
Organisation Sciences Doctoral
School, University of Sopron
(Sopron, Hungary)*

**TOURIST TAXATION IN
EUROPE, WITH A BRIEF
OVERVIEW OF THE
HUNGARIAN TOURIST
TAX SYSTEM**

Introduction

Local tax revenues are one of the most important financial sources for European local governments in order to ensure public services and cover their operational costs. Local governments can levy local taxes to support their autonomy, as these revenues make local budgets less sensitive to the volatility of central government budgets.

Tourism is a continuously growing economic sector in the world. It frequently plays a key role in local economy of many municipalities in Europe as well. Local authorities generally benefit from tourism; however, they have to finance services and provide tourist facilities, attractions, activities and programmes. It can be supported by a special type of local taxes: the tourist tax, which levied on non-residents, who spend at least one guest night in the settlements.

Tourist tax help local governments develop tourist services and maintain infrastructure. Local authorities and tourist boards are always interested in the growth of tourism, but the ability to increase the number of visitors requires persistent development and therefore enough financial sources. Local governments can reinvest tourist tax revenues into tourism in order to encourage tourism and thereby increase incomes.

Local tax systems in Europe

In the European Union, the establishment of fiscal and tax policies fall primarily within the competence of member states. Without a single regulation, European Union relies mainly on the practice and case-law of the Court of Justice of the European Union. Furthermore, generally followed tax rules are the official statements of the European Commission, the Code of Conduct for Business Taxation, and the OECD reports on harmful tax practices (Erdős 2008).

By many reasons, we can find different types of tax systems and, consequently, different types of local tax systems in Europe. Scientific tax literature uses several classifications.

Since variant degrees of redistribution in European governments, three types of welfare states came into existence: Liberal, Corporatist-Statist and Social Democratic (Esping-Andersen 1990). Redistribution is lower in Liberal systems (for example in the United States and Canada), middling in Corporatist-Statist states (such as France or Germany) and higher in Social Democratic tax systems (for instance Scandinavian countries).

Differences appear between local tax systems in accordance with the degree of autonomy in decision making as well. Decisions about the introduction of different taxes, tax bases, tax rates, allowances and exemptions.

In the aspect of economic growth, Aiginger and Leoni (2009) distinguished the Scandinavian, also known as Nordic model, the Continental or Rhineland model, the Anglo-Saxon model, the Mediterranean model and the Catching-up model, which includes mainly former socialist countries.

Another similar classification related to the degree of redistribution and duty delegation describes two main models of European tax systems: Anglo-Saxon and Continental (Kara & Kökényesi 2007). In Anglo-Saxon tax systems, local governance is much divided, municipalities have less responsibility and less public service duties.

Within the Continental model, some sub-types can be identified. In the Scandinavian model (for instance Sweden or Denmark), local governments are large-sized, which have a wide range of responsibilities and competence. These local authorities often consist of several smaller municipalities, in order to strengthen efficiency. French government model (for example France, Spain and Italy) has a local public administration system built up from small-sized local governments, which have comprehensive responsibilities and provide a wide range of public services. There are regional levels in the government system as well, besides, association system also improves the public administration system. The third type of the Continental model comprises the so-called mixed government systems, which are functioning mostly in transitional Central European countries. For example, Hungarian local government system combines the French type of government structure and the public service sharing system of Scandinavian countries.

Besides the above-mentioned categories, another tax system needs to be detached, the German model (represented by Germany and Austria), where states enjoy high degree of autonomy in tax regulation of the municipalities and districts (Szamel et al. 2011).

Main European local taxes in force

In relation to the above described local tax systems, local taxes used in different European countries properly describe the tax model they belong to.

English council tax is the only tax, local governments in England can levy on individuals. The tax object is the dwelling and the tax base is the value of it. Tax rates are set by local authorities with the use of statutory council tax bands laid down in the Local Government Finance Act (1992). This single local tax system provides fewer financial potentials for municipalities. In addition, local tax revenues come only from residents, therefore, local governments have no opportunity to influence local business by taxes and benefit from their profits and wealth. As the English council tax, local property tax in Ireland is also a self-assessed tax charged on the market value of residential properties, and the Office of the Revenue Commissioners collects it (Act LII of 2012).

Beside the countries of the Anglo-Saxon model, many European countries use wealth taxes at local government level, since real estates as tax base ensure easier assessment, administration and control for local governments. Property tax is levied in most cases on land and buildings

separately. Property tax is among others in Finland, Austria, France, Hungary, Luxembourg, Germany, Spain, Switzerland, Slovakia and the Netherlands. Local authorities may levy only land tax for example in Denmark and Estonia.

Swedish local tax revenues are exclusively from income tax. Act on Income Tax (Inkomstskattelag 1999:1229) provides local governments only to choose their tax percentage, which is levied as a surtax on the central income tax base. It is a common method in Scandinavian countries. For example, Finnish local governments gain approximately 75 per cent of total personal income tax and 35 per cent of total corporate income tax.

Spanish local governments levy three types of obligatory taxes: tax on economic activities, real estate tax and tax on vehicles, furthermore, two types of optional local taxes: tax on building works and tax on increase of value of urban land. Local authorities may make decisions only about tax rates within the limits and conditions of Act on Local Taxes. In France, locally waged taxes can be divided into three main pieces: inhabitant tax (Taxe d'habitation), property tax (Taxe Foncière sur les propriétés bâties) and land tax (Taxe Foncière sur les propriétés non-bâties) (Articles 1380 to 1478 of the General Tax Code).

German Basic Law (Grundgesetz) ensures that local governments get revenues from property tax, trade tax (local business tax) and luxury taxes (such as second dwelling tax, dog tax, entertainment tax). Tax rates are set in federal legislation, which are multiplied with local rates (Hebesatz). Concerning excises and luxury taxes, states have the legislative power.

Hungarian local taxes provide also important revenues for municipalities. Local authorities can levy different types of local taxes within the conditions of Act C of 1990 on Local Taxes: building tax, land tax, communal tax of individuals, tourist tax, local business tax and municipal tax. (Municipal tax or town tax means any tax on individuals provided that it is not imposed on a tax object to which a public burden defined by law already relates, including local taxes.)

Apart from aforesaid local taxes, we can find some smaller local taxes as well, for example motor vehicle taxes, waste collection tax (for example in Italy), tax on the use of public area (for example in Slovakia, Croatia), or household tax (in Switzerland) (European Commission 2019).

Tourist taxes in Europe

In order to reach sustainability in tourism, financial resources are necessary, at not only central or regional level, but at local, municipal level as well. Tourism taxes have a key role in financing tourism in many European countries. Tourism taxes enable local authorities to raise money to fund the management of tourism and to repair possible damages caused by tourists in public space and the environment. In addition, they are generally enough low not to deter visitors. Referring to the 'polluter pays' principle (Directive 2004/35/EC of the European Parliament), tourists should be treated as temporary residents and they should contribute to the maintenance of the public realm which they are visiting and using.

Tourism comprises a broad range of economic activities, therefore many taxes affect this economic sector, for example value-added tax. However, the obvious and most common direct tourist tax is occupancy tax. Occupancy taxes are levied on short-term residences in paid accommodations and typically applied on a per person, per night basis or sometimes as a percentage of room rate. These taxes are generally levied through accommodation providers, are often payable in person, and cannot be included in the pre-paid price of accommodation. It is usually up to each municipality to decide how much tax they charge and it can generally change annually. Children are often exempt from the tax.

The following provides an overview of European tourist taxes in use, insisting on the system of different local tax models.

There is no occupancy tax in the United Kingdom and Ireland, also in the Nordic and Baltic regions. However, the Scottish capital, Edinburgh plans to levy the first tourist tax in the UK, a 2 pounds per night tourist tax from 2020 (The Scottish Government 2019). The aim of the city council is to raise money for the costs of mass tourism (COSLA 2018).

Taxe de Séjour is the French tourist tax, which varies by municipality (Articles L2333-26 to L2333-47 of General Code of Territorial Communities). It is allocated to the development of tourism; therefore, revenues are hypothecated to be used for expenses related to encouraging tourism. Local authorities can decide to apply the tax base on the basis of actual visitor nights or calculate the tax based on the total capacity of the accommodation. Tourist tax is applied on a per person, per night basis in Italy and in Portugal as well, using a tax rate charged up to seven euros. Occupancy tax alternates by region and municipality in Spain. The Balearic government levies Ecotasa (sustainable tourism

tax) in order to protect the resources of the islands with the tax revenues (2/2016 Balearic Government Law). The tax rate varies by municipality, accommodation category and season. The Catalonia Tourist Tax applies to any facility where tourists stay overnight, but only up to a maximum of seven nights. Similarly, the rates of Sojourn Tax in Croatia and the Bulgarian Tourist Tax also depends on the seasons and the category of the accommodation. In Croatia the national tourist board collects the tax, and it distributes the revenues to the local governments.

From 1 January 2018, tourists pay an Overnight Stay Tax in Greece (Article 53 of Act 4689 of 2016). The tax rate is between 0.50 and 4 Euros per night, which varies by the official rating of the accommodation. In contrast to other countries, the Greek tourist tax is a source of income that aims to increase the central government revenue in the current fiscal adjustment programme.

At a local level, Belgian local city tax varies from municipality to municipality (ETOA 2018). For example, in Brussels, hotels have to pay annual fees for each room (depending on the type of it), and they pass the charge to their guests on a per person, per night basis.

German municipalities use culture tax (Kulturförderabgabe) or bed tax (Bettensteuer) as accommodation taxes. The tax rates can go up to an average of five euro per person per night or five percent of the room price depending on the type of accommodation, room rate and location. In many cases, this tax is added on top of VAT, and business travellers are exempt from it. For example, Berlin collects City Tax amounts to five percent of the net price of room rate, excluding VAT and fees for amenities and services, and the collection of the tax is limited to 21 successive days (ÜnStG). The denomination of tourist tax varies across the nine Austrian provinces (Tourismusgesetz, Beherbergungsbeiträge, Gäste Taxe). The tax is payable on overnight accommodations, the tax rate varies significantly by municipality, ranging from 0.15 euro to 2.18 euro per person per night.

In summary, most of the European countries and two third of member states of the European Union levy tourist tax at local government level. Comparatively low rates are charged in the Eastern European member states (ETOA 2018).

The Hungarian method of tourist taxation

Hungarian local authorities can levy tourist tax as a type of communal taxes within the conditions of Act C of 1990 on Local Taxes. Private individuals are to pay tourism tax who are spending at least one

guest-night in the area of jurisdiction of the local government as non-permanent residents. Local authorities can decide about the tax base and the tax rate. Tax base may be either the number of guest nights spent or the price of the accommodation. The legislation determines the maximum tax rate in 300 HUF (around 0.95 EUR) per person per night and 4 per cent of the offset of accommodation. The rates follow the inflation, therefore the actual maximum of the night tax rate is 517 HUF (around 1.60 EUR) in 2019. The Act lays down the exemptions as well, for example, individuals under 18 are exempt from tax. Taxpayer is the guest, while the person required to collect the tax is the accommodation provider, who has to set, declare and pay the tax to the local government.

Over 10 billion HUF (30-35 million EUR) tourist tax revenue arises per year in Hungary (TEIR 2019). In comparison with total tax revenues and the amount of the revenue-side of local budgets, tourist tax revenues seem insignificant. Moreover, from the 3154 municipalities only 879 levied tourist tax. However, tourist tax revenues play in some local government budgets a key role, in particular, where tourism sector has a determinant influence on local economy. Some municipalities realise more than half of their tax revenues from tourist tax (for example the small spa village Cserkeszőlő).

866 Hungarian towns and villages introduced tourist tax levied on the guest nights spent their territorial boundaries. Only 13 of the 879 municipalities defined the tax base as the price of accommodation, especially district authorities of Budapest, the capital city. A major part of tourist tax revenues arises, exempt from Budapest, in the western half of the country, and in another point of view, in spa towns, for example in Hévíz, Hajdúszoboszló, Zalakaros or Bük (popular spa towns with the highest tourist flows in Hungary).

Hungarian local governments can expend tourist tax revenues freely. Ideally, they spend these revenues to develop infrastructure and improve services in order to support tourism. However, smaller villages are often unable to reinvest tourist tax revenues in tourism, they are usually obliged to expend them for plugging budget holes. Hungarian central government provide budget support for municipalities with tourist tax revenues. The government gives 1 HUF after each realised HUF tourist tax revenue. This sectoral aid decreased in the last few years, but it still is an important source of revenue at local governments.

The Hungarian method of compliance with obligations for assessment is similar to the European practice. Accommodation

providers have to collect the tax, which is to be paid in cash on top of accommodation price. They are obliged to declare and pay their tax in by the 15th of next month following the month of the guest nights spent. Tax return should be submitted by enterprises and entrepreneurs from 1 January 2018 only in electronic way (Act CCXXII of 2015). Beside this obligation, accommodation providers have to report monthly to the central tax agency (National Tax and Customs Administration) about their sales and invoices. (This reporting happens automatically in case of taxpayers with cash register machine.) In addition, commercial accommodation establishments (such as hotels, pensions) should regularly provide data for the Hungarian Central Statistical Office about their capacity and the tourist arrivals. However, accommodation providers face a new digital data supply system in 2019, which presents the traffic and statistical data of all types of accommodation in the country real time. National Tourism Data Supply Centre would collect data about the number of adult and child guests, their place of origin, the time they spent in Hungary and the services they used. All types of accommodation establishments are to register in this system, even the smallest private accommodation providers. Such digital data supply systems already exist in Europe, for example the Croatian eVisitor online information system (operated by the Croatian National Tourist Board).

Tourist tax levied on guest nights is one of the most disputed tax forms in Hungary. The goals of this tax are questionable, even within professional circles. The tax should serve as a base for tourism development, but in reality, it is just one part of the whole budget of local governments. Each settlement has different facilities for tourism, also different amounts from this kind of tax can be collected. The significance of this tax is in cities and bigger towns a bit lower, but there are some spa towns and smaller villages with tourism-centred characteristic, where revenues from tourist tax is very important.

Other forms of tourist tax

World Economic Forum measures competitiveness of 136 economies concerning travel and tourism. They rank the countries by Travel and Tourism Competitiveness Index built up from economic, infrastructural, environmental and other components (WEF 2018). Spain reached the highest score, additionally France, Germany, Japan and the UK achieved the highest ratings. Tourism is a key sector in almost every economy, therefore constraint is often generated to consistently develop tourism.

Tourist boards, local and national governments presume tourism successful, when the number of tourist arrivals and the amount they spent is increasing substantially.

However, some countries and municipalities with extremely popular tourist destinations realized, that mass tourism has many disadvantages as well, since crowds of tourists are more likely to destroy cultural and environmental resources, furthermore, low budget tourists spend less money in tourist destinations and therefore they do not support local economy. On account of forced or even uncontrolled growth of the tourism sector, in many regions and municipalities, tourism sometimes creates more problems than benefits. Overtourism became a popular summarized label for the problems and disadvantages of taking too many visitors (Goodwin 2017). Stanchev (2018) have analysed overtourism and marked some destinations affected by it: Venice, Barcelona, Prague, Santorini, Amsterdam, Dubrovnik and Mallorca.

In order to reduce and avoid overtourism, responsible tourism gets a growing importance, which aims at enhancing the quality of life for residents in tourist destinations. A research has approved, that quality of life is derived from destination sustainability and responsible tourism initiatives (Mathew 2017).

Some European cities tend to solve the problem of overtourism with taxes. Beside increased VAT rates on specifically tourist services, tourist tax, the emerging daily tourist tax and even departure tourist tax is becoming more popular as a tool to battle the growing issue of overtourism.

The Italian government permitted the local Italian authorities to stimulate tourism for the long term to preserve cultural heritage and the environment, and finance public services. Venice can boast a flow of over 130 thousand tourists per day (Squires 2018). Yet almost 70 percent of visitors are day-trippers, who arrive and left the city the same day, in addition, they add only 30 percent to tourism revenues and proceeds. In addition, in the past decades a number of studies have dealt with the negative economic impacts of tourism in the city (Horváth 2018). Therefore, Venice introduced a 3 euros charge from 1 May 2019, with the amount rising to a maximum of 10 euros within three years. The daily tourist tax works like an entrance fee charged on day-trippers and by 2020 tourist should make a booking to enter the city. Stickers with different colours will represent the payments and serve the technical arrangement, instead of access gates or turnstiles. Residents, workers and children under the age of six will be exempt from the tax.

Venice will use the revenue from this daily tourist tax to offset the high charges that Venetian residents pay for services, such as litter collection, which is more expensive concerning the unique geography of the city.

Croatian Plitvice Lakes National Park is the largest and oldest national park in the country with around 1.7 billion visitors per year. This World Heritage area also struggles with the problem of overcrowding. The national park introduced an online e-ticket system in 2019. Visitors can only purchase tickets in advance, at least 2 days prior to arrival and the number of tickets per hour will be limited up to a maximum of 10,000 visitors per day. The accomplishment of the new ticket system raises the possibility of levying a daily tourist tax as the Venetian government attained. Similarly, the Galápagos National Park in Ecuador maintains an entry system with transit control cards beside the return flight tickets to and from the islands. The Special Law for Galapagos of 1998 indicated that the funds should be used for services related to tourism, environment, sports and health.

Another form of tourist tax is the departure tax; however, it is not typical in Europe, it could be implemented in the European national tax systems. Departure levies are in place in countries such as the United States (Air Passenger Duty), Australia (Passenger Movement Charge), South Korea and some countries in Southeast Asia. Besides, from 7 January 2019, all travellers leaving Japan is required to pay a "Sayonara levy" of 1,000 yen (about 8 euros) in Tokyo (Act XIV of 2018). The International Tourist Tax applies to both Japanese and a foreign traveller leaving the country by plane or ship and the tax is tacked onto transportation fares. The Japanese government aims to use the extra tax revenue to develop tourism infrastructure, implement more facial recognition gates at airports and seaports for faster processing, add information in multiple languages at cultural attractions, and develop free Wi-Fi on public transportation. Moreover, it plans to fund global tourism campaigns and promote tourist destinations in rural Japan as well.

Daily tourist tax is attainable only in municipalities, where tourism consists mainly from one-day visiting activities. Most European countries benefit from guest-night tax, which can better be controlled by competent authorities. Daily charges as entrance fees depend seriously on local conditions and circumstances. Departure taxes and charges can be launched in countries with visa, where a great share of, rather the whole tourist flow takes place in air or water, or where strict border control works.

Conclusions

Tourist tax is a widespread and popular form of making benefits from tourism in Europe and worldwide as well. Tourist tax is an important source of revenues at local governments where tourism is a key economic sector. Ideally, the incomes from tourist taxes go to protecting natural resources and maintaining tourism facilities, considering, that settlements with popular tourist destinations are interested in growth of tourism, which requires persistent expansions. However, in spite of tourist tax, local governments are often unable to develop services from their own resources.

Financing public services and expansions requires continuous raise of budget revenues. Local governments have no influence on general revenues and central contributions, therefore, increasing local tax revenues is usually the only opportunity to gain extra incomes and plug budget holes. For this reason, settlements with financial problems often increase local tax rates. On the contrary, local authorities should consider the deterrent effect of significantly increasing tax rates on tourism. Most European legislation maximized local tax rates, in order to obviate exaggerations in local and tourist taxation.

Nowadays, tourism is a key sector in almost every national economy. Central and local governments aim to develop this sector in order to gain extra revenues by increasing the number of visitors. However, they should consider the disadvantages of overtourism as well, in order to preserve the quality of life of their residents. Consequently, governments, at central and local level as well, should encourage generating and improving quality tourism. However, it requires substantial financial resources, intensive development and innovation in tourism and in public services as well, the efforts will facilitate positive social impacts and economic benefits by attracting affluent tourists.

References:

1. Aiginger, K & Leoni, T 2009, *Typologies of social models in Europe*, Institute of Economic Research WIFO, pp 2-4
2. *Convention of Scottish Local Authorities (COSLA) 2018, Transient Visitor Tax (TVT)*. Available from www.cosla.gov.uk [10 May 2019]
3. *Croatian National Tourist Board 2019, EVISITOR online information system*. Available from <https://www.evisitor.hr/> [15 April 2019]
4. *Directive 2004/35/EC of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage*

5. *English Local Government Finance Act 1992*
6. Erdős, É 2008, *Az adójogi harmonizáció problémái a helyi adózásban*, *Sectio Juridica et Politica*, 2008/1. pp 305–324
7. Esping-Andersen, G 1990, *The three worlds of welfare capitalism*, Princeton, New Jersey: Princeton University Press
8. European Commission 2019, *Taxation and Customs - Taxes in Europe Database v3*. Available from: http://ec.europa.eu/taxation_customs/tedb/splSearchForm.html [18 April 2019]
9. European Tour Operators Association (ETOA) 2018, *Tourist taxes*, Available from: www.etoa.org [18 Dec 2018]
10. French General Code of Territorial Communities - *Code général des collectivités territoriales*
11. French General Tax Code, Articles 1380 to 1478
12. Gesetz über eine Übernachtungssteuer in Berlin (*Übernachtungssteuergesetz - ÜnStG*)
13. Goodwin, H 2017, *The Challenge of Overtourism, Responsible Tourism Partnership Working Paper* [4 October 2017]
14. Greek Act 4389 of 2016 on emergency provisions for the implementation of the agreement on fiscal objectives and structural reform and other provisions, Article 53
15. Grundgesetz - Basic Law for the Federal Republic of Germany
16. Horváth, DB 2018, *A new Era for Urban Tourism? The Case of Venice, Italy, Almatourism, Journal of Tourism, Culture and Territoria*, N. 17. ISSN20365195
17. Hungarian Act C of 1990 on Local Taxes
18. Hungarian Act CCXXII of 2015 on on the General Rules of Electronic Administration and Trust Services
19. Hungarian National Regional Development and Spatial Planning Information System (TEIR) 2019, *Database of Hungarian State Treasury*. Available from: www.teir.hu [8 March 2019]
20. Hungarian Tourism Agency 2019, *National Tourism Data Supply Centre (NTAK)*. Available from <https://info.ntak.hu/en/> [16 April 2019]
21. *Inkomstskattelag 1999:1229*, Swedish Act on Income Tax
22. Irish Finance (Local Property Tax) Act 2012 (Act LII of 2012)
23. Japanese Act XVI of 2018 on International Tourist Tax
24. Kara, P & Kökényesi, J 2007, *Önkormányzati közigazgatás, Közigazgatási Szakvizsga Jegyzet, Kormányzati Személyügyi Szolgáltató és Képzési Központ, Budapest*, pp 13-14
25. Leslie, D (ed.) 2012, *Responsible Tourism: Concepts, Theory and Practice*, CAB International, ISBN: 978 1 84593 987 8
26. Plitvice Lakes National Park 2019, *Online ticket system*. Available from <https://np-plitvicka-jezera.hr/en/> [12 May 2019]

27. Mathew, PV 2017, *Impact of responsible tourism on destination sustainability and quality of life of community in tourism destinations*, *Journal of Hospitality and Tourism Management*, Volume 31, June 2017, Pp 83-89
28. *Regulation of Tax on tourist accommodation of the Brussels Capital Region*, Law C–2016/31901
29. *Regulation of the tax on tourist stays in the Balearic Islands and measures of promoting sustainable tourism of the Government of the Balearic Islands*, Law 2/2016 of March 30
30. *Regulation of the the tax on stays in tourist establishments of the Government of Catalonia*, Law 141/2017 of September 19
31. Squires, N 2018, *Venice to introduce visitor tax in latest bid to manage impact of mass tourism*, *The Telegraph*. Available from: <https://www.telegraph.co.uk/news/2018/12/31/venice-introduce-visitor-tax-latest-bid-manage-impact-mass-tourism/> [5 May 2019]
32. Stanchev, R 2018, *The Most Affected European Destinations by Over-Tourism*, *Grau de Turisme*, Any acadèmic 2017-18. Universitat de les Illes Balears, Facultat de Turisme
33. Szamel, K, Balázs, I, Gajduschek, Gy, Koi, Gy 2011, *Az Európai Unió tagállamainak közigazgatása*, *Complex*, Budapest, p. 32
34. *The Scottish Government 2019, Tourist Taxes in Scotland*, *Published Evidence from the National Discussion*, March 2019, ISBN: 978-1-78781-622-0
35. *The Special Law for Galapagos of 1998*
36. *World Economic Forum (WEF) 2018, The Travel & Tourism Competitiveness Report - Paving the way for a more sustainable and inclusive future*, Geneva, ISBN-13: 978-1-944835-08-8

Križanič France

PhD in Economics, Scientific

Councilor

EIPF, Institute of Economics d.o.o.

Vojinović Borut

PhD in Economics, Associate

Professor,

EIPF, Institute of Economics d.o.o.

(Ljubljana, Slovenia)

**HETERODOX POLICY
FOR THE
DEVELOPMENT OF A
SMALL OPEN
ECONOMY –
HISTORICAL ANALYSIS**

I. Introduction

Slovenian economic development is an example of efficient implementation of heterodox policy, featuring the state's strong role in promoting economic growth and new economic structures. The following were key milestones: entry of Slovenia into the Kingdom of Serbs, Croats and Slovenes through the establishment of a protective trade policy; the formation of the People's Republic of Slovenia (later the Socialist Republic of Slovenia) with accelerated industrialization and the development of a modern service sector under the conditions of self-managing socialism; the independence of the Republic of Slovenia with independent monetary and fiscal policy; and the inclusion of Slovenia in the EU and the euro area with the adoption of a European development model.

Episodes of conducting orthodox policies have shown that Slovenian economic conditions do not respond with the positive results intended by such policies. The Slovenian banking sector functions as an intertwining of the influence of the regulator's inadequate operation and the replacement of the banks' role in the creation of money with a parallel credit system, which is fed from savings generated by external trade. Slovenia is a small country with two million inhabitants and a member of the EU and the euro area. It has reached the post-industrial phase of development (Rostow, 1953) and retained a strong export-oriented industrial sector supported by diversified services of the R & D sector (Syrquin, M., 1991). In this paper we are going to explain Slovenia's economic development by presenting milestones in the period since the abolition of serfdom (1848). We will show that this

development was only feasible by pursuing heterodox economic policy and with the establishment of institutions that enabled the implementation of such policy.

II. From abolishment of serfdom to the establishment of the People's Republic of Slovenia in the Yugoslav federation

Towards the end of the Habsburg Monarchy there were limited possibilities for economic development on the territory of present-day Slovenia. After 1848, serfdom was abolished in a way that required peasants to buy their land from landlords (serfdom abolishment by repayment). There was no university in the area of present-day Slovenia, and none of the more economically important companies, notably banks and insurance companies. It resulted in the outflow of savings and an agricultural debt crisis. Under these conditions, industrialization was not possible as predicted by the two-sector Lewis model (Lewis W. A., 1954). In this model, accumulation is created by the traditional (agricultural) sector and placed in the modern (industrial) sector. The traditional sector also provides foreign exchange assets with income from food exports. Investments that returned from the economic and political center (Vienna) to the area of present-day Slovenia were mainly related to the exploitation of natural assets. Economically, this area was the colony's position. The result was a population exodus. From the middle of the 19th century until the First World War, 310,000 people, i.e. one third of the population and 56% of its natural increase, moved out of the area of present-day Slovenia. Emigration particularly accelerated after the global economic crisis of 1873 (Enciklopedija Slovenije, a). On the other hand, upon leaving the Habsburg Monarchy, Slovenia commanded a high degree of literacy. This improved rapidly after the adoption of the National School Act of 1869. According to the 1910 population census, the literacy rate was 85 percent; generations born after 1890 (over 10 years-old) registered as much as 97 percent (Melik V., Schmit V., Ostanek F., 1970).

When the Slovenes entered the Kingdom of Serbs, Croats and Slovenes (SHS), state control over foreign-owned enterprises was established with a special legal instrument, the sequester (temporary asset management). In particular, due to the cessation of capital flow, and partly because of the closed Yugoslav market, rapid industrialization and urbanization followed from 1920 to 1930 (for example, the expansion of the capital city, so-called "great Ljubljana",

extended to the neighboring municipalities and reached 85,000 inhabitants). Slovenia received a university, a science academy, the first research institute and professional theaters in Ljubljana and Maribor. In the economic depression after 1929, the number of jobs fell from 132,000 to 105,000 (by 20 percent). Conjuncture returned after 1935 (Čuček F., Dolinar J., Zajc M., 2011).

III. Development in the period of self-managing socialism

During World War II, Slovenia suffered considerable economic damage. In 2015 prices, it accounted for approximately \$26 billion or € 23 billion (Repe B., 2015). After the reconstruction and until 1991, Slovenia built up modern industry and cultural, scientific, education, social, health and security infrastructure as a basis for development at the post-industrial stage. The share of the population living in an agricultural context decreased from 41 percent to 9 percent between 1953 and 1981 (Enciklopedija Slovenije, b). Polycentric urbanization was carried out with a great emphasis on the development of smaller towns which affected the changed socio-economic structure of the countryside. Despite the fact that the importance of agriculture declined, in 1991, a full 55 percent of the population was living in rural areas, out of 71 urban settlements (Enciklopedija Slovenije, c). Until 1991, Slovenia established an export-oriented economy with a diffuse structure of production and markets. The share of industry increased in value added, firstly due to the industrialization process, and then due to the growth of exports, until 1988, when it reached 45%³⁴ (Statistični urad Republike Slovenije, a).

In the system of socialist self-management (the so-called Illyrian socialism), which developed after the dispute between Yugoslavia and the Soviet Union in 1948, companies' ownership was transformed from the state into so-called social property. Enterprises had sovereignty in deciding on the structure and scope of production, engaging work and capital, as well as marketing. However, the labor market was highly regulated while the capital market was limited to only the granting and taking of bank loans. There was also a specific foreign exchange market (exporters were selling import rights on it). The state retained the greatest influence through its ownership of the banks (Bajt, A., 1988). In

³⁴ *In 2017, the industrial sector generated 24% of Slovenian value added (Banka Slovenije, c).*

this situation, during the world debt crisis in the 1980s, Slovenia was transformed from a net importer to a net exporter. In addition to the aforementioned functioning of the foreign exchange market and high prices of foreign currencies on this market, the basis for a successful reorientation of Slovenian enterprises' supply from the former Yugoslav market to the Western European market was also a specific way of introducing technological progress within Slovenia after 1945. Slovenian self-managing companies (investors) imitated Western European technologies used western European standards and equipment imported from Western Europe. By the end of the 1970s, most of the goods produced were placed on the Yugoslav market and with just a minor presence on the markets of Western European countries. Through the 1980s, the size of these two shares dramatically changed.

The decay of self-managing socialism began with the so-called. "Planned borrowing abroad". In the Yugoslav national plan for the period 1976 to 1980, a loan of US \$11.5 billion was foreseen and a repayment of the old debt of \$5.2 billion; with the credit lines open at large Western banks, Yugoslavia's gross debt abroad increased from \$6.6 billion in 1975 to \$21.1 billion in 1981, i.e. \$14.5 billion or 220 percent. The funds obtained from loans were distributed according to the "republican key" used to finance various investments. Here, Yugoslavia paid a 12% interest rate (Cemović M., 1985 and Štiblar F., 1991). Debt growth was accompanied by a large external trade deficit. The debt repayment period saw a lack of different goods and state measures such as vouchers for the purchase of gasoline, the restriction of vehicle use according to the "even number-odd number" regime and a mandatory deposit at the crossing of the state border. The repayment of loans and interest led to the acceleration of inflation and ultimately into hyperinflation (prices rose by 1,285% in 1989)³⁵. Yugoslavia was dissolved and the process of its disintegration was accompanied by "transitional depression". From 1986 to 1992, Slovenian GDP fell by 24 percent. From 1987 to 1995, Slovenia lost 226 thousand or 26 percent of its jobs (Statistični urad Republike Slovenije, a).

³⁵ *The cause of the Yugoslavian and Slovenian hyperinflation in 1989 was similar to the cause of the German hyperinflation of 1923, except that the Weimar Republic was forced to pay high military reparations instead of accelerated repayment of highly interest-bearing debts.*

IV. Neo-Keynesian foundations of Slovenian economic development after independence

By independence, Slovenia had introduced its own currency – the tolar (October 1991) and started to conduct a credible monetary policy based on the floating exchange rate regime (the domestic currency is convertible and the price of foreign exchange equals their supply and demand on the foreign exchange market). This was the first strategic shift that prevented the deindustrialization of Slovenia and a consequent slip to the economic periphery where it would only be capable of providing simple services and raw materials. In the event of the introduction of the tolar with a fixed exchange rate, only the industrial plants in Slovenia would remain connected to the extraction of raw materials (similar to that before 1918) after the adaptation period. The strategic decision to promote export-based economic growth is, in fact, based on Kaldor's growth theory (Kaldor, N., 1985). In this sense, this economic policy was extremely neo-Keynesian.

After independence, the Republic of Slovenia implemented a bank rehabilitation project (1993 to 1997) and adjusted the ownership structure of enterprises to a modern market economy (1992 to 1999). Privatization was carried out in such a way that the ownership of self-managing, socially-owned enterprises was distributed between former owners (denationalisation), employees, citizens (directly or through private investment funds) and the state-owned capital company, as well as the state-owned compensation company. At the same time, since 1994, Slovenia had initiated intensive construction of its motorway network (enabled by the introduction of a “petrol tolar”³⁶).

These policies created the conditions for a new investment cycle with rapid and extensive economic growth from mid-1992 to mid-2008. In this period, gross domestic product (GDP) rose by an average of 4.1 per cent annually and increased by 90 percent (Statistični urad Republike Slovenije, b). The share of investment in research and development (R & D) in Slovenia's GDP was around one percent (Eurostat, 2014), which means that Slovenian competitiveness was not based on knowledge, but mainly at the low prices of a relatively abundant production factor, that is, labor. With considerable replacement (equipment renewal) and expansionary investments, the

³⁶ *“Petrol tolar” was the name for the part of the price of gasoline and diesel that was intended to finance the construction of the Slovenian motorway network.*

Slovenian economy still had a so-called "in-built" technological progress associated with the purchase of modern machines and other fixed assets. Economic growth was balanced up to 2004, and from 2005 to 2008, it was accompanied by accelerated inflation and a large deficit in foreign trade. It was only in 1999 when Slovenia's GDP matched its previous level, in real terms, just before crisis (1986), while in 2008, the number of persons in employment equalled and even slightly exceeded that of 1987 (Statistical Office of the Republic of Slovenia, a, b and g).

In this period, Slovenia indexed wage rates and interest related to the growth of retail prices. This is, of course, the cause of inertial inflation. Here, inflation expectations are built in an economic system (Lopes.F.L., 1984 and Arida, P., Taylor, L., 1989). Inertial inflation was retained by economic policy holders with nominal anchors (e.g. control of energy prices, especially gasoline, diesel and electricity or control of prices of utility services) as one of the characteristics of the heterodox approach to stabilization policy (Carbo, V., Fiscer S., 1995).

The second strategic shift of Slovenian economic development after independence was its entry into the EU in May 2004³⁷. Before that, Slovenia had a favorable trade agreement with the EU because the EU recognized Slovenia under the same trade-regime as the former Yugoslavia had. Between 1986 and 1996, Slovenian exports of goods and services to the market of the former Yugoslav republics fell by 50 percent of Slovenia's GDP (1986), while exports of goods and services to EU countries (fifteen of the so-called "old members" were taken into account) increased by 37.5 percent of the Slovenian GDP (1986) or by 11 billion euros in their purchasing power in 2017 terms (Statistični urad Republike Slovenije, a). Due to a specific development in self-management socialism, the Slovenian economy was able to compete in the demanding markets of Western Europe, which, with the abolition of customs duties and the decrease in quotas, opened up this market for an increase in Slovenian exports.

In January 2007, Slovenia adopted the euro. The tolar / euro exchange rate was set at a level that did not reduce the competitiveness of the Slovenian economy. In essence, this was a continuation of the Kaldorian economic strategy from the beginning of the 1990s.

³⁷ *Slovenia's entry in the EU meant that Slovenian enterprises got access to a market with five hundred million inhabitants and the possibility to specialize and raise productivity in a sense as Adam Smith proposed in the beginning of his famous Wealth of Nations (Smith A., 1776).*

The third strategic shift after independence was achieved by improving the educational structure of the country's employees. In 1988, every seventh employee had a higher education degree in Slovenia (including those with internal recognition of "high-skilled worker status" inside companies), while in 2016 this share had already reached one third (Statistični urad Republike Slovenije, f, g). After independence, schools obviously remained accessible to the Slovene population, which, due to the situation on the labor market, was additionally motivated towards education.

V. An episode of orthodox economic policy in Slovenia

Slovenian economic problems of the recent period began with the orthodox economic policies from 2005 to 2008. This meant:

a) Privatization: The state started a project of withdrawal from the economy (sale of shares of the capital company and the compensation company) in which the directors of Slovenian enterprises began to borrow loans and start buying big shares of the companies where they worked. This introduced a tycoon crisis with a drop in mutual trust in Slovenian society. When there were problems with the repayment of loans, the tycoon crisis turned into a debt crisis.

b) Tax reduction: Rates of personal income tax and corporate tax (legal person's income tax) were reduced and the payroll tax was eliminated, with a total impact of a 900 million euro (2.4 percent of GDP) general government deficit (Vlada Republike Slovenije, Ministrstvo za finance, 2009). Slovenia developed a high structural government deficit that the economy could not eliminate with its own economic growth.

c) Liberalization: Capital flows were liberalized, and as a consequence, the volume of loans increased tremendously. Slovenia's gross external debt grew by 24 billion euros from 2004 to 2008, reaching 106 percent of GDP. Furthermore, the ratio between deposits and loans in commercial banks deteriorated from a stable 1: 1 to a high risk 1: 1.6 (Banka Slovenije, a), which together with a reduction in tax rates led to inflation, reaching nearly six percent in 2008 (Statistični urad Republike Slovenije, e), a decline in competitiveness and a deficit in foreign trade in the amount of two percent of GDP (Statistični urad Republike Slovenije, b, c).

d) Slovenia was on its way to being a structurally dependent economy.

With the collapse of the global financial system at the end of 2008 Slovenia fell into a double bottom economic crisis:

a) During recession in 2009, Slovenia's exports of goods and services decreased by 17% and real GDP fell by 8% (Statistični urad Republike Slovenije, b, c). Among the members of the EU, it was worse only in Finland (probably connected with crisis of Nokia) and in all three Baltic countries that, with their economic policies before the crisis, had served as the example for the Slovenian orthodox economic policy makers from 2005 to 2008.

b) The orthodox economic policy makers from 2005–2008 returned to their offices in 2012, and Slovenia experienced double bottom crisis. The second wave of recession started in 2012 with restrictive fiscal policy led by the government and restrictive credit policy led by the Bank of Slovenia. After the economic recovery in 2010 and 2011, in 2012 and 2013, Slovenian GDP fell in real terms by four percent. By 2013, GDP was 10 percent lower than in 2008 (Statistični urad Republike Slovenije, b).

c) During the financial crisis, Slovenia lost 91,000 or 10 percent of its jobs (Statistični urad Republike Slovenije, g).

VI. Development turnaround in response to the financial crisis of 2008

With the onset of the global financial crisis in the second half of 2008, a new government took office in Slovenia. It went to work in November 2008 and immediately started to implement measures deal with the crisis. In this context, the state had taken over the unlimited deposit guarantee in banks, a guarantee on borrowing of banks on the interbank market, a guarantee for bank loans to companies and loans to households. SID – The Slovenian Export and Development Bank increased the volume of development loans to the economy by 84 percent. The state recapitalized it as well as the largest Slovenian business bank Nova Ljubljanska banka, while the second largest bank, Nova kreditna banka Maribor, was recapitalized partly with state and partly with private funds. The state also recapitalized both of its large investment funds: The Capital Company and the Slovenian Compensation Company. The government provided additional funds with deposits to the banking system and fully compensated for the outflow of short-term loans from banks at the beginning of 2009. The total range of measures taken under Slovenian economic policy to

mitigate the effects of the financial crisis on the banking system amounted to 8 billion euros between 2008 and 2011 or 21 percent of Slovenian GDP in 2008. Consequently, bank lending to the economy did not decline, and even increased slightly (5%) from September 2008, as the last month before the financial crisis, until July 2010, the month when the organized banking crisis started in Slovenia (Banka Slovenije, a, b).

Measures to protect the Slovenian financial system in the global financial crisis after October 2008 are, in fact, part of the Neo-Keynesian arsenal (Rochon, 2016) of state incentives to reduce the uncertainty of banks in lending at the micro level– via state guarantees as well as at the macro level by ensuring a sufficient volume of financial assets in commercial banks as the basis for economic growth.

In the context of eliminating the consequences of the global financial and economic crisis, Slovenian policy makers also implemented social policy measures (funds for transfers to the unemployed were increased by 120 percent and scholarships received 26 percent growth) and state aids to the private sector (an increase of 33 percent affect the ability of exporters to survive the sharp decline in the demand) to prevent a deepening of the crisis. In part, these measures took place through automatic stabilizers (assistance to the unemployed), and partly they meant implementing the classic Keynesian expansive fiscal policy. The aid went to the part of the population that spends the most of its income, so that in the first phase of the crisis, Slovenia avoided the thrift paradox and the crisis did not continue in the form of a downward spiral (Keynes J. M., 1936).

The state's development stimulus was strategically equal or even more important. It represented the neo-Keynesian or heterodox aspect of the government's activities (Rodrik, D., 1995). To this end, the Slovenian economic policy makers increased R & D subsidies, they increased tax relief for R & D investment, and they encouraged large growth of development loans, so that R & D investments increased by 45% between 2008 and 2011, reaching 0.9 billion euros or 2.4 percent of Slovenian GDP (Statistični urad Republike Slovenije, d). An intensive development policy was largely linked to the placement of EU funds and implemented according to EU standards of state aid to companies. We can speak of a European development model. The path that Slovenia effectively took was the fourth strategic shift after independence. State incentives to R & D activity in Slovenian companies became equally important for Slovenia's economic growth,

as it was an important floating exchange rate before the Slovenian entry into the euro area.

The adjustment of the Slovenian economy to the situation after the financial crisis led to an increase in exports (2010), then to GDP growth (2010 and 2011, decline in 2012 and 2013, and finally stable growth from 2014 onwards), delaying growth in employment (2014) and stabilization of the fiscal balance (2017). The process was to a certain extent curbed (but not completely stopped) by the second episode of managing orthodox policy in Slovenia with the new government in 2012. The stable nature of placing EU funds in the financial perspective 2007–2013 prevented the interruption of implementing Slovenian development policy during this period.

Improved competitiveness of existing companies and the competitiveness of emerging companies led to lower prices or higher quality of their supply and were connected to much faster growth of Slovenian exports than GDP growth among Slovenian trading partners. The situation can be explained by Krugman's new trade theory (Krugman, P., R., 1990). The strategic policy of companies supported by state subsidies, selective development credits and tax relief for R & D investments represents a form of engaging human capital by establishing production that would not be possible without state aid. These producers, assisted by state aid, generate rising returns and exploit economies of scale due to increased sales on the world market. Since 2010, the Slovenian export sector has created a spiral of increasing the volume of exports, lowering the unit cost of the product (growing returns) and re-expanding the volume of exports. In Slovenia, this path-dependent economic growth began with the interaction between supply and demand and the active role of the development policy which enables and maintains this process (Settrfield, M., 2016).

The results of this process show 10% growth in exports of goods and services in 2018 and a level of exports of goods and services 56% above the comparable level from the last year of the world's business expansion in 2008. Slovenia's current account balance was positive by 3.4 billion euros (7.3 percent of GDP) in 2018, while exports of goods and services exceeded the corresponding imports by 4.4 billion euros or 13 percent. Slovenia has not yet created such a surplus in foreign exchange.

In 2018, the gross domestic product increased by 7% in euro terms (with 1.7 percent inflation) and was 8% higher in real terms than in 2008 (Statistični urad Republike Slovenije, b, c). In 2018, the Slovenian GDP

per capita amounted to 22,182 euros or 26,197 dollars (Banka Slovenije, c). In comparison with its level in 2008, in 2018 the gross fixed capital formation was still 29 percent lower, while personal consumption was higher by nine percent and government expenditure by four percent. The value added of most sectors was significantly higher in 2018 than in 2008. The greatest increases were found in professional, scientific, technical and business activities, in agriculture with forestry and fisheries and in information and communications activities. Exceptions were the financial sector and construction, in which the value added in real terms has not yet reached its pre-crisis level.

According to data on payments, assumed liabilities and claims of the public sector (European System of Accounts - ESA 95), Slovenia's general government in 2018 had a surplus of 0.7 percent of GDP (Statistični urad Republike Slovenije, b, c). Measured by cash flow, this surplus accounted for 1.5 percent of GDP (Banka Slovenije, c). The end of 2018 saw 3.6 percent more persons in employment than in the previous year and 0.8 percent more persons in employment than in the comparable period of 2008 (Statistični urad Republike Slovenije, g).

VII. Specific features of the banking system in Slovenia after the last financial crises

In order to stabilize the financial system while eliminating the consequences of the economic crisis, the Slovenian government assumed around 15 billion euros more credit than would be necessary to cover the general government deficit from 2009 to 2016 (after that, Slovenia had a general government surplus). State assets in banks and enterprises increased accordingly, and its privatization became the goal of clearly organized and influential structures outside Slovenia. These are the specific features of the banking system in Slovenia after the last round of financial crises.

In the period from 2009 to 2018, Slovenia both intertwined with and opposed the effect of the Bank of Slovenia's critically unfavorable credit policy and the successful developmental reversal. In July 2010, the Bank of Slovenia increased the required capital adequacy of banks, thus beginning to limit its lending activity. Loans to the real sector of the economy had fallen by more than 12 billion euros (58 percent) by 2016. On the other hand, the Slovenian economy implemented the European development model and generated € 14.9 billion in its current account surplus from 2011 to 2018, thus completely replacing the outflow of

loans from the banking system (Banka Slovenije, c). In view of Rochon's theory of the connection between the banking system and production (Rochon, L.P., 2016), the economy in Slovenia was forced to form a parallel market for the supply of money without the intermediary role of the banking sector. In this way, Slovenian companies smoothly finance their production. The significance of the banking system has dropped sharply, and there is no indication that it would recover.

At the end of this process (from 2016 to 2018) the volume of bank loans and bank purchases of securities of the Slovenian economy (all sectors except banks) was lower than the Slovenian annual gross operating surplus (Banka Slovenije, c). The non-bank part of the economy owes banks less than the amount of amortization and profit before taxes at the annual level (Statistični urad Republike Slovenije, b). This means that the economy could, in case of a large reduction in investments, suspension of the payment of dividends and the corresponding tax relief from corporate income tax, fully repay the debt to commercial banks in Slovenia in one year. In the middle of this process, in 2013, bank loans to the non-bank sector of the economy were 1.7 times higher than the annual gross business surplus of the economy (Statistični urad Republike Slovenije, b and Banka Slovenije, c). With such low debt, the economy is not critically indebted. Nevertheless, the Bank of Slovenia in 2013 hired the Business Advisory Firm Oliver Wyman, which assumed a deep recession for Slovenia over the next three years and estimated that all major banks (Nova Ljubljanska banka, Nova kreditna banka Maribor, Abanka and Banka Celje) needed recapitalization in the amount of 4.8 billion euros (approximately as much as the costs of the construction of the Slovenian motorway network). The Slovenian government nationalized and recapitalized the aforementioned banks.

The game was clear: a transfer of claims to the bad bank, the cheap sale of equity holdings of companies that were given to insurance, even cheap sales of banks that through "bad loans" created a loss and hence the conditions for state aid. The project was accompanied by an apparently well-organized media campaign with the aim that Slovene population would understand and agree with sold out of enterprises and banks as a necessity. It was effectively the implementation of a shock doctrine (Klein, 2007). The motto in this media campaign was: "We do not know how to manage state assets", "We are not capable", "Our property has been already stolen". What is particularly interesting is that

this process ran without modalities or interruptions, fairly smoothly until 2018.

A puzzling question centers on from where or why the defeatist character of the Slovenian policy makers exists to allow this apparently maliciously project to continue. The most likely explanation would be in concluding a wrong assessment of the state of the Slovenian economy. They probably believed the propaganda that was being carried out according to the doctrine of shock implementation in 2012 and 2013. And if this is the case, then all the data on establishing economic balance, strengthening exports, foreign trade surplus and, consequently, accumulations of Slovenia's national economic savings were not monitored. A large surplus in the current account shows that the general government deficit was Slovenian own internal problem of transitory nature. In the economy and in the population there were more than enough savings to cover it. The Slovenian economic policy makers also apparently were not aware of their role in the work of the European Council (EU Heads of State and Government) and the Council of the European Union. This, together with the European Parliament, is a legislative body of the EU, composed of the ministers of the Member States – different in relation to a given area. The most important decisions hail from the Economic and Financial Affairs Council (ECOFIN) with the finance ministers. And each of them reserves a practical veto right.

VIII. Concluding remarks

By establishing its state institutions Slovenia created the conditions for industrialization (1919– 1988) and the transition to the post-industrial phase of development from the 1990s on. During this period, Slovenia used a range of heterodox policies to build a competitive export-oriented economy with economic growth, which can be explained by Kaldorian development model.

Episodes of orthodox economic policies have shown, at least in the case of Slovenia, a pro-cyclicity. During the global economic business expansion from 2005 to 2008, these policies were expansive, while in the time of the global recession, 2012, they were restrictive. Slovenia was very vulnerable to the global financial crisis in 2009, and in 2012 and 2013, it created a double bottom crisis of its own.

During the period of the financial crisis, the Slovenian banking system was under the control of the regulators, and their actions cannot

be explained by the definitions of a given direction of economic thought (roughly speaking, by neither an orthodox nor a heterodox interpretation of the role of the state in the economy). It was obviously a creation of conditions for setting mala fide demands about selling of Slovenian companies and banks.

If we observe the period from 1946 to 2018 as a whole, we can see that the number of inhabitants in Slovenia has constantly increased and that in 2018, the gross domestic product was actually one time higher than it was at the bottom of the 1992 transition crisis, and half higher than it was before the onset of this crisis in 1986. In 2018, Slovenia had low inflation, a surplus in trade with the rest of the world, a real GDP growth at about 5 percent per year, and increasing employment.

References:

1. Arida, P., Taylor, L., (1989). *Short-run Macroeconomics*, in *Handbook of development Economics*, ed. Chenery, H. and Srinivasan T.N., Volume 2, North Holland, Amsterdam, New York, Oxford, Tokyo.
2. Bajt, A. (1988). *Samoupravna oblika družbene lastnine*, Globus, Zagreb
3. *Banka Slovenije*, Online, Accesses: 15. Maj 2019:
 - a) *Bilten*, maj 2009, letnik XVIII, številka 4.
 - b) *Bilten*, september 2010, letnik XIX, številka 9.
 - c) *Bilten*, april 2019, letnik XXVIII, številka 4.
4. Carbo, V., Fischer, S. (1995) *Structural Adjustment, Stabilization and Policy Reform in Handbook of development Economics*, ed. Behrman J. and Srinivasan T.N., Volume 3B, North Holland, Amsterdam, New York, Oxford, Tokyo.
5. Cemovič, M. (1985). *Zašto, kako i koliko smo se zadužili, kreditni odnosi Jugoslavije sa inostranstvom*, Institut za unapređenje robnog prometa, Beograd.
6. Čuček, F., Dolinar, J., Zajc M. (2011). *Slovenska zgodovina v preglednicah*, Cankarjeva založba, Ljubljana.
7. *Enciklopedija Slovenije*. (1987-2002). *Mladinska knjiga*, Ljubljana:
 - a) *Migracije*.
 - b) *Industrializacija*.
 - c) *Urbanizacija*.
8. Eurostat, Online, Accesses: 17. Marec 2014, *Total intramural R&D expenditure (GERD) by sectors of performance*.
9. Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*, "Chapter 23. Notes on Merchantilism, the Usury Laws, Stamped Money and Theories of Under-consumption", United Kingdom, Palgrave Mcmillan.

10. Kaldor, N. (1985). *Economic With Cardiff*, UK, University College of Cardiff Press.
11. Klein, N. (2007). *The Shock Doctrine: The Rise of Disaster Capitalism*, Random House of Canada.
12. Krugman, P., R. (1990). *Rethinking International Trade*, Cambridge: MIT Press.
13. Lewis, W. A. (1954). *Economic Development with Unlimited Supplies of Labor. The Manchester School. Vol 22, No 2.*
14. Lopes.F.L. (1984). *Inflacao inercial, hiperinflacao e disinflacao: Notas e conjecturas*, Revista da APNEC, 8.
15. Melik, V., Schmit, V., Ostanek, F. (1970). *Osnovna šola na Slovenskem: 1869-1969*, Slovenski šolski muzej, Ljubljana.
16. Repe, B. (2015). *S puško in knjigo*, Cankarjeva založba, Ljubljana.
17. Rochon, L.P. (2016). *Monetary economics of production in An Introduction to macroeconomics (A Heterodox Approach to Economic Analysis)*, ed. Rochon L. P. and Rossi S., Edward Elgar Publishing, Cheltenham, UK Northampton, MA, USA.
18. Rodrik, D. (1995). *Trade and Industrial policy Reform in Handbook of development Economics*, ed. Behrman J. and Srinivasan T.N., Volume 3B, North Holland, Amsterdam, New York, Oxford, Tokyo.
19. Rostow, W.W. (1953). *The Process of Economic Growth*. Oxford. Oxford University Press.
20. Setterfield, M. (2016). *Economic growth and development in An Introduction to macroeconomics (A Heterodox Approach to Economic Analysis)*, ed. Rochon L. P. and Rossi S., Edward Elgar Publishing, Cheltenham, UK Northampton, MA, USA.
21. Smith A., (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*, Publishers: W. Strahan W., Cadel T. - London, Scotland, Great Britain.
22. Syrquin, M. (1991). *Patterns of Structural Change in Handbook of development Economics*, ed. Chenery, H. and Srinivasan T.N., Volume 1, North Holland, Amsterdam, New York, Oxford, Tokyo.
23. Statistični urad Republike Slovenije, Ljubljana:
 - a) *Statistični letopis 1990, Statistični letopis 1991, Statistični letopis 1993, Statistični letopis 1995, Statistični letopis 1996.*
 - b) *Online, Accesses: 15. Maj 2019., Podatkovna baza SI-STAT, Ekonomsko področje, Nacionalni računi, bruto domači proizvod, letni podatki (ESR 2010).*
 - c) *Online, Accesses: 15. Maj 2019., Podatkovna baza SI-STAT, Ekonomsko področje, Nacionalni računi, Izvoz in uvoz blaga in storitev.*
 - d) *Online, Accesses: 15. Maj 2019., Podatkovna baza SI-STAT,*

Ekonomsko področje, Raziskave in razvoj, Bruto domači izdatki za RRD dejavnost.

- e) *Online, Accesses: 15. Maj 2019., Podatkovni portal SI-STAT/ Ekonomsko področje / Cene / Indeksi cen življenjskih potrebščin / Indeksi cen življenjskih potrebščin, Slovenija, letno.*
- f) *Online, Accesses: 15. Maj 2019., Podatkovni portal SI-STAT/ Demografsko in socialno področje/ Trg dela / Izobrazba.*
- g) *Online, Accesses: 15. Maj 2019., Podatkovni portal SI-STAT/ Demografsko in socialno področje/ Trg dela / Delovno aktivni.*
- 24. *Štiblar, F. (1991). Zunanja zadolženost Jugoslavije in njenih federalnih enot, Teorija in praksa, letnik 28, številka 7, Ljubljana.*
- 25. *Vlada Republike Slovenije, Ministrstvo za finance (2009). Interna informacija o izgubi javnofinančnih prilivov v 2009 zaradi znižanja stopenj dohodnine, davka od dohodka pravnih oseb in davka na izplačane plače, Ljubljana.*

Ing. Lukáš Melecký, Ph.D.
doc. Ing. Michaela Staničková,
Ph.D.
VŠB-Technical University of
Ostrava
(Ostrava, Czech Republic)

**HOW DO THE EU
MEMBER STATES USE
THE EU COHESION
POLICY FOR REGIONAL
DEVELOPMENT?
MONITORING OF THE EU
VIA COHESION
MONITOR**

Introduction

Only by comprehensively democratising the European project can we meaningfully strengthen European cohesion. Cohesion: What do we mean? The definition of the term ‘cohesion’ is based on the theory of disparities. Then, the cohesion can be expressed by a level of differences among states, regions or groups that are politically and socially tolerable. We also accept a general assumption: the lower these differences, the higher the level of coherence and vice versa (Molle, 2007). Based on the typology of disparities discussed above, three dimensions of cohesion can be recognised, economic, social and territorial. Economic cohesion evaluates economic convergence and can be expressed by disparities reducing development levels of countries

and regions by economic indicators (e.g. Gross domestic product per capita, Gross expenditure on research and development). Social cohesion tends to achieve objectives in employment and unemployment, education level, social exclusion of different groups and in demographic trends. Mostly the indicators of the labour market (employment rate, unemployment rate, long-term unemployment) measure the level of social cohesion. Territorial cohesion is an additional term to economic and social cohesion. This concept develops economic and social cohesion by transferring the primary objective of the EU, i.e. balanced and sustainable development into territorial context. The territorial cohesion aims to promote harmonious and sustainable development of all regions, based on their local characteristics and resources. Territorial cohesion is the balanced distribution of human activities within the EU, including equal access for citizens and businesses to services of general economic interest, irrespective of the territory to which it belongs to, and it supports regional integration and cooperation between regions. The level of territorial cohesion can be measured by a wide range of indicators from the environment, transport, health care, science, information society, tourism and others. (Kutscherauer et al., 2010). Put another way; cohesion is “the connective tissue of political systems” – a precondition for effective liaisons between various parts of a system. Consequently, a decline in European cohesion would undermine the European Union’s capacity to collectively address common areas of concern, thereby jeopardising the fragile legitimacy upon which it is built (Leonardi, 2006).

These issues are central to the EU Cohesion Monitor, a quantitative index created to measure and visualise the factors that hold Europeans together. The EU Cohesion Monitor groups these factors into two broad categories: structural cohesion and individual cohesion. Hence, measures of structural cohesion mainly provide an overarching view of the large-scale relationships between the Member States. Meanwhile, their own cohesion relates to the beliefs and interactions of individuals within member states. It captures citizens’ perspectives on the EU and its policies; their interactions with other Europeans; their political engagement; and their outlook on both the EU’s future and their own.

Theory

The theoretical concept of cohesion is associated with distinguishing three concepts of cohesion. The first concept (cohesion) sees cohesion as a policy objective, which seeks to promote the harmonious

development of economic activities and creating equal opportunities for all citizens throughout the EU. This concept thus provides an answer to the question "what" is the objective of Cohesion Policy. The second concept (convergence) is an expression of "how" the concept of cohesion can be achieved. The term convergence is generally defined as the process of approximation of specific characteristics of the units. In the theories of regional development, convergence represents the balancing of the socio-economic disparities between regions. The concept of convergence deals with the achievement of socio-economic convergence of countries as a necessary precondition, without which the political objective of cohesion cannot be fulfilled. Cohesion is in this theory, the output of the process of convergence. The third concept is the integration process provides an answer to the question of "when", which implies the creation of supranational institutions and adopting rules to support the process of achieving convergence and cohesion (Leonardi, 2005). In the European concept of cohesion, coherency is seen as the realised output of the socio-economic convergence process, without whose implementation cohesion would not be possible to achieve. In the long term, the concept of cohesion can be realised only under the assumption that political actors create formal institutions and rules that allow to make critical decisions that contribute to the achievement of cohesion. "The concept of Cohesion Policy at European level has not been a passive concept, which merely redistributes income, but a dynamic model of policy, which seeks to create a means by focusing of factors of economic competitiveness and employment, especially where there is a considerable unused potential. Cohesion Policy is the specific policy seeking on redistribution resources between the EU Member States through the EU budget to support economic growth and sustainable development." (Melecký, Staníčková, 2015). The concept of cohesion and its practical implementation in terms of the EU Cohesion Policy is one of the critical issues of current and future development of European integration.

Methodology

The European Council of Foreign Relations (ECFR) set out to better understand what makes EU countries and societies stick together. The EU Cohesion Monitor (ECFR, 2019) brings all these factors together in a comprehensive measurement of European cohesion across time (trends from 2007 to 2017) for all 28 EU Member States. The EU Cohesion Monitor measures two dimensions of cohesion. 'Individual cohesion'

quantifies citizen's direct experiences, opinions, and expectations. 'Structural cohesion' measures cohesion at the macro level of policies, the state, and the economy. Each dimension comprises an equal number of building blocks called indicators. There are five on the individual side, and five on the structural side. Each indicator is further divided into 42 factors drawn from official data sources such as Eurobarometer and Eurostat.

To ensure comparability of different data types at the factor level, the EU Cohesion Monitor uses linear transformation to a scale from 1 to 10 for all but two of the ten indicators. The indicators 'Policy Integration' and 'Security' are limited to a range of 1 to 7 to leave room for extending the range to the full 10 points, should European integration progress further. The transformation to range requires setting boundary values for each factor's minimum and maximum, which will score 1 and 10 (or 7) points, respectively. The EU Cohesion Monitor uses a relational approach to most transformations. It is based on the middle 50 % of all factor observations for every year since 2007 and all 28 EU Member States.

Thanks to the transformation of all factors to a standard scale, the results for each of the ten cohesion indicators can usually be derived by determining the average of their factors. For those factors that follow a counting logic, e.g. a country's numbers of opt-outs in the 'Policy Integration' indicator, the factors are added. The highest levels of aggregation are the results for all individual and structural indicators. They are referred to as the individual and structural dimensions of cohesion and are used to capture the full scope of all indicators and factors of each aspect in a single measurement. This aggregation of the EU Cohesion Monitor's overall scores is done by drawing the simple average of all individual and structural indicators, respectively.

Results and Discussion

Results are not only presented for the individual EU Member States but also 11 country groups. Figure 6.3 1 shows 9 of these 11 groups, their composition and the overlap between them. 'An asterisk marks Eurogroup' members, 'New Hanseatic League' members by a ring. The impact of country groups on the politics of the EU and European integration at large has been changing over time and has often depended on the policy issue at stake. Some groups are more formalised or institutionalised than others. Group data is provided by combining the scores of their respective member countries.

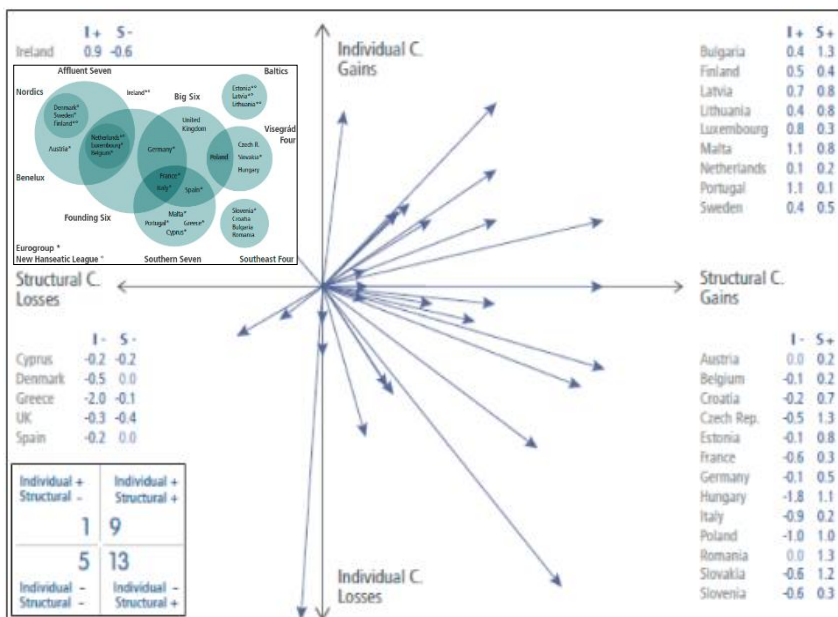


Figure 6.3 Country groups and overall changes

Source: ECFR, 2019

With European cohesion bouncing back after several years of crisis, 17 out of 28 countries have a higher cohesion score than in 2007, with nine countries growing both in individual as well as structural cohesion. Overall, the level of cohesion is most substantial in Luxembourg, Belgium, Estonia, Lithuania, and Malta. Alongside Portugal, Malta is also the most significant overall riser, with Portugal recovering strongly after difficult years between 2011 and 2013. The Baltic States – Estonia, Latvia, and Lithuania – are outperforming their eastern and central European neighbours, and in part western European countries too on both individual and structural cohesion. The eastern and central states made big gains in structural cohesion, see Figure 6.4.

The Cohesion Monitor also sheds light on significant losses in cohesion, including in crucial EU Member states. The levels of individual cohesion in Italy and France have declined considerably over the last decade.

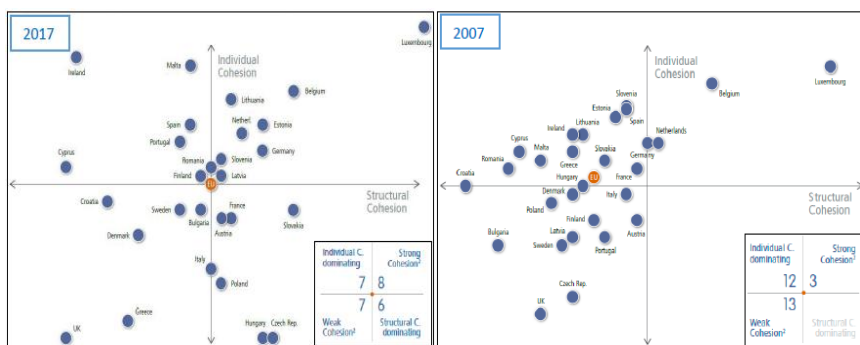


Figure 6.4 Time-comparison of overall results

Source: ECFR, 2019

Five countries – Cyprus, Denmark, Greece, the UK, and Spain – experienced a decline in both individual and structural cohesion since 2007. Greece experienced the most dramatic fall in overall cohesion, driven mostly by its collapse in own cohesion. Even though the Visegrad group (the Czech Republic, Slovakia, Hungary, and Poland) experienced a significant rise in structural cohesion, their levels of individual cohesion fell considerably over the past decade, see Figure 6.5 and 6.6.

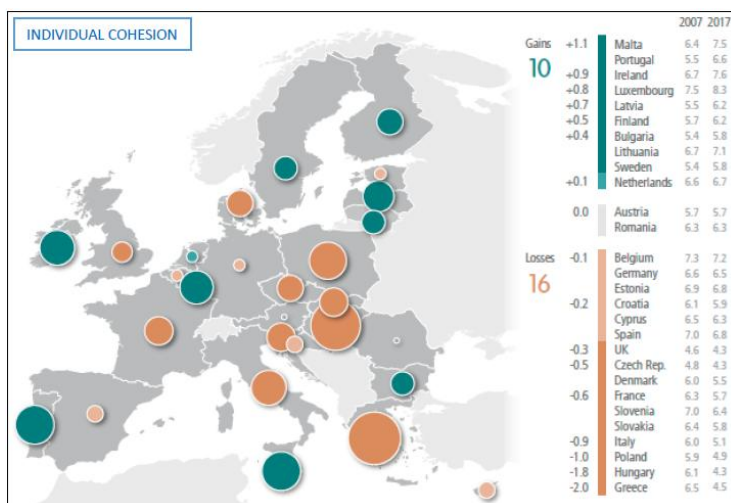


Figure 6.5 Individual cohesion 11-year trend

Source: ECFR, 2019

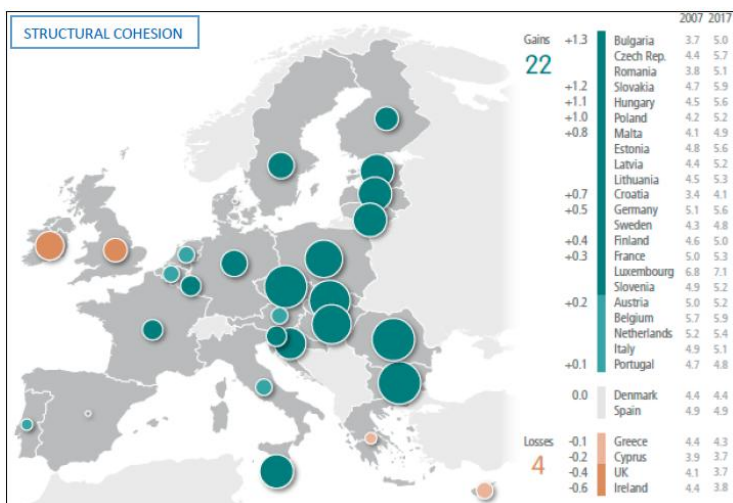


Figure 6.6 Structural cohesion 11-year trend

Source: ECFR, 2019

A critical overall finding suggests the ‘Engagement’ indicator drives losses in individual cohesion. This indicator reflects the performance of Eurosceptic and anti-EU parties as well as the turnout in national and European elections. The new Cohesion Monitor confirms the finding from previous editions that, while structural factors of cohesion have proven to be stable in crises, individual factors show much higher volatility, see Figure 6.7. This, in turn, means that individual factors of cohesion matter significantly to (re)strengthening cohesion. Attitudes and experiences, as well as the overall well-being of European citizens, should be the focus of all those interested in working for a more cohesive EU. The cohesion trajectories of all 28 Member States help identify some key lessons about which policies can help strengthen cohesion in the EU at large.

Conclusion

The considerable geographic, demographic, and cultural diversity of the EU also brings differences in the socio-economic position of the EU Member States. Different results in economic performance and living standards of the population indicate the status of the competitiveness of every country.

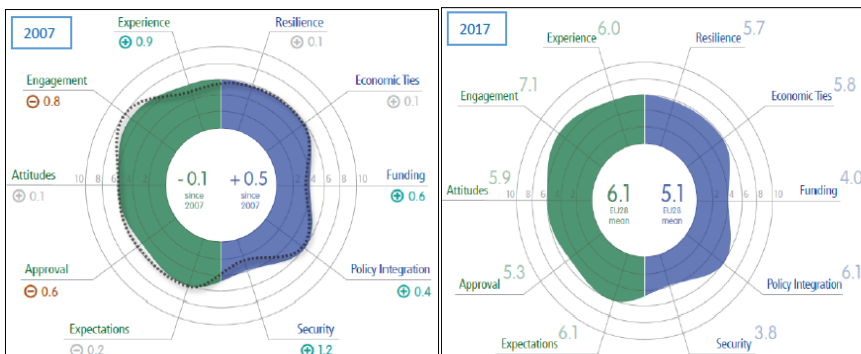


Figure 6.7 Time-comparison of data distribution

Source: ECFR, 2019

Each country should know its competitive advantages and disadvantages and aim to strengthen advantages and reduce disadvantages what support the EU Cohesion policy endowing 351.8 billion EUR in the 2014-2020 period to improve social, economic and territorial cohesion and reduce disparities between EU regions. Overall, the latest findings of the Cohesion Monitor reveal that the binding forces of the EU have returned to levels of strength not seen since before the pre-crisis year of 2007; and they have become even stronger. Results also show that the electoral successes of anti-European parties mean the political and social environment for cohesion in Europe remains fragile, and each country has its cohesion trajectory and profile.

Acknowledgement

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References:

1. EUROPEAN COUNCIL OF FOREIGN RELATIONS. (2019). *EU Cohesion Monitor*. Germany: Berlin. ISBN 978-1-911544-81-4
2. KUTSCHERAUER, A. et al. (2010). *Regional disparities in regional development - concept, theory, identification and assessment*. Ostrava: VSB-TUO. ISBN 978-80-248-2335-5.
3. LEONARDI, R. (2006). *The impact and added value of cohesion policy*.

- Cohesion in the European Union. Regional Studies 40(2): 155-166.*
4. LEONARDI, R. (2005). *Cohesion Policy in the European Union: The Building Europe*. New York: Palgrave Macmillan. ISBN 978-1-4039-4955-4.
 5. MOLLE, W. (2007). *European Cohesion Policy*. London: Routledge. ISBN 978-415-43811-X.
 6. MELECKÝ, L., STANÍČKOVÁ, M. (2015). *Cohesion and competitiveness of the selected countries and regions of the European Union*. Ostrava: VSB-TU Ostrava. ISBN 978-80-248-3838-0.

Pártlová Petra

*PhD in Economy and Management,
Assistant Professor, Faculty of Corporate
Strategy, Department of Management
The Institute of Technology and Business
in České Budějovice
(České Budějovice, Czech Republic)*

**LAGS AS A WAY
TO EUROPEAN
RURAL AREA
DEVELOPMENT
ON THE EXAMPLE
REGION OF
SOUTH BOHEMIA**

When writing the paper, it was necessary to deal with details of rural areas and their definitions. This is an area that has not been satisfactorily implemented into the legislative framework of the Czech Republic. Although the Act no. 252/1997 Coll. On Agriculture was approved in 1997, neither the concept of rural area nor its definition is included. Even although rural development is supported by considerable funds (municipal, regional, national resources and the resources of the European Union (EU)). Rural issues also directly affect the structure, organization and management of LAG and countryside rural areas just as rural areas have determined the development of LAGs.

As its leaders claim, the region of South Bohemia is profiled as a rural or mostly rural region. Defining a rural area as an area outside the urban area (inside, outside) is not that useful for the needs of active involvement of LAGs in the rural region. Demographic, social or cultural characteristics that might move a place outside or inside rural areas would be much more useful.

Defining rural areas should be based on both a global aspect (as defined by the Organisation for Economic Cooperation and

Development (OECD)) and a national aspect. At least but not least, an assessment of the problems of rural areas in terms of the research questions is performed.

Defining rural areas – a global aspect

The EU is aware that rural areas hold a large percentage of the entire territory of the Member States. It is reported that it is up to 90% (Boel, 1994, p. 9).

But how to define rural areas beyond Czech borders? Is there a unified EU's opinion; or it is seen heterogeneously? OECD is fully aware of what has been said above; there is a considerable heterogeneity of rural areas in different areas. Its official web page says the following: "Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between urban and rural population is not amenable to a single definition that would be applicable to all countries, "(OECD, 2016). However, it follows as: "National definitions are most commonly based on size of locality ". If it is true that in terms of size and layout of a site is the most important for most national points of view, then we should try to seek a different direction because this concept alludes to the specifics of the Czech Republic.

The primary aspect of the OECD is quantitative and demographic as it is the density of population per 1 km². NUTS level 5 defines a rural area as a locality with less than 150 inhabitants per km². This indicator is also used by NUTS level 3, which is divided into three types. The predominantly urban areas have less than 15 % rural population. Intermediate regions are those, where the rural population is between 20 % and 50 % of the total population (as seen by NUTS-5). An area is predominantly rural, if the share of population living in rural area is higher than 50 % (Víšek, 2007, p. 11).

Further, OECD classifies rural areas as areas close to a city. Such area is influenced by suburbanization with a significant increase of population. Its population mostly commutes to jobs in local centres. Most suburban rural land is used for agriculture. Intermediate rural area is developed in average; there is a greater distance from large urban centres, but also good connections and accessible infrastructure. Remote rural areas are peripheral rural areas that are sparsely populated, isolated from sub-regional centres and major transport routes.

As defined by the Council of Europe (CoE) and the European commission, rural areas are classified by their importance for the

national economy. The first type includes integrated rural areas with growing population, employment in the secondary and tertiary sectors and agricultural activities, which is a key to land use. Intermediate rural areas are those in which the preponderance of the primary and secondary sectors and generally large proportion of agricultural activities. The last type is remote rural area, an area with low population density, which operate with the lowest incomes, the population is relatively old and is employed in agriculture.

A new typology of rural areas has been discussed by the organizations of the EC, DG Agriculture and Rural Development, DG AGRI in short; DG Joint Research Centre, DG JRC in short and DG Regional and urban Policy, DG REGIO in short. They were founded by in cooperation with EUROSTAT.

The typology is based on NUTS-3. It was a response to the problems of the OECD typology based on population density at the LAU 2 level. The size of settlements as mentioned above and a primary classification caused that there was one predominantly urban region and one rural region only in the Czech Republic.

The new typology uses a rectangular network of cells of 1 km² (raster cells) to capture the municipal level. These population cells capture the population density to identify urban areas. Partial monitoring includes areas with more than 300 inhabitants per 1 km², and grouping a network of cells showing settlements with more than 5,000 inhabitants and also grouping that includes diagonal continuity. It resulted into differentiating of many areas such as reducing the number of rural population in sparsely populated countries with large administrative units (Matoušková, 2011, p. 6). It also modified proportion of the population that is important for the inclusion of the region in accordance with the rural grid cells. Predominantly urban regions have a share of the population in rural grid cells less than 20%, compared with the OECD model + 5%. Significantly rural (intermediate) regions are under a model of population in rural grid cells between 20% and 50% (OECD 15-50%) and the last, predominantly rural, regions have a proportion of the population in rural grid cells greater than 50%, i.e. identically with the previous OECD model.

This classification has brought some change in the stratification of regions, and their integration, which for quite significant in the Czech Republic.

A certain pre-requisition of the above mentioned typology is the classification of Dijkstra-Poelman, which focused on the OECD

typology. They have adapted it with regard to availability of centres. Their aim was to differentiate the rural regions, because in reality these areas were quite different just by its size. As the primary distinguishing feature, they have determined the availability of urban centres. The decisive time was set at 45 minutes. The NUTS-3 typology of rural regions by the OED was completed by Dijkstra-Poelman to more detailed degrees of relations between rural and urban areas into the following: predominantly urban; intermediate accessible; intermediate remote; predominantly rural accessible; predominantly rural remote.

EDORa typology has revised the Dijkstra-Poelman's typology. Within the framework of ESPON 2013, a new typology was designed⁴. As reported by Matoušková, it should be used to: "to express geographic types and as a framework for analysis of trends and future prospects for policy recommendations." (Matoušková, 2011, p. 8). EDORA uses a three-dimensional model, which combines the typology of Dijkstra-Poelman and the typology of EDORA rural regions of NUTS 3 including the intermediate and predominantly rural regions by the structural types defined as follows: agrarian – consumption countryside – diversified, strong secondary sector – diversified, strong private services. The third dimension includes the growth or the decline of the region (from growing through above-average to below-average to declining).

Defining rural areas – a national aspect

Within the Czech Republic, the definition of rural areas has also been discussed. It means that the concept of rural areas oscillates around some generally accepted statistical indicators and their associated additional attributes. It is also true that its definition of rural areas is used by various disciplines and each is definition is slightly different, especially with regard to the issues of different fields of study.

The crucial question is whether it is even possible to define rural areas clearly and precisely; taking into account, for what purpose and under what conditions it is defined (Binek et al., 2009, p. 11).

An example of rural area diversity is the definition of professor Sýkora (Czech Technical University) who, as an architect, defines a rural area as an area of villages and secluded houses with gabled roofs, agricultural buildings, energy networks and the landscape. However, he also notes that rural areas are considered areas that have less than 2 000 inhabitants (Sykora, 1998, p. 3). On the other hand, Perlín, defines rural areas as areas of open countryside and rural settlements (Pospech et al.,

2014, p. 61). Also, in the conference paper called *Město, venkovský prostor a krajina* (City, the rural space and landscapes) Baše accents the number of 2,000 inhabitants and a population density of 8 to 50 inhabitants per km² (Baše 2002, p. 132). Another aspect of the rural area focuses on the predominance of agricultural functions of rural settlements, while areas that lose this function are seen as intermediate, transitory areas. Furthermore, the definition of rural areas indicates that rural areas are typical of low population density (reported without borders) and a higher number of jobs in agriculture. Rural areas are defined as a set of physical spaces, social structures, typical rural subculture and the perception of the concept of time in relation to the cycle of life (Hudečková, Lošťák, Ševčíková, 2006, p. 38). As revealed from this brief review, there is no clear definition of rural area in the Czech Republic. This does not necessarily mean that this is a purely negative phenomenon. On the contrary it can be said that it is a completely natural situation."

Maříková in her contribution to the anthology "*Venkov je náš svět*" (The countryside is our world) used a very clear definition of *Velký sociologický slovník* (Comprehensive dictionary of sociology): Rural area is a populated area outside an urban area traditionally characterized by a focus on agriculture and lower population density, but also a different life style, usually in relation to nature, and also with a different social structure in comparison with the city (Maříková, 2006, p. 422). As she further states, the most common quantitative criterion is the size of the municipality to 2,000 inhabitants, while smaller communities are considered rural, together they make the rural areas. She also adds that this definition is used since the 20s of the 20th century in Czech literature, and that an alternative threshold of 10 000 inhabitants was also used once (p. 428). In terms of the size of a town, she says that the usual limit was 10,000 or more inhabitants, or even less in the situation when a town was a district town, connected to collection of more detailed information in terms of the government. Based on such definition, in the region of South Bohemia, there would be one only town in each district and the spa town of Trebon would be just a village. When defining a rural area, it is necessary to take into account that the concept of countryside represents a very heterogeneous region also in the Czech Republic. And not just in terms of the size of the settlements, but also from an economic point of view. There are rural areas showing growth, on the other hand, there are areas which can be described as declining

(Kouřilová et al., 2012, p. 8). For a clear definition of rural area, it is therefore likely to design a single scale defining different "subtypes" of the countryside and which would also survive in the event of a critical view of all relevant scientific disciplines ranging from sociology to power industry. All this is such an important task that it will require serious effort and it is questionable whether such a consensus can be found. Otherwise, we cannot but agree with the view that you cannot define a single countryside, just several types of rural areas with different characteristics, quantitative and qualitative (Binek et al. 2011, p. 7).

Let us add that the issue of rural areas is discussed by the Parliament of the Czech Republic, in Act no. 128/2000 Coll., on Municipalities, where its Section 1 of §3 defines that a municipality, which has at least 3,000 inhabitants, is a town if it is confirmed by the chairperson of The Parliament of the Czech Republic after the government statement.

Recently, there has been a new aspect of the definition of rural areas in the Czech Republic. It is the availability or driving distance to major centres. This is due to a direct link between depopulation of rural areas where the driving distance is the greatest (Pospěch et al., 2014, p. 65).

In the Czech Republic, the definition of rural areas as close or remote to cities has been used approaching the perception of rural areas to the rest of the EU (see the previous part). However, it is still important to remember that the Czech Republic with its relatively dense network of small settlements cannot be defined under the same limits as the EU. Pospěch further states that in the context of determining the remote rural areas, 779 remote villages were identified, with the driving distance to a town of more than 23, 4 minutes. On this basis, and comparing the suburban communities, it was proved that population grew only very slowly in the case of remote villages from 1991-2012 while in the second case was increased to 140% of the original state (Pospěch et al., 2014, p. 72, 74).

Finally, in addressing the definition of rural areas, the Czech Statistical Office (CSO) published an interesting study *Varianty vymezení venkova a jejich zobrazení ve statistických ukazatelích v letech 2006 až 2006* (Variations in definition of rural areas in statistical indicators from 2006 to 2006) and its regional and mutations. Within them the CSO uses different definitions of rural population ranging from the population to the status of cities and the socio-economic indicators. Due to the erudition of CSO, it is possible to compare different views of the rural areas and to include these definitions into the geography of the Czech Republic.

As different types of rural areas are proved, then we face a fundamental paradox. The rural development policy of the Czech Republic, mentions such differences, however, different accents are used in the case of cutting allocations. For example, Rural Development Programme 2007 - 2013 (the RDP 2007 - 2013) allowed submitting applications to municipalities to 500 inhabitants, but in the case of Axis IV. LEADER support communities it is up to 25,000 residents. As reported by Binek, if it is to be a definition of rural areas for application development tools, then this definition must be unambiguous as it is usually associated with the redistribution of public funds (Binek et al. 2011, p. 7).

LAG in the region of South Bohemia by its date of establishment

LAGs started in the Czech Republic in 2003. In the region of South Bohemia, the first LAGS were founded a year later, in 2004.

During this year, twelve local action groups were officially founded, a full 70% of all LAGs that have been active so far in the region.

The following year, two local action groups were established and in 2006 a single LAG was founded. The next two years meant a difficult journey to win support for their operations from the Rural Development Programme 2007 - 2013. However, even after this period, the efforts were made to expand the LEADER method in Czech Republic. The result of these efforts was the creation of a stimulating environment for the emergence of other local action groups. In the case of South Bohemia's, it meant a helping hand meant for establishing two other LAGs. In total, the number of ranged to 17.

The seventeen LAGs take a considerable part of the area of the region of South Bohemia. Similar situation applies for number of residents living in the area of LAGs in the region of South Bohemia. A total of 601 municipalities of the region are incorporated into LAGs. Due to the fact that there are 623 municipalities in the region of South Bohemia, it is obvious that LAGS comprise the vast majority of the region (see Figure 6.9).

The majority of population lives in an area that is inside a LAG. However, such representation is not that high. Why is this so? Let us explain further. As the official data (as of 31. 1. 2014) revealed; a total of 636,707 permanent residents were registered in the South Bohemian Region. Of this area, there were just 430,911 inhabitants living in an area of LAGs. (NN LAG CR 1b). Figure 6.10 shows the percentage of the population.

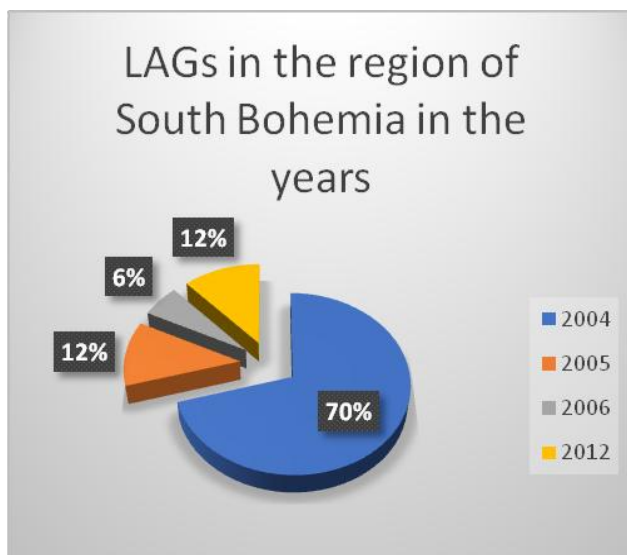


Figure 6.8 LAGs in the region of South Bohemia in the years
Source: own research

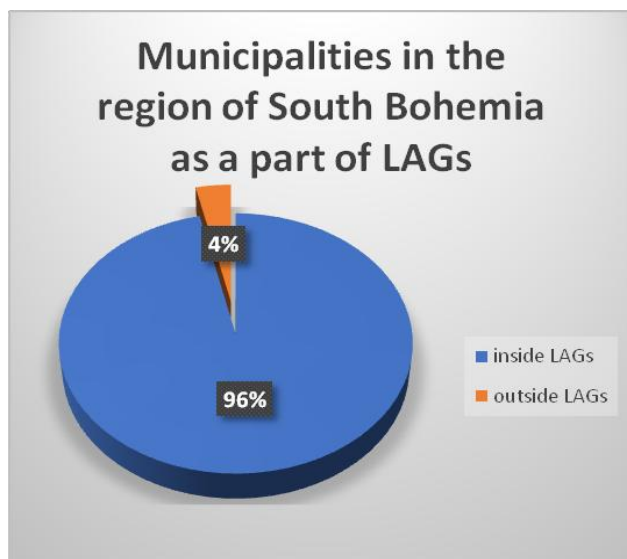


Figure 6.9 Municipalities in the region of South Bohemia as a part of LAGs

Source: own research

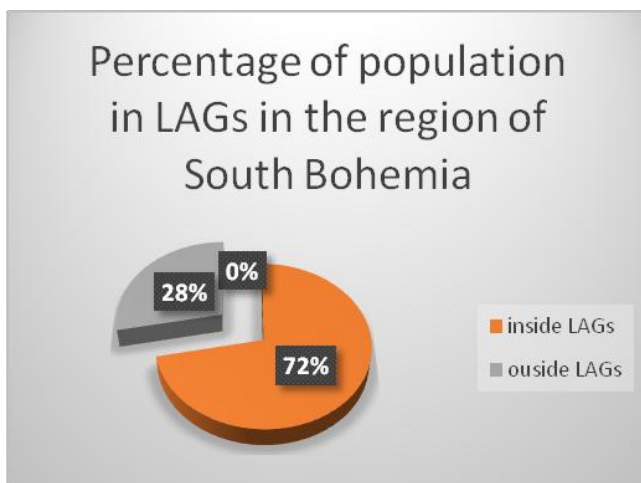


Figure 6.10 Percentage of population in LAGs in the region of South Bohemia

Source: own research

The area of the above mentioned 601 municipalities is 9 402km² (as of 1. 1. 2014). This is a major part of the South Bohemian region, as its total area was 10,057 km² (CSO 2014).

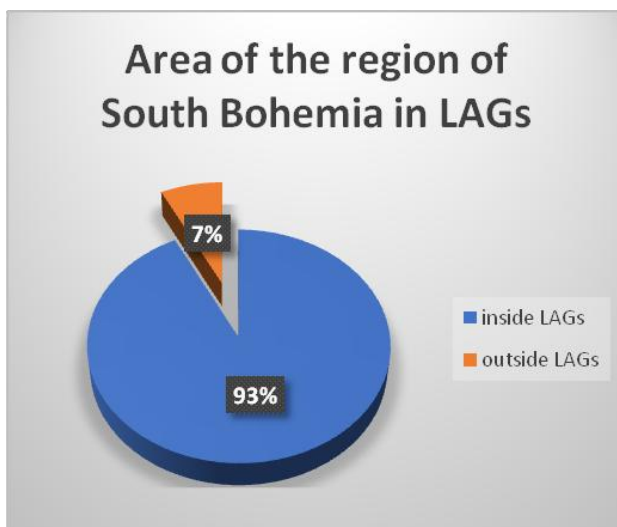


Figure 6.11 Area of the region of South Bohemia in LAGs

Source: own research

Description of the area outside the LAGs in South Bohemia

Why the LAGs do not comprise the rest of the area, population and municipalities of the region of South Bohemia? In most cases, this is due to the restrictions that were already set up in the above mentioned LEADER CR programme and followed by the Rural Development Programme 2007 – 2013 with tiny differences. For details see the following table.

Table 6.1

Area outside the LAGs in South Bohemia

Name	Limits	Min.	Max.
LEADER CR	Population density	-	120 resid./km ²
	Municipalities (population)	-	25 000
	Area (population)	10 000	100 000
RDP 2007 – 2013	Population density	-	150 resid./km ²
	Municipalities (population)	-	25 000
	Area (population)	10 000	100 000

Source: Czech Statistical Office, own processing

As the table revealed, towns with the population of more than 25 thousand were excluded from the possibility to be included into an LAG. In the case of the South Bohemian region, this means that not only České Budejovice (population of 94 747; as of January 1st, 2007), Písek (population of 29,909; as of January 1st, 2007) and Tábor (population of 35,859; to as of January 1st, 2007) were outside an LAG. The date of January 1st 2007 is mentioned as the beginning of the reporting period, when the area of municipalities was investigated because of possible involvement in the LAGs.

Taking into account the data on the population of these towns as of January 1st 2014, it is a total population of 157,831. Such number of people living in the region of South Bohemia could not be included into an LAG, due to the limits in terms of population. This implies that 48,564 population remains outside the LAGs, although the area should have been included into an LAG. However, such number appeared to be

too high even after repeated checks. The initial population data above (430,911) was obtained on the basis of data usage of the National Network of LAGs in the Czech Republic as of January, 1st 2014 NS for each LAG in the region of South Bohemia. It was subsequently modified by subtracting municipalities of the LAG Krajina Srdce (Landscape of my heart), which lies outside the region of South Bohemia and adding the municipalities of the Jemnicko LAG, located in this region.

To verify the real situation, it was necessary to contact the NN of the LAGs in the Czech Republic and request a precise list of municipalities in the region of South Bohemia, not included in the LAGs. There are actually 22 (the above mentioned 601 municipalities in the LAGs were verified). Consequently, it was necessary to use data of the CSO as of January, 1st 2014. Of these, showed that a total of 23,250 inhabitants lived in 19 municipalities (without 3 towns with the population over 25,000) on January, 1st 2014.

Based on the data verification, it is possible to say that there was a total population of 455,626 inside the area of LAGs on January, 1st 2014. This was 71.6% of the total population of the region of South Bohemia. Moreover, after deduction of the 3 towns with the populations over 25,000 inhabitants, the LAGs cover 96.3% of the population. This means that local action groups occupy more than 90% of the region regarding its size, number of municipalities and the number of inhabitants (with respect to the limits of the RDP).

The beginnings of the LEADER method and its application

The majority of Czech LAGs started in 2004. In 2004, the first support programme of the LEADER method was designed. LEADER CR was approved by the Minister of Agriculture on December, 16th 2004 on the basis of the law on state budget of the Czech Republic for 2004. LEADER CR was created under the Ministry of Agriculture. The total of 294 098 000 CZK was allocated from its budget between 2004 and 2008. This represents the support of almost 59 million CZK for each year that could have been used by the LAGs. The programme was set up to support the local economy, service jobs, but also the cultural and social life, and thus helped alleviate the depopulation trends. It gave the opportunity to support local action groups' projects by consensus of the public, business and non-profit sectors considered important for the development of its territory.

During the programme period, the programme administered 201

applications for support to LAGS, including 31 in 2004, 41 in 2005, 64 in 2006 and 57 in 2007 and 8 in 2008. It meant support to 451 projects and 98.5% of the allocated budget. For LAGs, this meant the first experience with the distribution of funds in their regions. Based on the developmental strategies for the LAGs and after the conclusion of the implementation of delegated activities each local action group started to perform its administrative activities that set the transparent distribution of funds. It was necessary to ensure the receipt of applications from the area they controlled and to select those that would be supported. They were also included in the ex-ante, interim and ex post control of projects on the spot. It was the Leader Czech Republic, programme which was completely covered from national sources and the LAGs gained experience so essential to their future activities.

In the region of South Bohemia, there were nine active local action groups within the Leader CR Programme; thanks to whose activities a total of 70 projects could be supported. The percentage is captured in Figure 6.12. As can be seen, when counting the total number of 13 regions (Region Prague could not be supported due to the limits of the LEADER programme in the Czech Republic), such number of supported projects in the region of South Bohemia is undoubtedly an important success, also regarding the fact that this area is the second largest region.

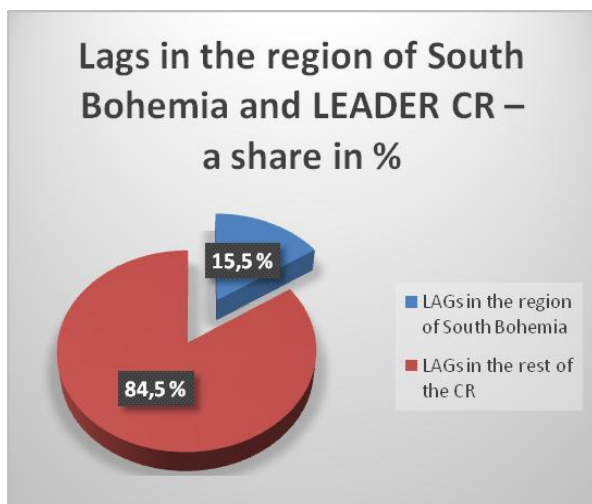


Figure 6.12 Lags in the region of South Bohemia and LEADER CR – a share in %

Source: own research

At this time the new LEADER + programme started. This program enabled local action groups to draw funds on to design their pilot strategies for the period 2007 - 2013. That was very important support amounting to several hundred thousand CZK, it allowed LAGs to keep functioning even in the days before the new programme began fully operational.

Submitting applications for subsidies of LAGs (SPL) from RDP 2007-2013

The first call (2007) received a total of 102 applications for support of the LAGs, of which 48 local action groups were chosen. The structure and quality of the presented Strategic Plan LEADER was assessed. The plan was necessary define the needs of the area of LASGs in a way which was allowed by the rules of the programme.

In the region of South Bohemia, the first call for support was used by 11 LAGs.

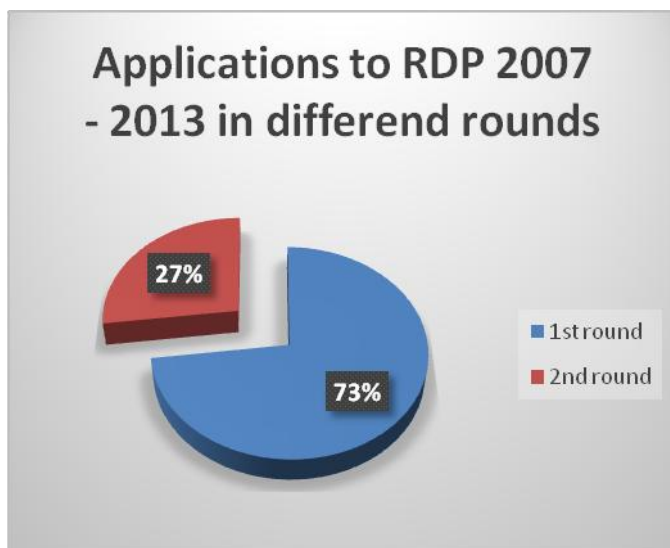


Figure 6.13 Applications to RDP 2007 – 2013 in different rounds

Source: own research

73% of LAGs therefore used the first round of application and eight of them were successful LAGs. In comparison with the total number for the CR, South Bohemian LAGs therefore accounted for 16, 6% of all successful applications submitted to the RDP in the period of 2007 –

2013.

The second round of applications in 2008 was used by 84 LAGs in the Czech Republic. Among them, 32 were supported at first, and then other 32 by the decision of the Minister of Agriculture, which meant a total of 64 LAGs. In the region of South Bohemia all the unsupported LAGs had the possibility to ask for support- Seven applications were therefore submitted, three of which were not successful in this round of selection and therefore they were unfortunately unable to distribute any allocation throughout the period. Despite this negative fact, 80% of South Bohemian LAGs were supported under the new Rural Development Programme 2007 – 2013. Those LAGS were subsequently authorized to distribute resources. Their actions proved that the LEADER is very beneficial also in the region of South Bohemia as an important support not only the development of the area, but also increase citizens' interest in the issue of development of local area.

Number of projects implemented by LAGS

Local Action Groups administered, implemented or participated in implementation of a large number of projects in the previous years (2007-2015, following the rule of N+2). The total of 1,313 as reported by the NN LAGs of the Czech Republic is not necessarily the total amount. The number of projects implemented under the measures of IV.1.2. and IV.2.1 can be exactly reported. The total number of other projects is more or less indicative. Based on data from NN LAGs in the Czech Republic, it is highly likely that some LAGS did not report all the projects which they participated in. An example might be a large number micro-projects annually organized by the National Rural Network together with the LAGs. As already mentioned, this difference would not be crucial for documenting the benefits of LAGs, because we focus primarily on the RDP 2007 - 2013. The complete list is presented in the figure below.

The amount of the allocation for the projects of LAGs

In the strategic plans of the LEADER, Local Action Groups supported 1,196 projects in total as submitted by regional applicants.

On this basis, it is necessary to calculate what amount of support to these projects and the average allocation for each project. In the case of IV.1.2 measure under which LAGs' calls were supported, an allocation of 413,719,892 CZK was used through the South Bohemian LAGs under the RDP 2007-2013.

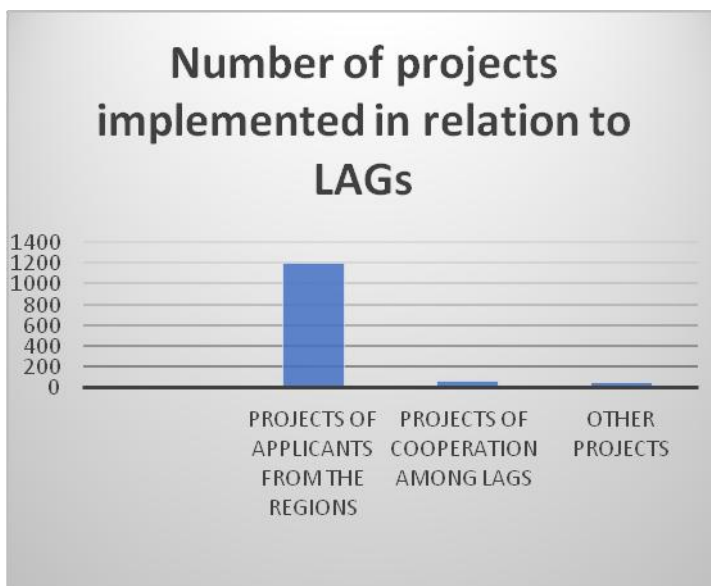


Figure 6.14 Number of projects implemented in relation to LAGs

Source: own research

The average grant per a project amounted to more than 345,919 CZK. This means that most common support was granted to projects supported by less than a half a million CZK.

The total allocation only represents the expenditure on each project of the final applicant in the sum of all applicants in the South Bohemia's LAGs. However, if considering the overall benefit, therefore, in layman's terms how much money came into the region in general, we should add two amounts to this; at least. The first is the sum of the allocations to individual projects implemented in cooperation of the LAGs. It is a wide range of projects, whose aim was to establish ties not only to promote cooperation in South Bohemia but in the whole country, and sometimes internationally. In any case, you can legitimately claim that allocation used by the LAGs for these projects meant further support of the area, as the results of the projects might have been the costs for suppliers or directly the purchase of less expensive assets. Similarly, it is also possible to consider the case of expenditure on measures IV.1.1. Within this measure, the Local Action Groups were reimbursed for expenses on their activities. In the period 2007 - 2013 100% of eligible expenditure of LAGs was bailed out under the RDP.

As the name suggests, they were also some of the ineligible expenses that were not bailed out. These expenditures to the benefit of South Bohemia are also included. The only thing omitted are the resources used by the LAGs for Other projects and it is precisely for this reason that it is impossible to determine exactly how many of these allocations were actually brought by LAGs, not only involved in the effort to obtain them. Ultimately, the total amount of funds was 547,230,158 CZK.

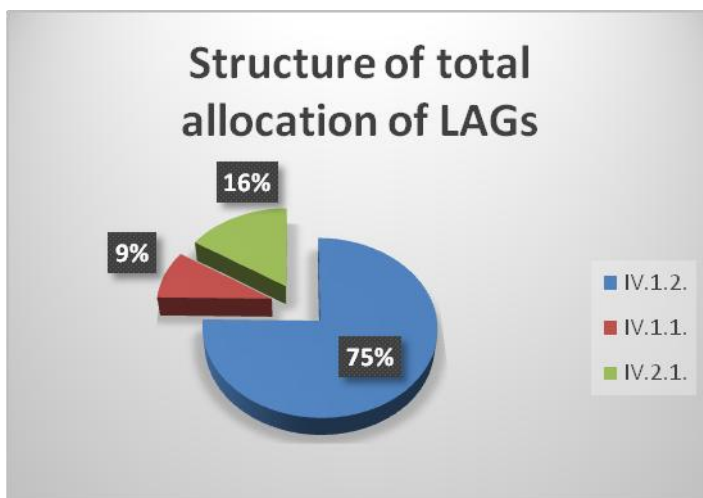


Figure 6.15 Structure of total allocation of LAGs

Source: own research

In average, more than 91 million CZK were added to the budget of South Bohemia due to the Lags' activities in 2007-2013. The financial support was used to many issues within the RDP 2007-2013, axes I-III. It was possible to support agricultural and forestry enterprises, but also the development of communities and improving their civic amenities, education, tourism and, ultimately, to draw funds for rescuing the cultural heritage of the country (Mze, Metodika pro tvorbu fichí 2015). As revealed, it is evident that very important areas of rural life were supported. The LAGs have contributed to the improvement of villages and small towns, but also to the development of business, in agriculture, forestry, tourism and elsewhere.

The contribution of South Bohemian LAGs to their region and is basically a higher sum than what the region used to ensure the allocation of the Rural Renewal Programme (hereinafter RRP of South Bohemia).

This grant program was created in the South Bohemian region following previous village renewal program as approved by the Government of the Czech Republic on 29th May 1991 and by the Czech Government Resolution dated November 11th, 1998, no. 730.) The above mentioned statement is based on comparison with the published costs of the POV of South Bohemia. See the table for details.

Table 6.2

Real expenditures in RRP of South Bohemia (CZK)

Real expenditures in RRP of South Bohemia in mil. (CZK)							
2008	2009	2010	2011	2012	2013	2014	2015
67	70	77	84	83	89	91	90

Source: Czech Statistical Office, own processing

To make it complete, we should say, that the RRP of South Bohemia is not is the only form of support used for the development of the South Bohemian countryside.

Local Action Groups brought in the South Bohemian region of about EUR 0.5 thousand million just in the previous year. They thus greatly influenced the rural development. Necessary information was drawn from the databases of NN LAGs, SAIF and KS NS MAS CR JCK. In the forthcoming period 2014 – 2020, the support of the operational programs implementing a method of community development is supposed to be three times the above amount. It follows that the LAGs represent a very important element of rural development and is highly desirable to keep them going. Their support is also important for the region of South Bohemia, as the LAGs, beside from their core mission are also able to cooperate in a creative way and they have efforts to reach maximum support to the development of the whole southern Bohemia.

The period of 2014-2020, LAGs may support a relatively wide area of development, however, adjustment programs is never an optimal situation. Many LAGs face the question of how to promote the development in small municipalities, which are completely marginal for the OPs due to the limits. The solution may be fundraising of LAGs in search of any resources from the public budgets and the EU budget to support the development of small rural communities. The LAGs could also bail out the expenditure ineligible for the Operational Programme (IROP).

That, in itself, is related to additional and important conditions for LAG management. Consultancy and possibly securing tenders mean expanding the number of employees and securing funds for continuous training of workers, but also insurance payment, etc.

As the above mentioned problem areas revealed, there is one piece of essential information: that the climate of the LEADER initiative in the Czech Republic is significantly changing due to the changing position of the LAGs and attitude to their activities. If the LAGs were based on the interest in the seven LEADER principles, the current period means a major trial of their basic philosophy principles. Increasingly, it appears that the principle of "bottom-up" was not understood by the general public and state administration and it is questionable whether it is seen as a benefit or rather a complication of the current situation hegemonic redistribution on the basis of a uniform key. The LAGs should be able to promote themselves and explain the benefits of the movement to develop the majority of the whole country.

References:

1. Baše, M. (2002). *Transformation of Countryside and Suburbanization. In. City, Rural Areas and Landscapes. Prague: Agora.*
2. Binek, J. at al. (2011a). *Synergies in Rural Areas. Brno: GaREP Publishing.*
3. Binek, J. at al. (2011b). *Synergies in Rural Areas. Paradoxes of Rural Development. Critical Evaluation of Barriers, Tools and Opportunities For Rural Development. Brno: GaREP Publishing.*
4. Boel M. F. (2005). *Delivering on the Potential of the New CAP. EuroChoices, 4th edition, 2/2005, pp. 6 – 10.*
5. Czech Statistical Office (2017). *Public Database. Retrieved from: <https://vdb.czso.cz/vdbvo2/faces/cs/index.jsf?page=statistiky>*
6. Hudečková, H., Lošíák, M., Ševčíková, A. (2006). *Regionalistics, Regional and Rural Development. Prague: CULS Prague.*
7. Kouřilová, J. a kol. (2012). *Synergy of the Relation City - Countryside. Prague: Alfa Publishing.*
8. Maříková P (2005). *Czech Countryside - the Theoretical Definition, in: Majerová V. a kol.: Czech Countryside 2005 – Development of Rural Society, CULS Prague, The Faculty of Economics and Management.*
9. Maříková, P. (2006). *Where is the Countryside? (Setting the borders of countryside in conditions of the Czech Republic), ISBN 80-213-1539-3, in: Countryside - Our World, CULS Prague, The Faculty of Economics and Management, Prague, 2006, Czech Krumlov, pp. 432 – 444.*
10. Matoušková, K. (2011a). *The New Typology of Urban and Rural NUTS*

3 Regions by the European Commission. *The Municipality and Finance*, 16(1), 48–50. Retrieved from:
<http://www.dvs.cz/clanek.asp?id=6485296>

11. Matoušková, K. (2011b). NUTS 3 and EDORA. *The Typology of Urban and Rural Regions. Urbanism and Territorial Development*, 14(2), 5–10. Retrieved from: http://www.uur.cz/images/5-publikacni-cinnost-a-knihovna/casopis/2011/201102/02_nuts.pdf
12. OECD (2016). *Glossary of statistical terms*. Retrieved from:
<http://stats.oecd.org/glossary/detail.asp?ID=6342>
13. Perlín, R. (1998). *Rural, the Typology of Rural Areas*. Retrieved from:
<http://www.mvcr.cz/soubor/perlin-pdf.aspx> 33. Perlín, R. (2009). *Vymezení venkovských obcí v Česku. Obec a finance*, 14(2), pp. 38–42. Dostupné z <http://denik.obce.cz/go/clanek.asp?id=6384068>
14. Perlín, R., Kučerová, S., Kučera, Z. (2010). *Typology of Rural Areas in the Czech Republic. Geography*, 115(2), pp. 161–187.
15. Pospěch, P. at al. (2014). *Inventing rural areas in the Czech Republic after 1989*. Brno: Center for the Study of Democracy and Culture.
16. Sýkora, J. (1998). *Rural Areas. Urban planning of the Countryside and Landscape*. Praha: CTU.
17. Víšek, P. (2007). *Situation of young people on the labor market in the countryside. Czech Republic. Prague: NROS*. Retrieved from:
http://www.nros.cz/content/upload/file/postaveni_mladych_lidinatrhrupracenavenkove_final.pdf.

Vilkaitė-Vaitonė Neringa
PhD in Management, Lecturer
Vilnius Gediminas Technical
University
(Vilnius, Lithuania)

INNOVATION PATTERNS IN THE EU. ANALYSIS OF EUROPEAN INNOVATION SCOREBOARD

The concept of innovation and methods for its measurement have been constantly disputed during the last decades (Zabala-Iturriagagoitia *et al.*, 2007; Lukjanska, 2010; Nasierowski, 2010; Dodd *et al.*, 2011; Manca *et al.*, 2011; Paas, Poltimae, 2012; Camagni, Capello, 2013; Dworak, Kasperkiewicz, 2013; Halkos, Tzeremes, 2013; Polednikova, Kashi, 2014; Kaivooja, 2016; Prokop, Stejskal, 2017; Ryszko, 2017). Analysis of innovation performance in the EU provides important

insights on the dynamics of particular area. Having in mind that innovation boosts competitiveness (Nasierowski, 2010; Polednikova Kashi, 2014; Prokop, Stejskal, 2017), analysis of innovation performance is relevant. It lets to find out which countries are competitive in international arena and which lack competitiveness. According to T. Paas, H. Poltimae “there is a certain constant need for the comparative assessment of the national innovation performance; for example, policy-makers and sometimes also foreign investors prefer short and quick overviews of cross-country innovation performance, like innovation scoreboards” (Paas, Poltimae, 2012, p. 104). It seems that measurements of innovation performance have a potential to provide benefit for policy makers and businesses as well. Therefore, European Commission initiated such evaluations and now it publishes its European Innovation Scoreboard every year. This scoreboard provides a comparative evaluation of the EU member states’ innovation performance.

This paper intends to solve the following research questions: 1) how innovations are measured in EU? 2) Do we observe differences in innovation performance in EU? 3) Can we find certain pattern for countries or country groups? The paper consists of the following parts. First of all, the paper deals with the concept of innovations. Later, the significance of innovations in the EU is described. Next, European Innovation Scoreboard is presented and innovation performance in the EU during 2011–2017 is analysed. In the last part forecasts of innovation performance in the EU are provided.

The concept of innovations. The concept of innovation has been analysed for more than a hundred years (Sedlakova, 2015). According to A. Schibany and G. Streicher (2008, p. 718), “the systemic approach has shown that the concept of innovation is extremely broad and encompasses a wide range of diverse activities”. Therefore, researchers provide a huge variety of definitions for the concept of innovations. Scholars (Nasierowski, 2010) consider innovation as a novelty applied to something that already exists. I. Sedlakova (2015) states that real innovation provides financial benefit for a company and customers are willing to pay for that innovation, because it provides additional value. According to J. A. Dodd *et al.* (2011), “the term innovation is most often used to refer to the process of producing and putting in place something new, be it a product or process”. Frequently innovation is treated as a concept, process or single thing that is focused on R&D, scientific or technical aspects and aimed at objectives of scientific or

economic nature.

Innovations can take many forms: product, service, process, marketing (Prokop, Stejskal, 2017). It means that measurements of innovations should include different types of innovations.

A huge variety of factors determine innovations. For example, Paas and Poltinae (2010, p. 10) claim that “innovation strongly depends on different institutions and their interaction, and national policies are extremely important in developing national innovation performance”.

Significance of innovations in the EU. It is generally recognized that innovations are one of the main drivers for sustainable economic growth (Dworak, Kasperkiewicz, 2013; Peyravi, 2015; Sedlakova, 2015). Positive impact of innovations upon economic growth is concentrated on human capital. This approach emphasizes the accumulation of human capital. Human capital is defined as “a resource of knowledge, skills, work experience, level of education and related attributes that affect the human’s ability to perform useful work” (Dworak, Kasperkiewicz, 2013, p. 40). Due to the importance of innovations to the economic growth innovations became a central issue of public policy (Schibany, Streicher, 2008). Innovations are supposed to build a long-term competitive advantage (Gajewski, 2017). Therefore, there exist initiatives at the EU level that try to form and implement public policies that intend to stimulate innovations.

In reference to M. Gajewski (2017, p. 110), since the creation of European Community innovations became a subject that attracted interest. Author claims that “the treaty creating the European Community stated that it had to strengthen the scientific and technical basis of Community industry and to create conditions conducive to the development of competitiveness at the international level”.

The development of innovation policy in European Union has experienced three stages. The first stage started in late 1980s. At that time innovation was defined as something initiated in a research laboratory. Innovations at the start of the first stage did not seem to be successful due to differences in national legislation between EU members, insufficient investments in the field of research and development, there also existed a lack of private capital. In 1997 European Union adopted the first Action Plan for Innovation in Europe and it became a starting point for the second stage of innovation development in EU. For the first time in EU history a particular document established a framework for the innovation policy. Action Plan for Innovation in Europe stimulated a more innovative culture, a

more efficient dissemination of innovation. The beginning of the third stage was marked with the Lisbon Strategy (Gajewski, 2017). Lisbon Strategy by its various forms and measures raised an aim to boost the number of jobs and increase the level of GDP in EU (Dodd *et al.*, 2011).

Europe 2020 came as a continuation of Lisbon Strategy. According to E. Dworak and W. Kasperkiewicz (2013, p. 40) Europe 2020 is the response of European Union to the challenges related to “the increasing globalization of business processes, the realignment of the global economic order resulting from the growing strength of the economies of China and India, the debt crisis in many countries, and weakening public support for the European idea”. Europe 2020 included three interrelated priorities: 1) “smart growth – developing an economy based on knowledge and innovation; 2) sustainable growth – promoting a more resource efficient, greener and more competitive economy; 3) inclusive growth – fostering a high-employment economy delivering social and territorial cohesion” (Gajewski, 2017, p. 115).

According to W. Nasierowski (2010, p. 42), it is unclear “whether countries are innovative because they are rich, or rich because they are innovative”. Even if this dilemma is unsolved yet, it is obvious that innovations are directly related to the economic prosperity of the country. G. E. Halkos and N. G. Tzeremes (2013) also came to the same conclusion. Authors have proved that innovative activity is directly linked to the economic growth. T. Paas and H. Poltinae (2012) also mention that “innovation is a necessary assumption for the economic growth of a country, region or enterprise”. It means that innovation is a relevant topic for the research.

The analysis of significance of innovations in the EU has shown that innovations are relevant for the economic prosperity in the EU.

Description of European Innovation Scoreboard. Understanding of innovation process has encouraged the measurement of innovations. The first attempts to develop methods for the measurement of innovations were noticed in 1980s (Paas, Poltinae, 2012). Since then innovation researches have developed a lot.

Surveys in the field of innovation are divided into two basic categories: object approach and subject approach. The object approach is focused upon on innovation itself; it mainly registers information about the results of innovation processes. Information is gathered from such sources as expert surveys, new product announcements, innovation inventories, etc. The subject approach is focused upon the company that is innovating. This approach gathers information related to the inputs to

the process of innovation. Usually the information is collected at the company level. For this purpose direct interviews or mail questionnaires are used (Paas, Poltimae, 2012).

Historically the measurement of innovation has been based upon single indicators. For example, numbers of patents, scientific publications, investments into R&D were very frequently used. The problem is that such indicators show only one aspect of the phenomenon of innovation and creates a lack of comprehensive overview. In a variety of economic performance and policy areas composite indexes are used. These indexes involve huge amount of data and present it in easily understood formats (Nasierowski, 2010, p. 44). Usually policy-makers give priority for scoreboards or aggregated indicators that involve different information and aggregate it into a single number or country ranking (Paas, Poltimae, 2012, p. 102). International organizations and associations (United Nations, the World Bank, Economic Commission, and the World Economic Forum) have elaborated different composite indicators for the measurement of innovations. The importance of composite indicators has significantly increased during the last decades. Such scoreboards feature the following advantages: they provide the track of national strengths and weaknesses; they act as a pre-warning system for the potential national problems; they attract interest of civil servants, policy makers, investors and elected officials (Paas, Poltimae, 2012). This is the reason why composite indicators are entitled as the best available tool for the analysis of innovation. One of such composite indicators is used in EU.

European Innovation Scoreboard is an innovation measurement standard in the EU (Zabala-Iturriagoitia *et al.*, 2007; Nasierowski, 2010; Paas, Poltimae, 2012). European Commission developed this scoreboard under the Lisbon strategy in order to evaluate and compare innovation performance in EU member states (Nasierowski, 2010). This index uses a variety of indicators to measure innovativeness. Even if it is a composite indicator, European Innovation Scoreboard has some drawbacks. For example, the weighting system that is used for the calculation of European Innovation Scoreboard has been criticized, the index is entitled to be extremely non-robust to changes of weights. Apart from this, the index mixes short-term and long-term indicators that feature multicollinearity (Paas, Poltimae, 2010). D. Foray and H. Hollanders (2015, p. 216) claim that “indicators <...> are not emphasizing only science-driven innovation; they are not only capturing formal R&D and patents; finally the underlying structure does not

reflect the famous linear model of innovation”. However, in their researches T. Paas and H. Poltimae (2012) have found out that European Innovation Scoreboard is robust and consistent with real innovation performance of the countries. D. Foray and H. Hollanders (2015) also highlight the superiority of European Innovation Scoreboard by claiming that an important contribution of the innovation index is not only static comparisons, but also the possibility to assess growth rates of the index. A. Schibany and G. Streicher (2008) emphasize the multidimensionality of innovation phenomena. This is why European Innovation Scoreboard with its huge variety of indicators seems to give a proper overview of innovation performance in different countries. Regarding these results, European Innovation Scoreboard is told to be appropriate methodology that fits the aim of this research and allows analysing the innovation performance in the EU.

Methodology of European Innovation Scoreboard is published annually since 2000. The initial version of the European Innovation Scoreboard „was published in 2000, it used 16 indicators and covered 17 countries. Since then, it has been published annually, with changes in both the number and scope of indicators and countries covered“ (Schibany, Streicher, 2008, p. 719). Until 2007 the indicators of European Innovation Scoreboard were grouped into two main classes: inputs and outputs. After the revision of methodology in 2008, three main categories of indicators appeared: 1) enablers that capture main drivers of innovation that are external to the company, i. e. human resources, finance and support; 2) firm activities that involve innovation efforts that companies undertake, comprising firm investments, linkages & entrepreneurship, throughputs; 3) outputs that capture innovators and economic effects (Paas, Poltimae, 2012).

All in all there were 29 initial innovation indicators. In 2010 the dimensions were revised and 29 indicators were synthesized into 24. During 2011–2018 the dimensions were reviewed constantly every year. In 2011–2016 there were 25 indicators. These indicators captured eight dimensions: 1) human resources; 2) open, excellent research systems; 3) finance & support; 4) firm investments; 5) linkages & entrepreneurship; 6) intellectual assets; 7) innovators; 8) economic effects (Table 6.3). These dimensions fell into three types of indicators: enablers, firm activities and outputs.

According to European Commission (2016, p. 8), “the Enablers capture the main drivers of innovation performance external to the firm and differentiate between three innovation dimensions”. Enablers

involve dimensions of human resources, open, excellent research systems and finance & support. The other type of indicators is entitled firm activities. “Firm activities capture the innovation efforts at the level of the firm and differentiate between three innovation dimensions” (European Commission, 2016, p. 9). Firm activities include dimensions of firm investments, linkages & entrepreneurship, and intellectual assets. Outputs “capture the effects of firms’ innovation activities and differentiate between two innovation dimensions” (European Commission, 2016, p. 9). Dimensions of innovators and economic effects belong to the outputs.

It was already mentioned that since its introduction European Innovation Scoreboard has been constantly revised. In 2017 European Innovation Scoreboard has experienced a more major revision. This revision has been made as a response to the following aspects of criticism: 1) non-balance usage of input and output indicators; 2) not taking into consideration structural differences among countries when calculating scores; 3) lack of theoretical and conceptual discussions; 4) lack of qualitative information that could be used for policy development (European Commission, 2017).

In 2016 there were three types of indicators, while in 2017 there were already four, i. e. framework conditions, investments, innovation activities and impacts. Framework conditions involve the following dimensions: human resources, attractive research systems, innovation friendly environment. Dimensions of finance and support, firm investments belong to the investments. Innovation activities include innovators, linkages and intellectual assets. Impacts consist of employment impacts and sales impacts. In 2017 three indicators were deleted and five new indicators were included into measurement framework. This is how the number of indicators increased from 25 in 2016 to 27 in 2017. Apart from that, definitions of six indicators have been revised. So, in 2017 European Innovation Scoreboard has experienced considerable revisions. In 2018 measurement of European Innovation Scoreboard followed methodology of previous report.

The description of European Innovation Scoreboard shows that index is continually under the development. T. Paas and H. Poltimae (2010, p. 15) mention that development of European Innovation Scoreboard methodology is determined by the following necessities: “1) to measure new forms of innovation; 2) to assess overall innovation performance; 3) to improve the comparability at national, regional and international levels; and 4) to measure progress and changes over time”.

Table 6.3

Measurement framework of the European Innovation Scoreboard

2010–2016		2017	
Types of indicators	Innovation dimensions	Types of indicators	Innovation dimensions
Enablers	Human resources, Open, excellent research systems, Finance & support	Framework conditions	Human resources, attractive research systems, innovation-friendly environment
Firm activities	Firm investments, Linkages & entrepreneurship, Intellectual assets	Investments	Finance & support, Firm investments
Outputs	Innovators, Economic effects	Innovation activities	Innovators, Linkages, Intellectual Assets
-	-	Impacts	Employment impacts, Sales Effects

Source: composed by the author on the basis of European Commission, 2016; European Commission, 2017.

To sum up, European Innovation Scoreboard can be defined as a progressive and topical measure of innovations.

Innovation performance in the EU during 2011–2018. The analysis of innovation performance in the EU first of all focuses on the examination of Summary Innovation Index. This index reflects the ten already mentioned dimensions of innovation performance (human resources, open, excellent research systems, finance & support, firm investments, linkages & entrepreneurship, intellectual assets, innovators, economic effects). In order to analyse the innovation performance in the EU we use data that has been published annually during 2011–2018. The comparative base is the index in 2010. The dynamics of summary innovation index is provided in Figure 6.16.

Data provided in Figure 6.16 presents that in 2011 summary innovation index was 100.3. In 2012 it declined up to 98.8. After an increase in 2013 summary innovation index got back to 99.8 in 2014. Declining level of innovation performance in 2012 and 2014 served as

an early warning of future difficulties. The increase of summary innovation index in 2015 and 2016 indicated positive changes in the aspect of innovation. In 2017 summary innovation index has reached its highest value (105.8). It means that during the period of analysis in 2017 EU was at its innovation peak. Such changes in innovation performance can be related to economic development in EU.

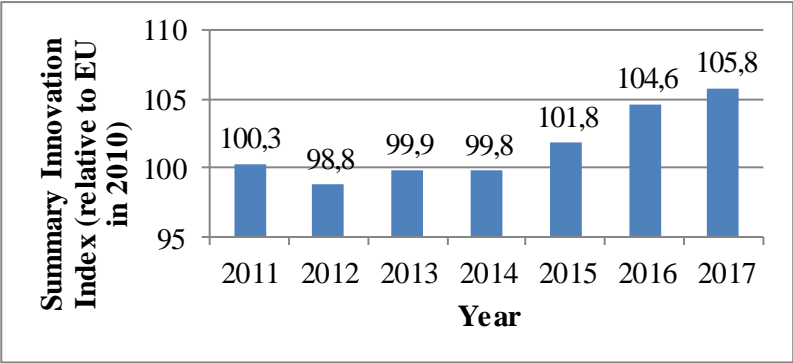


Figure 6.16 Dynamics of summary innovation index in EU in 2011-2017

Source: composed by the author on the basis of European Innovation Scoreboard 2018, 2018.

Summary innovation index is used to compare a variety of EU countries with different levels of development and backgrounds. Dynamics of summary innovation index in particular countries is provided in Table 6.4.

During 2011-2017 there existed a huge diversity of European countries in the aspect of innovation. Such countries as Belgium, Denmark, Germany, Ireland, France, Luxembourg, Netherlands, Austria, Slovenia, Finland, Sweden and United Kingdom demonstrated a huge innovation potential, because their summary innovation index was above EU average. While Bulgaria, Czech Republic, Estonia, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania and Slovakia were the ones that had insufficient innovation potential during 2011-2017. The summary innovation index of those countries was below the EU average.

Table 6.4

Dynamics of summary innovation index in EU countries in 2011-2016

Countries	Years							Change	Average
	2011	2012	2013	2014	2015	2016	2017		
Belgium	119.3	117.9	117.8	117.5	118.3	122.8	124.4	5.1	119.7
Bulgaria	47.4	39.5	42.2	44.0	45.6	47.5	48.0	0.6	44.9
Czech Republic	88.5	82.7	84.2	83.8	85.5	84.5	87.1	-1.4	85.2
Denmark	143.7	144.2	145.9	143.1	143.6	140.6	140.1	-3.6	143.0
Germany	129.2	128.8	128.9	124.5	125.3	124.4	126.5	-2.7	126.8
Estonia	89.5	91.5	92.0	87.5	90.6	81.6	83.2	-6.3	88.0
Ireland	114.1	110.0	108.6	109.6	111.1	121.1	122.7	8.6	113.9
Greece	69.2	68.9	70.5	62.4	64.8	67.7	68.8	-0.4	67.5
Spain	77.0	76.5	77.1	71.0	72.8	78.4	83.9	6.9	76.7
France	107.4	105.7	106.6	109.0	111.7	116.0	115.5	8.1	110.3
Croatia	57.6	52.2	54.5	49.1	53.9	54.4	54.2	-3.4	53.7
Italy	75.7	76.1	74.8	76.6	78.6	77.3	77.9	2.2	76.7
Cyprus	88.9	87.7	91.0	79.3	82.5	78.8	81.0	-7.9	84.2
Latvia	48.3	45.5	45.3	54.9	61.7	58.4	59.8	11.5	53.4
Lithuania	56.9	60.0	59.6	58.3	64.3	77.3	75.3	18.4	64.5
Luxembourg	124.5	129.5	131.6	126.2	131.3	131.0	128.1	3.6	128.9

Table 6.4 (continued)

Hungary	68.5	65.3	65.4	66.1	66.8	67.7	69.6	1.1	67.1
Malta	66.9	62.7	73.2	82.1	84.9	79.1	84.5	17.6	76.2
Netherlands	120.3	128.0	128.5	126.3	129.0	131.0	135.9	15.6	128.4
Austria	113.4	116.5	118.7	115.3	116.6	122.1	121.3	7.9	117.7
Poland	53.8	50.3	52.0	50.3	51.7	54.7	56.7	2.9	52.8
Portugal	85.8	81.8	84.2	81.0	83.2	82.9	85.2	-0.6	83.4
Romania	46.7	40.1	39.9	32.2	30.4	32.4	32.9	-13.8	36.4
Slovenia	98.4	95.7	96.3	98.0	97.1	98.1	97.6	-0.8	97.3
Slovakia	66.1	68.7	70.9	66.5	68.6	69.8	67.8	1.7	68.3
Finland	132.4	132.3	132.7	130.3	132.6	134.5	136.1	3.7	133.0
Sweden	144.8	145.5	146.7	143.8	145.4	148.4	149.0	4.2	146.2
United Kingdom	144.8	145.5	146.7	143.8	145.4	148.4	149.0	4.2	146.2
EU average	92.1	91.0	92.4	90.4	92.6	94.0	95.1	3.0	92.5

Source: composed by the author on the basis of European Innovation Scoreboard 2018 Database, 2018

In 2011, 2012, 2015 and 2017 the absolute innovation leader was Sweden. In 2011-2013 Sweden was relatively strong in the dimension of human resources, in 2014 – in intellectual assets and in 2015, 2016 – in open, excellent and attractive research. In 2017 human resources and innovation-friendly environment were the strongest dimensions. In 2013 and 2014 Denmark featured the highest value of summary innovation index. Open, excellent and attractive research systems were identified as a relevant strength of Denmark in every year included in the research. Relative weaknesses were identified in human resources, firm investments, innovators and economic effects, sales impacts, innovators, human resources, firm investments, finance and support.

The modest innovator in 2011, 2013–2017 was Romania. In 2011, 2013-2017 Romania seemed to be strong in human resources. Linkages and entrepreneurship were identified as weaknesses in 2011, 2013, 2015 and 2016.

In 2012 Bulgaria was the country with the lowest value of summary innovation index. Relative strength in human resources in Bulgaria was identified in 2011, 2013, 2015–2017. Linkages and entrepreneurship were relative weaknesses during 2011–2017.

During 2011–2017 summary innovation index of every country experienced changes. Belgium, Bulgaria, Ireland, Spain, France, Italy, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Slovakia, Finland, Sweden and United Kingdom show an absolute improvement in the innovation performance over a seven year period. The highest increase is noticed in Lithuania, where summary innovation index increased by 18.4 (from 56.9 up to 75.3). A considerable increase was noticed in Malta (17.6) and Netherlands (15.6).

Czech Republic, Denmark, Germany, Estonia, Greece, Croatia, Cyprus, Portugal, Hungary, Portugal, Romania, Slovenia show the decline in the innovation performance over a seven year period. Romania, Cyprus and Estonia were the countries that experienced the most considerable decrease in summary innovation index.

Situation in Romania was exceptional: its summary innovation index decreased by 13.8. The country experienced this decrease due to the existing “lack of both a satisfactory environment for innovation and sufficient capacity for absorbing public funds; investment into innovation-related activities is also absent” (Prokop, Stejskal, 2017, p. 47).

Even if innovation index has decreased in Estonia during 2011–2017, still it was ahead of the other two Baltic countries, i. e. Lithuania and Latvia. It was mainly due to “successful attraction of foreign direct investments favourable tax policy and possible positive spillover effects from the Nordic neighbourhood, particularly Finland and Sweden” (Paas, Poltinae, 2010, p. 4). In 2013 Estonia was even entitled as innovation growth leader.

Table 6.4 provides the average of summary innovation index in every year from 2011 till 2017. The data shows that the lowest average was in 2014, when summary innovation index was equal to 90.4. The highest value of the index is noticed in 2017 (95.1). The countries below and above the average were very stable during 2011–2017. No changes were noticed during that period. Bulgaria, Czech Republic, Estonia, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania and Slovakia had summary innovation indexes that did not reach the average EU value. The index was above the EU average in Belgium, Denmark, Germany, Ireland, France, Luxembourg, Netherlands, Austria, Slovenia, Finland, Sweden and United Kingdom. These countries can be entitled as the most innovative ones.

European Commission classifies EU countries to four groups according to their innovation performance. The countries are grouped to innovation leaders, strong innovators, moderate innovators and modest innovators (Table 6.5).

Denmark, Finland, Germany and Sweden were undoubtedly the leaders in field of innovation during the whole period of analysis. Netherlands in 2011 belonged to the group of strong innovators. In 2012 the country has improved from being strong innovator to innovation leader. So, Netherlands were identified as innovation leader in 2012–2017, Luxembourg – in 2011–2015 and 2017, while Belgium – only in 2012 and United Kingdom in 2016 and 2017. It means that Netherlands and United Kingdom managed to strengthen their innovation performance. Absolute strong innovators during 2011–2017 were Austria, France, Ireland and Slovenia. Belgium was a strong innovator in 2011, 2013–2017, Estonia in 2012, 2013 and 2015, Luxembourg – in 2016 and United Kingdom – in 2011–2015. European Commission identifies Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia and Spain as moderate innovators. Croatia was also moderate innovator in 2011–2013, 2015–2017, Estonia – in 2011, 2014, 2016 and 2017, Latvia – in 2011, 2014–2017.

Table 6.5

Classification of countries into four performance groups in 2011–2017

Countries	Innovation leaders							Strong innovators							Moderate innovators							Modest innovators						
	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
Austria																												
Belgium		+																										
Bulgaria																												
Cyprus																												
Croatia																												
Czech Republic																												
Denmark																												
Estonia																												
Finland																												
France																												
Germany																												
Greece																												
Hungary																												

Table 6.5 (continued)

Bulgaria and Romania were the stable modest innovators during the period of research. Croatia was identified as a modest innovator only in 2014, Latvia – in 2012 and 2013.

In order to find out a generalising classification of EU countries, there exists a possibility to classify countries regarding the average of summary innovation index during 2011–2017. The data provided in Table 6.3 lets to classify EU countries into four groups regarding the average summary innovation index during 2011–2017. This classification is provided in Table 6.6.

Table 6.6

Classification of countries regarding the average strength of innovation during 2011-2017

Innovation strength	Innovation leaders	Strong innovators	Moderate innovators	Modest innovators
Countries	Belgium, Luxembourg, Germany, Netherlands, Finland, Denmark, Sweden	Czech Republic, Estonia, Slovenia, France, Ireland, Austria, United Kingdom	Hungary, Slovakia, Malta, Italy, Spain, Cyprus, Portugal	Romania, Bulgaria, Poland, Croatia, Latvia, Lithuania, Greece

The countries with an innovation performance above the EU average are innovation leaders and strong innovators. Innovation leaders in EU during 2011-2017 were Sweden, Denmark, Finland, Netherlands, Germany, Luxembourg and Belgium. National innovation systems in these countries are leaded in a specific way. For example, in Finland there is a “strong focus on regional development through technology transfer, and there is a diverse range of capital providers for innovation both private and public” (Lukjanska, 2010, p. 44). However, some innovation leaders face particular paradoxes. G. E. Halkos and N. G. Tzeremes (2013) mention the “Dutch paradox”. This paradox indicates that research in Netherlands is of high quality, though, this research is of lowly utilised. It happens due to the specific culture in Netherlands.

Czech Republic, Estonia, Slovenia, France, Ireland, Austria and United Kingdom belong to the group of strong innovators. V. Prokop and J. Stejskal (2017) have paid a considerable attention to the innovation capacity in Slovenia. According to the authors, “firms there

effectively utilize the various determinants of innovation activities, and these determinants have strong influence when utilized on their own” (Prokop, Stejskal, 2017, p. 47).

Countries with an innovation performance below EU average are moderate and modest innovators. During 2011–2017 Hungary, Slovakia, Malta, Italy, Spain, Cyprus and Portugal were moderate innovators.

Innovation capacity in Romania, Bulgaria, Poland, Croatia, Latvia, Lithuania and Greece during 2011–2017 remained low and underperformed. These countries experience serious problems in the field of innovation. It can be noticed that majority of modest innovators are small economies that have similar post-socialist path dependence. One of the reasons related to low innovation capacity is of strategic type. For example, in Latvia there exists a lack of clear vision of how to support innovation (Lukjanska, 2010, p. 44). T. Paas and H. Poltimae (2012) mention that in Lithuania and Latvia there is a weak link between enterprises and science. Situation in Romania was already mentioned in this paper. However, it might be worth to emphasize the lack of satisfactory environment and incapacity to absorb funds. To sum up, it is essential to enhance innovation in the countries that belong to modest innovators, because it has a potential to foster economic efficiency and growth of the countries.

Forecast of innovation performance in the EU. The analysis of innovation performance in the EU has presented that there exists a demand to promote innovations in Europe, particularly in the countries that were identified as modest innovators. It is relevant because innovations are essential in order to ensure the competitiveness of particular countries and economic entities operating in these countries.

In order “to boost the research and innovation performance and promote an innovation friendly Europe, the Innovation Union as one of the seven initiatives of the Europe 2020 Strategy was launched. It was agreed by the EU member states in June 2010 and builds on the progress made under the Lisbon Strategy (2000-2010)” (Polednikova, Kashi, 2014, p. 488). Apart from this, it should be mentioned that there exists a considerable trend to move from the whole complex of innovations to one particular type of innovations, i. e. eco-innovations (Ryszko, 2017, p. 1751). This trend might become a solution for modest innovators.

Conclusions. European Innovation Scoreboard is an innovation measurement standard in the EU. This scoreboard was developed under Lisbon strategy and remained functional and useful up till now. European Innovation Scoreboard provides an opportunity to measure

and compare innovation performance in EU countries. Since the creation of framework of European Innovation scoreboard, dimensions and indicators have been developed considerably. Due to constant methodological changes European Innovation Scoreboard was defined as a progressive and topical measure of innovations.

The analysis of innovation performance in EU has shown that summary innovation index has increased during 2011–2017. Innovation performance varies dramatically between rich and poor EU countries. Innovation leaders in EU during 2011–2017 were Sweden, Denmark, Finland, Netherlands, Germany, Luxembourg and Belgium. Czech Republic, Estonia, Slovenia, France, Ireland, Austria and United Kingdom belonged to the group of strong innovators. During 2011–2017 Hungary, Slovakia, Malta, Italy, Spain, Cyprus and Portugal were moderate innovators. Innovation capacity in Romania, Bulgaria, Poland, Croatia, Latvia, Lithuania and Greece during 2011–2017 remained low and underperformed.

References:

1. Camagni, R., Capello, R. (2013). *Regional innovation patterns and the EU regional policy reform: toward smart innovation policies. Growth and Change*, Vol 44, Issue 2, pp. 355–389.
2. Dodd, J. A., Franke, J., Moody, R. (2011). *Total innovation – towards a localised, comprehensive EU innovation policy. The Innovation Journal: the Public Sector Innovation Journal*, Vol 16, Issue 2, pp. 1–18.
3. Dworak, E., Kasperkiewicz, W. (2013). *Conditions and prospects for development of innovation in EU economies in light of the Europe 2020 Strategy. Comparative Economic Research*, Vol 16, Issue 4, pp. 39–55.
4. European Commission (2011). *Innovation Union Scoreboard 2011*. Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/705c770c-68f7-4f90-ac2b-618cc6cc8ed7/language-en/format-PDF>
5. European Commission (2012). *Innovation Union Scoreboard 2012*. Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/705c770c-68f7-4f90-ac2b-618cc6cc8ed7/language-en/format-PDF>
6. European Commission (2013). *Innovation Union Scoreboard 2013*. Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/0b41700a-ad23-440f-9f7e-96230a3aa510/language-en/format-PDF>
7. European Commission (2014). *Innovation Union Scoreboard 2014*.

- Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/d1cb48d3-4861-41fe-a26d-09850d32487b/language-en/format-PDF>
8. European Commission (2015). *Innovation Union Scoreboard 2015*. Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/b00c3803-a940-11e5-b528-01aa75ed71a1/language-en/format-PDF>
 9. European Commission (2016). *Innovation Union Scoreboard 2016*. Accessed 20 April 2019. <https://publications.europa.eu/en/publication-detail/-/publication/6e1bc53d-de12-11e6-ad7c-01aa75ed71a1/language-en/format-PDF>
 10. European Commission (2017). *European Innovation Scoreboard 2017*. Accessed 20 April 2019. <http://ec.europa.eu/DocsRoom/documents/24141>
 11. European Commission (2018). *European Innovation Scoreboard 2018*. Accessed 10 May 2019. <https://ec.europa.eu/docsroom/documents/33147>
 12. Foray, D., Hollanders, H. (2015). *An assessment of the Innovation Union Scoreboard as a tool to analyse national innovation capacities: the case of Switzerland*. *Research Evaluation*, Vol 24, pp. 213–228.
 13. Gajewski, M. (2017). *Policies supporting innovation in the European Union in the contexts of the Lisbon strategy and the Europe 2020 strategy*. *Comparative Economic Research*, Vol 20, Issue 2, pp. 109–127.
 14. Halkos, G. E., Tzeremes, N. G. (2013). *Modelling the effect of national culture on countries' innovation performances: a conditional full frontier approach*. *International Review of Applied Economics*, Vol 27, Issue 5, pp. 656–678.
 15. Kaivooja, J. (2016). *Benchmarking analysis of patent and trademark applications in the European Union: a comprehensive EU innovation policy evaluation for years 1960–2013*. *European Integration Studies*, Vol 10, pp. 169–190.
 16. Lukjanska, R. (2010). *Innovation capacity – problems and solutions for successful development*. *Research for Rural Development - International Scientific Conference*, Vol 2, pp. 42–48.
 17. Manca, F., Moreno, R., Surinach, J. (2011). *The role of the EU internal market in the adoption of innovation*. *European Planning Studies*, Vol 19, Issue 6, pp. 1091–1116.
 18. Nasierowski, W. (2010). *Composite indexes and indicators of innovativeness: some critical comments*. *Global Management Journal*, Vol 2, Issue 1, pp. 42–51.
 19. Paas, T., Poltmae, H. (2012). *Consistency between innovation*

- indicators and national innovation performance in the case of small economies. *Eastern Journal of European Studies*, Vol 3, Issue 1, pp. 101–121.
20. Paas, T., Poltimae, H. (2010). *A comparative analysis of national innovation performance: the Baltic States in the EU context*. University of Tartu - Faculty of Economics & Business Administration Working Paper Series, Vol 78, pp. 3–56.
 21. Peyravi, B. (2015). *South East European countries: the needs of innovations in the context of enlargement of the European Union*. *Public Administration*, Vol 4-4, Issue 47-48, pp., 112–120.
 22. Poledníková, E., Kashi, K. (2014). *Using MCDM methods: evaluation of regional innovation performance in the Czech Republic*. *Proceedings of the European Conference on Management, Leadership & Governance*, pp. 487–496.
 23. Prokop, V., Stejskal, J. (2017). *Different approaches to managing innovation activities: an analysis of strong, moderate, and modest innovators*. *Engineering Economics*, Vol 28, Issue 1, pp. 47–55.
 24. Ryszko, A. (2017). *Eco-innovation performance and selected competitiveness issues perceived by managers in the EU member states – a cross country analysis*. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, Vol 65, Issue 5, pp. 1751–1760.
 25. Schibany, A., Streicher, G. (2008). *The European Innovation Scoreboard: drowning by numbers?* *Science and Public Policy*, Vol 35, Issue 10, pp. 717–732.
 26. Sedlaková, I. (2015). *Innovation as one of the ways of competitiveness of the EU and Slovakia*. *Annals of the University of Oradea, Economic Science Series*, Vol 24, Issue 2, pp. 120–127.
 27. Zabala-Iturriagagoitia, J. M., Voigt, P., Gutierrez-Gracia, A., Jimenez-Saez, F. (2007). *Regional innovation systems: how to assess performance*. *Regional Studies*, Vol 41, Issue 5, pp. 661–672.

1. Introduction

This analysis examines both the trajectory of economic variables and provides subsequent indications as they relate to the factors of economic growth introduced by neoclassical theory (Ramsey, 1928; Solow, 1956 and Cass, 1965), such as price growth and interest margins. These indications to some extent suggest that the standard neoclassical model of economic growth can be directly used to predict expected economic growth. In the frame of neoclassical economic theory, a quantitative analysis of certain selected economic variables for convergence testing was carried out for a sample of selected groups of countries in the period between January 1992 and December 2003. According to the analysis, it can be concluded that while achieving high levels of economic convergence, countries are exposed to the same extent of negative and positive effects resulting from external economic shocks.

The transition period for transforming the socioeconomic systems of today's new EU Member States was characterized by fluctuations in domestic product, inflation rates and employment rates in transition countries. According to the Neoclassical Theory of Economic Growth (Solow, 1956), the applied methodology of analysing convergence among the group of selected statistical variables was expanded with the aim of achieving a broader view on the development of the convergence process of selected countries. Similar analyses have already been made using the aforementioned methodology: Baumol, 1986; Barro, 1991, 2000; Bernard and Durlauf, 1995; Ben David, 1993, 1995 and 1996; Sarno, 1997; Kocenda in Papell, 1997; Kocenda, 2001; Barro and Sala-i-Martin, 1991, 1992 and 2003; Yigit and Kutun, 2004. Within the relevant analysis, time series data were included for a group of countries for which these variables were not observed that they would be analysed

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to such an extent earlier. Fifty years ago, governments followed economic strategies oriented toward managing the market and relying on the close involvement of trade unions and employers' organizations. Compared to the period following the Second World War, today's market has escaped the bonds and constraints under the influence of governments and key social partners. In a world of liberalized operations of financial sectors, individual countries increasingly rely on extensive rules and Keynesian stabilization policies to manage and manipulate domestic economic conditions. Europe has responded to these attempts by adopting a market of subordinate economic policies, similar to those in the United States and the United Kingdom, and by giving power to the broader European Union with the hope that a larger transnational entity will regain some degree of market control. Upon gaining full membership in the EU, a new set of challenges for the fresh members arise due to a large part of the adopted legislative frameworks requiring immediate and seemingly perpetual revision as well as cycling through the process of introducing new legislative procedures. An additional challenge for the new members is the transfer and implementation of the Financial Services Action Plan (FSAP), an important reform process within the EU that was launched in 1999. The liberalization of markets and increases in the levels of economic integration with the old EU Member States were key measures to improve the functioning of the economies of today's new EU members. In this context, international trade with the EU and foreign direct investment (FDI) represented the main mechanisms of the processes' international integration. Economic integration processes at the supranational level are widely shown to have a positive impact on the competitiveness of candidate countries, while foreign direct investment contributes to raising so-called potential growth. After 1995, a period of economic growth began in the then candidate countries for EU membership, along with the process of catching up (i.e. convergence) to the level of development of older EU members. Empirical research has since 2000 tried to further highlight the implementation of structural reforms in today's new members, in reference to the Ballassa-Samuelson effect of catching up to the older EU members. The results of the research have led to slightly lower estimates of the intensity or speed of convergence of today's new EU members than those in the early period of the transformation of economic systems. The European Commission (European Commission, 2002) states in its report that this convergence effect could be 4–5% lower than the estimates published only a few

years earlier, since those high estimates were likely to refer to the few more advanced economies going through the transition.

The purpose of the present analysis is to answer the question of whether the group of countries that gained full membership in the EU in 2004 reached the targeted level of economic development, which would simultaneously lead to a certain degree of convergence of selected and analysed economic variables. Based on the above findings, the question was raised on the degree and the intensity (speed) of economic convergence (and the possibility a divergence process) and for which economic areas the new EU-10 Member States achieved full candidacy in the process of gaining full membership. In order to answer this question, a quantitative analysis was carried out for testing the type of convergence for certain selected economic variables on a sample of selected groups of countries in the period between January 1992 and December 2003.

The criteria for the formation of a group of selected countries relates to the process of obtaining full membership in the EU and is linked to the process of trade liberalization and the transformation of economic systems, which is particularly the case for new EU members. The analysed groups of countries are those which became full members of the EU in 2004: Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Malta, Poland, Slovakia and Slovenia. This grouping of accession countries reflects the results of the structural process of transforming economic systems, as well as individual geographical and historical aspects of the economic development of each of these countries. With the collapse of the Soviet bloc, the gap between the East and the West disappeared, which enabled the Central and Eastern European countries to mimic operations of Western countries' economies. In December 1991, Poland, the former Czechoslovakia and Hungary signed the first agreements with the EU. These countries were the first in the framework of the CEEC countries, striving for the immediate liberalization of international trade with the aim of accelerating the transformation of their economic systems. Another development came in March 1993 when the CEE countries began building their networks in international trade, thus establishing the Free Trade Area CEFTA (Kočenda, 2001).

2. Analysed group of countries and time series data

Because of these socioeconomic changes, it is reasonable to test the achievement of economic convergence in transition countries

statistically and, in this context, to determine the rates and rates of convergence of selected economic variables among the CEE countries or an expanded group of countries (including Cyprus and Malta) that became full members of the Union in 2004. In this group, the observation of the movement of selected variables due to the transformation of economic systems in the countries of Central and Eastern Europe before getting full membership is all the more interesting. The selection of countries belonging to the analysed group also took into account the analysis of the economic progress and the economic and political transformation of the countries of Central and Eastern Europe, carried out by the European Bank for Reconstruction and Development (EBRD). At the beginning of the pre-accession negotiations for full membership, the European Commission identified five countries that had made the most progress in the area of the transformation of economic systems which were then the Czech Republic, Estonia, Hungary, Poland and Slovenia (European Commission, 1995). Later, Latvia, Lithuania and Slovakia joined these countries. Another factor that leads us to conclude that a certain degree of convergence between the countries of the analysed group of countries will be shown is of an institutional nature. Regarding the process of EU approximation, the countries of the second group were faced with the fulfilment of the criteria by which the EU conditioned their full membership since the mid-1990s.

The literature on measuring economic convergence gives a relatively rich spectrum of analyses. As the pioneer of this kind of research, we can mention the author Sarna, who in his analysis proved the convergence of long-term nominal and real interest rates. Kocenda and Papell prove a high degree of convergence in inflation rates between Member States of the ERM exchange rate system (Kočenda and Papell, 1997). Kočenda carried out a convergence analysis for a certain group of SVE countries (Kočenda, 2001). Brad and Kutun compared the degree of convergence of monetary policies of Germany and the Mediterranean countries (Brada and Kutun, 2002). The findings highlighted the existence of a convergence of monetary policies between Slovenia and Croatia in relation to the European Central Bank (and partly to the Deutsche Bundes Bank). Mentz and Sebastian, using Johansen's cointegration analysis test, analyse the degree of convergence of inflation rates among EU Member States. For the period between 1993 and 1998, the authors only partially assess the convergence of inflation rates in these countries (Mentz and Sebastian, 2003). Yigit and Kutun

analyse the impact of European integration processes on the convergence of selected economic variables, among which they focus on productivity growth (Yigit and Kutan, 2004). The authors note an increase in the overall level of productivity and convergence between EU Member States. The above research results indicate that a high degree of harmonization (regulation) has been achieved within the EMS system. If we return to the countries belonging to the analysed group of countries, we can draw a parallel in the sense that the unification of regulations or its adaptation plays a key role and is reflected in the convergence of economic variables.

In the framework of the analysis, the convergence coefficient Φ , which represents the indication of convergence, was calculated by modelling the time orientations of selected economic variables for the group and individual countries with observations covering t time periods. The adjusted convergence measure is based on a ratio that describes the dynamics and differentials for each individual variable in the analysis.

The time period of the data collected and analysed extends from 1992 to December 2003. Month-level data for the analysed time series data for selected economic variables (real industrial production, monetary aggregate M1, producers' prices, retail prices and nominal and real interest margins) were obtained from the International Monetary Fund's database, namely International Financial Statistics. Similar to Kočenda (Kočenda, 2001), the industrial production variable was used as an alternative variable for gross domestic product (GDP), since the data on the latter, based on a monthly basis, could not be obtained (one of the reasons also concerns the possibility of analysing (1993), Bernard and Durlauf, 1995, Ben David, 1993, 1995 and 1996, Kocenda and Papell, 1997, Kocenda and Hanousek, 1998; Kocenda, 2001; Kutan and Yigit, 2005). Definition of the variable X_t of the twelfth differential of the logarithmic basic (original data), namely:

$$X_t = \ln V_t - \ln V_{t-12}; \quad (6.1)$$

where: the variable V_t represents the basic variable at time t , X_t represents the growth rate of the variable V_t for a period of twelve months. Annual growth rates, calculated on a monthly basis, thus offset time series of data in terms of eliminating time and seasonal fluctuations that are present in real and nominal data for individual economic variables. Seasonal fluctuations can be economic and administrative. As

an example, we quote the variable industrial production, which by definition consists of several different elements, including investment and consumption. The volume of cyclical fluctuations in investment in transition economies is satisfactorily supported and documented, while consumption also represents a variable exposed to seasonal fluctuations (Kočenda and Papell, 1997; Kočenda and Hanousek, 1998; Kočenda, 2001). The interest margin is defined as the difference between the active and the passive interest rate.

3. Model and methodology used

Baumol, Barro, Barro and Sala-i-Martin were, in fact, pioneers in the use of a conventional approach that deals with the analysis of a particular component within a group or cross-sectional analysis (i.e. cross-sectional analysis) or even more precisely by analysing the ratio between the growth rates of GDP per capita in a given period of time and the initial level of these levels (Baumol, 1986; Barro, 1991, 2000; Barro and Sala-i-Martin, 1991, 1992 and 2003). Bernard and Durlauf also took this approach, subject to certain adjustments (Bernard and Durlauf, 1995). It was also employed by Ben David, who carried out a real GDP growth per capita analysis for a large group of countries (Ben David, 1993, 1995 and 1996). The methodology utilized in this analysis contains an analysis of the combination of components in individual time series data and was used by Kočenda and Pappel (1997), Kočenda and Hanousek (1998) and later Kočenda (2001). Kočenda and Papell followed this methodology to analyse the convergence of inflation rates in the EU Member States, Kočenda and Hanousek analysed the convergence and integration of Asian capital markets (Kočenda and Papell, 1997; Kočenda and Hanousek, 1998), Kutun and Yigit through this approach, analysed the convergence of interest rates on a selected sample of Balkan countries (Kutan and Yigit, 2005). The analysis of the abovementioned authors was investigated by modelling the time series of economic variables with the help of auto regression for a group and individual countries that cover t time periods as an autoregressive process using the formula:

$$X_{i,t} = \alpha + \Phi X_{i,t-1} + \epsilon_{i,t}; \quad (6.2)$$

where: X_t represents the rate of growth of a given variable over a period of 12 months, as defined by (6.1), or with an earlier definition of the interest margin. The fact that variables are modelled as an

autoregressive process is based on the principle of good practice, which is presented in the literature, but it does not represent any theory that would define variables. The adjusted convergence measure is based on the next ratio, which describes the dynamics and differentials for each individual variable in the panel analysis (Kočenda and Papell, 1997; Kutan and Yigit, 2005).

Formally, this can be defined as:

$$X_{i,t} - \bar{X}_t = \Phi(X_{i,t-1} - \bar{X}_{t-1}) + u_{i,t} \quad (6.3),$$

$$\text{where: } \bar{X}_t = \frac{1}{n} \sum_{i=1}^n X_{i,t} \quad (6.4).$$

In the case of aggregation (the formation of panels of groups of countries), the constant α disappears, since after calculation, the differentials of zero are the mean value for all countries and all time periods. Convergence in the upper context through the time period of the analysis requires an ever-greater decrease in the differentials of each individual variable. To meet this requirement, the value of the variable Φ must be less than 1 and statistically significant. Or, if we turn otherwise: in the case where the value of the variable Φ is greater than 1 and is statistically significant, it announces a divergence. Ben-David notes that the coefficient of convergence Φ represents a coarse indication of convergence, which is partially true for the phenomenon of divergence in the case of the inequality $\Phi > 1$ (Ben David, 1995; Kočenda and Papell, 1997; Kočenda and Hanousek, 1998). In his analysis, Ben-David also notes that in the case of the use of neutral data groups (data that do not have a tendency to move in any direction), the convergence coefficient tends to the number 1, which indicates the process of divergence. The greater the value of the coefficient Φ between 0 and 1, the lower the degree of convergence. When calculating the results, the estimated coefficient Φ determines the degree of convergence within a given data set. Following the construction of such a test, it follows that in the case when the value of the statistically significant coefficient Φ is approaching the values 1, the degree of convergence decreases. The above methodology uses the effects of cross-variables in the panel formatting (formation) of time series data (i.e., single-panel panel tests, represents the growth rate of the variable). The methodology used is panel analysis, and uses the effects of cross-variables in panel formation of time series data (Kočenda, 2001). The theory for this methodology was discovered by Levin and Lin. The

authors table the critical values that can be used to determine the statistical characteristics of the coefficient of convergence Φ (Levin and Lin, 1992). They point out that in the case of analysing a small sample of data (which is not the case in this analysis), it is reasonable to employ the Monte Carlo simulation to determine the specified critical values. It is also useful to calculate t in order to show the convergence more clearly. The half-life process of convergence represents the number of time periods needed to reduce the differences to half (Levin and Lin, 1992). Half-Life, in the case of the above analyses, represents the time (in years) that is needed to reduce the differences to half. As an example we can say that Half-Life for, for example, the growth rates of producers' prices is an indication which tells us how many years we need to reduce the differences between the rates of growth of producer price ratios to half the current difference between countries. When talking about differences, we mean the difference in the values (or indexes) of the variable that we observe within a certain group of countries. This means that in the case of differences, the movement of a given variable in different countries is approaching the same level of value. Half-Life in the form of $\ln(0.5) / \ln(\Phi)$ was defined by Ben David (Ben David, 1993, 1995, 1996).

4. Testing the convergence rate with Φ , H-L and k indicators

The convergence coefficient Φ for a certain group of countries can be obtained by transforming the equation (6.3). In order to eliminate all possible serial data correlations, we overwrite equation (6.3) in the form of an extended Dickey and Fuller test, which follows (Kočenda, 2001)

$$d_{i,t} = \Phi_{i,t-1} - \sum_{j=1}^k \gamma_j \Delta d_{i,t-j} + Z_{i,t} \quad (6.5),$$

where: the differential is $d_{i,t} = x_{i,t} - \overline{x_t}$, and his first difference is $\Delta d_{i,t} = d_{i,t} - d_{i,t-1}$. $i = 1$, indexes the countries in a particular group (Dickey and Fuller, 1979). The variable k in equation (6.5) is determined using the parametric method developed by Campbell, Perron and Ng (Campbell and Perron, 1991, and Ng and Peron, 1995, 2001). The equation (6.5) represents the number of time delays or backlogs (the impact of a change with a certain time delay or delay, for example, a certain event can affect something with a time delay of 3 months, which means that the effect of a particular event will occur with a time

postponement of three months). The ceiling of the number of time deferrals, which means k_{\max} , is determined by the chosen level ($k_{\max} = 7$, because the data used in the analysis are based on monthly levels). In this way, the regression equation and the statistical characteristic of the coefficient γ_k are determined. If it turns out that the number of time deferrals k is not statistically significant, its value is reduced by 1, and thus the equation (6.5) is changed. This procedure is subject to repetition until the moment the number of time deferrals becomes statistically significant. In the case of the present analysis, the value of the number of time deferrals from level 7 was decreased and its statistical determination was sought. In the event that it was shown, the model was made at level 7, in the opposite case the level was reduced to 6 and so on. In the case that no statistically characteristic k is displayed at any level, the standard Dickey-Fuller test format was used (Dickey and Fuller, 1979; Dickey and Fuller, 1981).

5. Analysis results of Φ , k , and H-L convergence

When comparing the economic situation in the EU Member States before 2004, there is a convergence of economic variables together with a change in regulation; this can also be interpreted in the sense that the adjustment (harmonization) of regulation has helped to achieve a higher degree of convergence of economic variables. An example is the EU Member States that were already members of the so-called European Monetary System (EMS), where convergence of exchange rates arose in 2000, even before the introduction of the single currency.

The methodological approach is derived from a neoclassical growth theory that interprets convergence between countries located at different stages of economic development and can be used as such as an expectation that countries in the transition develop with a higher rate of growth, thus reducing differences in development (Solow, 1956; Swan, 1965). The empirical part of the research is based on a statistical analysis of the collected data, the results of which show the statistical convergence of the selected economic variables.

The results of the convergence test are presented in Tables 6.7 to 6.12. By approximating the value of the statistically significant coefficient Φ to the whole number 1, the degree of convergence is lower (Baumol, 1986; Barro, 1991, 2000; Barro and Sala-i-Martin, 1991; 2003, Bernard and Durlauf, 1995, Ben David, 1993, 1995 and 1996, Kocenda and Papell, 1997; Kocenda and Hanousek, 1998; Kocenda, 2001; Kutan and Yigit, 2005). In order to better interpret the speed of

the convergence of the table, the calculated t is also shown. i. Half-Life or the number of time periods (in this case of year), which are necessary to reduce the difference in the group by half.

Industrial production

Table 6.7 presents the results of the convergence test for the growth of industrial production. The coefficient Φ is statistically significant. According to the calculated Half-Life, the fastest convergence rate in the EU-10 group of countries (new EU Member States) can be detected, followed by countries in the first group (old EU-15). Overall, the results of the convergence test show the highest rate of convergence in real industrial production growth, achieved in the new EU-10 Member States. To a certain extent, these countries have achieved a relatively high degree of integration with the old EU-15 members, as well as among themselves, which can be attributed to the almost complete liberalization of international trade. The relatively high degree of convergence of real growth in industrial production becomes even more pronounced in the case when the analysis takes into account the essential differences that were in force in this field among the new members at the beginning of the period of transformation of economic systems (Kočenda, 2001).

Table 6.7

Growth rates of industrial production (real)

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.872*	47.99	7	5.06	0.018
EU-10	10	0.818*	36.16	7	3.45	0.023

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

** Statistically significant variable at the level of 1%.*

Prices

Tables 6.8 and 6.9 represent the results of the convergence test for the growth rates of producer prices and the growth rates of retail prices. Convergence coefficients are statistically significant for both groups of countries. The results show the highest level of convergence in the price range among the new EU-10 Member States, which is primarily the producer price rises ($\Phi = 0.908$), followed by growth rates of retail prices ($\Phi = 0.922$). It is also interesting to note that the half-life indicator for this group in both price segments is relevant. We can see

that the new EU-10 Member States will need a minimum number of years to cut price differences by half, in the case of producer price rises 7.18 and 8.54 years in the area of retail price growth.

Table 6.8

Producer price index

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.949*	156.88	6	13.24	0.006
EU-10	10	0.908*	72.15	6	7.18	0.012

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

* Statistically significant variable at the level of 1%.

Table 6.9

Consumer price index

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.976*	292.45	7	28.53	0.003
EU-10	10	0.922*	122.99	7	8.54	0.007

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

* Statistically significant variable at the level of 1%.

The group of new EU-10 Member States in the field of producer price growth rates and the rate and speed of convergence are followed by the EU-15 group, which represents the old members. The latter conclusion confirms the assumption that the rate and speed of convergence slows down with the rise in the level of development of the national economy.

Money Aggregate

Table 6.10 shows the results of the convergence test for the growth rates of the monetary aggregate M1. The growth rate of the monetary aggregate M1 is the highest in the EU-15 group of countries (the old EU member states), where the calculated coefficient is $\Phi = 0.874$. This group is also the first in terms of the convergence rate, as the calculated Half-Life is 5.15, which means that the countries belonging to the first group will need the least time to reduce their mutual differences by half. These results are the result of longer full EU membership (compared with the EU-10 new Member States), and partly the focus of the monetary policy of the European Central Bank (of course, not all EU Member States are members of a monetary union).

Table 6.10

M1 growth rates

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.874*	49.32	6	5.15	0.0178
EU-10	10	0.908*	83.39	6	7.18	0.011

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

** Statistically significant variable at the level of 1%.*

The second place is the group of countries of the new EU-10 countries, which is the result of the implementation of monetary reforms and the stabilization of the growth in the volume of money supply before gaining full membership in the EU. In the early period of the transformation of economic systems (the period prior to 1998), local monetary authorities in most cases implemented a restrictive monetary policy, and were influenced by the various stages - the levels on which new members were located during the transformation of economic systems.

These countries also apply for membership of the European Monetary Union (EMU) and strive to meet the set criteria for introducing the single euro currency. The results of the M1 monetary aggregate convergence analysis for the second group of EU-10 countries $\Phi = 0.908$ and Half-Life 7.18 (which is very close to the results for the first group of EU-15 full members) testify to the correct targeting of local monetary authorities in order to fulfil the already mentioned the criteria for introducing the single currency.

Interest margin

The results of the analysis of changes in interest margins are presented in Tables 6.11 and 6.12. The interest margin is defined as the difference between the active and the passive interest rate. The nominal interest margin is therefore defined as the ratio between the nominal loan and the deposit interest rate. As an alternative, the real interest margin is defined as the difference between the nominal loan and the deposit interest rate, from which the inflation is subtracted (the difference in the real terms is the loan and the deposit interest rate). In the analysis of the convergence of the nominal interest margin, the second EU-10 group of countries is in the first place in terms of the convergence rate and also in terms of the convergence rate. This is most

likely the result of a pronounced speed and also a high degree of convergence in the area of inflation. The situation is changing in the field of convergence analysis of real interest margins, where the old members of the EU-15 (the first group of countries) with the highest convergence rate and its highest speed are in the first place. Once again, the cause for such results can be found in longer full-fledged membership in the EU (compared to the new EE-10) and partly in the monetary policy guidelines of the European Central Bank (of course, not all EU Member States are members of the monetary union).

Table 6.11

Interest margin nominal

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.980*	212.274	6	34.31	0.005
EU-10	10	0.911*	82.38	7	7.44	0.011

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

** Statistically significant variable at the level of 1%.*

Table 6.12

Interest margin real

Group	Number of countries	Φ	t-stat (Φ)	k	H-L	Standard error
EU-15	15	0.865*	90.31	7	4.78	0.009
EU-10	10	0.904*	100.52	7	6.87	0.009

Note: k presents the number of time lags; H-L, Half-Life represents the time (in years) that is needed to reduce the differences to half.

** Statistically significant variable at the level of 1%.*

6. Results and key findings

In the efforts to achieve the expected benefits, the governments of the CEEC countries enthusiastically began the process of reforming legislation and reforming economic systems. In the first phase of the negotiations, the Czech Republic, Estonia, Poland and Slovenia even managed to agree that December 2002 and January 2003 would be the target date for gaining full membership in the EU. In the first phase, the European Commission has limited access to five countries (and Cyprus). The countries that began formal negotiations in March 1998 to gain full membership in the EU were the Czech Republic, Estonia, Hungary, Poland and Slovenia. As a result of the Helsinki negotiations in December 1999, Bulgaria, Latvia, Lithuania, Romania, Slovakia and

Malta were invited to proceed with the negotiations. For these countries, the formal negotiating process started on 14/14 January 2000 and the negotiations began on March 28, 2000. At the EU Summit in Copenhagen, the Council of Europe (European Council) in December 2002 set the date for joining a group of ten countries, of the new EU member states – 1 May 2004. With that decision, the so-called EU internal market has increased from 370 million to 450 million consumers. In this context, an increase can be detected on the bidding page, as the acquisition of the new membership has made ten countries fully integrated into the EU internal market. Also, due to the growth of income in the new members, an increase in the demand side can be seen.

At the Gothenburg summit, the European Commission took a position that allowed certain countries of Central and Eastern Europe to gain full membership in the EU in January 2004 (later entry was made in May). The acquisition of full membership in the EU was a logical conclusion for the new members of the economic integration, since prior to joining was a widely known assumption of increasing the economic competitiveness and economic growth of the countries of the new member states. Although there was a broad consensus on the fact that a close connection with the EU (and thus a substantial increase in the rates of liberalization of international trade) represented the most promising alternative for the economies of the new Member States, real expectations of economic benefits during the period of accession negotiations were still rather unclearly defined and as such subject to in-depth economic analysis. In the context of addressing the positive effects of liberalization of international trade on national economies, however, it does not mean that there are no costs of adapting to the conditions of liberalization, and also the negative effects resulting from the liberalization of international trade occur. Despite predictions of the positive economic effects of the integration of national economies, the likelihood that in the future all new members will enjoy the benefits of economic integration with more developed regions to the same extent is still the subject of scientific and professional debates. Another fundamental argument in defining the positive effects of economic integration is the phenomenon of convergence. Certain authors advocate the link between the processes of economic integration and convergence. Literature in this field is mainly focused on the analysis of the convergence of living standards between countries or regions. Ben-David notes the phenomenon of convergence in a relative standard of living between groups of countries that are linked by intense trade

relations (Ben-David, 1996, as well as Matkowski, Z., Próchniak, M., 2007; Vojinović, B. and Oplotnik, J. J., 2008a, Vojinović, B., Oplotnik, J. J., 2008b, Becker B. and Hall SG, 2009. Zdarek, V., Sindel, J., Vojinović, B., Próchniak, M., Acharya, 2009; Wagner M. and Hlouskova J., 2009; Schneider U. and Wagner M., 2009; Vojinović, B., Oplotnik, Ž. J. and Próchniak, M., 2010). The phenomenon of convergence, as stated by the same author, cannot be detected among countries that are not interconnected by international trade.

The analysis used the calculation of the coefficient of convergence Φ ($X_i; t = \alpha + \Phi X_i, t-1 + \hat{\epsilon}_i; t$), which represents the convergence indication (the adjusted convergence measure is based on a ratio describing the dynamics and differentials for each variable in the panel analysis); the calculation of the Half-Life statistical indicator of the convergence process, which represents the number of time periods needed to reduce the differences to half (the Half-Life indicator represents the time in the years that is needed to reduce differences in the movement of statistical categories between countries to half). The results of the analysis for a group of new EU-10 Member States indicate a high degree of convergence and also its high speed. The convergence of selected economic variables showed the highest degree of convergence in the area of growth rates of industrial production. In this area, the highest speed of the convergence process can be detected. In the selected countries, in the analysed time period, the rates of growth of retail prices are most slowly converging, which is most likely due to the relatively low inflation rates in all countries covered by the test sample.

Very high convergence rates have also been shown in the growth areas of the M1 monetary aggregate and real interest margins, which is especially true for the old EU-15 and the new EU-10 full members. The reason for such results in the old member states is found in the longer full membership in the EU (compared to the group of new members), and in part also the guidelines of the monetary policy of the European Central Bank. For a group of new members, the reasons for such high convergence rates in the field of monetary policy implementation can be sought in the early period of the transformation of economic systems (the period before 1998) when local monetary authorities in most cases implemented a restrictive monetary policy.

Given the situation described and the analysis carried out, it should be noted that the adoption of today's group of new (EU-10) members did not represent the first case when the old full members were accepted by new members who achieved significantly lower levels of development

than the average of full members. If the peoples of the countries of Central and Eastern Europe wish to continue the process of stable convergence towards reaching the level of GDP per capita of the old EU member states, the acquisition of full membership in 2004 certainly does not represent a definitive and sufficient goal. By failing to complete or not completing the implementation of structural reforms, there is a possibility of disappointing new EU members in the context of achieving a higher level of prosperity, while old EU members will find themselves in a peripherally economically depressing environment. In the context of the implementation of structural reforms, the EPC (Economic Policy Committee) reports that the continuous and accelerated implementation of the structural reform process (in conjunction with the implementation of stable and economic growth-oriented economic policies of the countries) represents one of the essential prerequisite for the revival economies and the continued achievement of economic growth.

References:

1. Balassa, B. 1965. *Trade Liberalization and "Revealed" Comparative Advantage*. *The Manchester School of Economics and Social Studies*, 33, 99–123.
2. Baldwin R. E. 1989. *The growth effects of 1992*. *Economic Policy*, 248–281.
3. Baldwin R. E. 1992. *Measurable Dynamic Gains from Trade*. *Journal of Political Economy* 100 (1), 162–174.
4. Baldwin R. E., Forslid R. 2000. *The Core–Periphery Model and Endogenous Growth: Stabilizing and Destabilizing Integration*. *Economica* 67, 307–324.
5. Baldwin, R. E. And E. Seghezza. 1996. *Growth and European Integration: Towards and Empirical Assessment*. *CEPR Discussion Paper No. 1393*, CEPR, Washington.
6. Barro R. J. and Lee J.W. 2001. *International Data on Educational Attainment: Updates and Implications*. *Oxford Economic Papers*, Vol. 53, 541–563.
7. Barro, R. J. 1995. *Inflation and Economic Growth*. *NBER Working Paper Series* 5326.
8. Barro, R. J. 1997. *Determinants of Economic Growth: A Cross–Country Empirical Study*. *Harvard Institute for International Development Discussion Papers* 579.
9. Barro, R. J. and Sala-i-Martin, X. 1995. *Economic Growth*. McGraw–Hill, New York.

10. Barro, R. J. and Sala-i-Martin, X. 1990. *Economic Growth and Convergence across the United States*. NBER Working Paper No. 3419.
11. Barro, R. J. and Sala-i-Martin, X. 1992a. *Convergence Across States and Regions*. *Brookings Pap. Econ. Act.* 0, 1:107–158.
12. Barro, R. J. and Sala-i-Martin, X. 1992c. *Convergence*. *J. Polit. Econ.* 100, 2:223–251.
13. Barro, R. J. 1991. *Economic growth in a cross-section of countries*. *Quarterly Journal of Economics* 106, 407–445.
14. Barro, R. J. 2000. *Inequality and Growth in a Panel of Countries*. *Journal of Economic Growth*, March, 5–32.
15. Barro, R. J. and Sala-i-Martin, X. 1992b. *Regional growth and migration: A U.S.–Japan comparison*. *Journal of the Japanese and International Economies* 6, 312–346.
16. Barro, R. J. and Sala-i-Martin, X. 2003. *Economic Growth*. New York: McGraw-Hill.
17. Barro, Robert J. and Jong-Wha, L. 2001. *International Data on Educational Attainment: Updates and Implications*. *Oxford Economic Papers* 53: 541–563.
18. Bassanini, A. and Scarpetta S. 2001. *The Driving Forces of Economic Growth: Panel Data Evidence for the OECD Countries*. *OECD Economic Studies* No. 33, 2001/II, OECD, Paris.
19. Baumol, W. J. 1986. *Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show*. *Amer. Econ. Rev.* 76, 5: 1072–1085.
20. Bayoumi, T. and Eichengreen B. 1996. *The Stability of the Gold Standard and the Evolution of International Monetary System*. In Bayoumi, T., Eichengreen B. and Taylor M (ed.). *Modern Perspectives of the Gold Standard*. Cambridge: Cambridge University Press.
21. Bayoumi, T. and Eichengreen B. 1997. *Is Regionalism Simply a Diversion? Evidence from the Evolution of the EC and EFTA*. In Takatoshi Ito and Anne Krueger (ed.). *Regionalism Versus Multilateral Trade Arrangements*. Chicago: University of Chicago Press.
22. Ben D. 1993. *Equalizing Exchange: Trade Liberalization and Income Convergence*. *Quart. J. Econ.* 108, 3:653–679. 1993.
23. Ben D. 1995. *Measuring Income Convergence: An Alternative Test*. *Foerder Institute for Economic Research Working Paper No. 41/95*. Tel Aviv Univ.
24. Ben D. 1996. *Trade and Convergence Among Countries*. *Journal of International Economics*, Vol. 40, 279–98.
25. Ben D. and Kimhi A., 2000. *Trade and the Rate of Income Convergence*. *CEPR Discussion Paper No. 2390*, CEPR, Washington, D.C.
26. Bernard, A. B., and Durlauf, S. N. 1995. *Convergence in International*

- Output. J. Appl. Econometrics* 10, 2:97–108.
27. Brada J. and Kutan A. M. (2002). *Balkan and Mediterranean Candidates for European Union Membership: The Convergence of their Monetary Policy with that of the European Central Bank*. William Davidson Working Paper Number 456.
 28. Cass, D. 1956. Optimum growth in an aggregative model of capital accumulation. *Review of Economic Studies* 32, 233–240.
 29. De Melo, J., Montenegro C. and Panagariya A. 1993. *L'intégration régionale hier et aujourd'hui*. *Revue d'Economie du Developpement* 0 (2): 7–49.
 30. De Melo, M., Denizer, C., Gelb, A. and Tenev, S. 1997. *Circumstance and choice: The role of initial conditions and policies in transition economies*, Washington, International Finance Corporation.
 31. DeMelo, M., C. Denizer, A. Gelb and S. Tenev 1997. *Circumstance and choice: The role of initial conditions and policies in transition economies*. Washington: International Finance Corporation.
 32. Dickey, D. A. and Fuller, W. A. 1981. Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49, 1057–1072.
 33. Dickey, D. A., and Fuller W. A. 1979. Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *J. Amer. Statist. Assoc.* 74, 366, Part 1:427–431.
 34. Dollar, D. 1992. *Outward Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDC's, 1976–1985*. *Economic Development and Cultural Change* 40(3): 523–544.
 35. Doyle, P., Kuijs L. and Jiang G. 2001. *Real Convergence to EU Income Levels: Central Europe from 1990 to the Long-Term*. IMF Working Paper, 01/146, Washington.
 36. Durlauf, S. N. and Quah D. T. 1999. *The new empirics of economic growth*. V Taylor, J. B. in Michael Woodford, ed. *Handbook of Macroeconomics*. Volume 1A. Amsterdam: North-Holland: 235–308.
 37. EBRD (2001 and previous years). *Transition Report 2000*, London: European Bank for Reconstruction and Development.
 38. Edgeworth F. Y. 1925. *Papers Relating to Political Economy*. London: Mcmillian.
 39. EEAG, 2004. *Report on the European Economy 2004*. CESifo, Munich.
 40. European Commission. 1995. *White Paper: Preparation of the associated countries of Central and Eastern Europe for integration into the internal market of the Union*, Luxembourg: EUR-OP (COM(95)163).
 41. European Commission. 1996. *First Report on Economic and Social Cohesion 1996*. Luxembourg: Office for Official Publications of the

European Communities.

42. European Commission. 2001. *Employment in Europe 2001. Recent Trends and Prospects.* European Commission, DG Employment and Social Affairs.
43. European Commission. 2002. *European Economic Review 2002.* Brussels.
44. European Commission. 2002. *Report on macroeconomic and financial stability in the Candidate Countries.* Brussels.
45. Fischer, S., Sahay R. and Vegh C. A. 1998a. *From transition to market: Evidence and growth prospects.* IMF Working Paper 98/52.
46. Fischer, S., Sahay R. in Vegh C. A. 1998b. *How far is Eastern Europe from Brussels?* IMF Working Paper 98/53.
47. Gerschenkron, A. 1943. *Bread and Democracy in Germany,* Berkeley and Los Angeles. University of California Press.
48. Gerschenkron, A. 1962. *Economic Backwardness in Historical Perspective: A Book of Essays.* Cambridge, MA: Belknap Press of Harvard University Press, 456.
49. Gerschenkron, A. 1970. *Europe in the Russian Mirror: Four Lectures in Economic History.* Cambridge University Press, Cambridge UK.
50. Gerschenkron, A. 1977. *An Economic Spurt that Failed.* Princeton University Press, Princeton NJ.
51. Havrylyshyn, I., I. Ivorski in Van Rooden R. 1998. *Recovery and growth in transition economies 1990–97: A stylized regression analysis.* IMF Working Paper 98/141.
52. Kaitila, V. 2001. *Accession Countries' Comparative Advantage in the Internal Market: A Trade and Factor Analysis.* Bank of Finland Institute for Economies in Transition Discussion Paper No. 3, Bank of Finland, Helsinki.
53. Kaitila, V. 2004. *Convergence of Real GDP Per Capita in the EU15. How Do the Accession Countries Fit In?* European Network of Economic Policy Research Institutes Working Paper No. 25.
54. Kaplan, J. J. and Schleiminger G. 1989. *The European Payments Union: Financial Diplomacy in the 1950s.* Oxford: Clarendon Press.
55. Keynes, J. M. 1967. *General Theory of Employment, Interest, and Money.* Ponatis, London: Macmillan.
56. Kočenda, E. 2001. *Macroeconomic Convergence in Transition Economies.* *Journal of Comparative Economics*, 29(1), 1–23.
57. Kočenda, E. and Hanousek, J. 1998. *Integration of Emerging Equity Markets: Major Asian Players.* *Korean Econ. Rev.* 14, 1:99–114.
58. Kočenda, E. and Papell, D. 1997. *Inflation Convergence within the European Union: A Panel Data Analysis.* *Int. J. Finance Econ.* 2, 3:189–198.

59. Kočenda, E. 2001. *Macroeconomic Convergence in Transition Economies*. *Journal of Comparative Economics*, Vol. 29, No. 1, 1–23.
60. Kornai, J. 1990. *Deficit*. Moscow: Nauka.
61. Kornai, J. 1992. *The Socialist System: The Political Economy of Communism*. Princeton, N.J.: Princeton University Press.
62. Kornai, J. 1993. *Transformational Recession: A General Phenomenon Examined through the Example of Hungary's Development*. *Economie Applique*, 46(2), 181–227.
63. Krugman P. and Venables A. 1993. *Integration, Specialization, And Adjustment*. NBER Working Paper no. 4559.
64. Krugman, P. 2000. *Technology, Trade, and Factor Prices*. *Journal of International Economics*, 50(1), 51–71.
65. Krugman, P. in Maurice O. 1994. *International Economics: Theory and Policy* (tretja izdaja). NYC: Harper Collins College Publishers.
66. Kutan, A.M. and Yigit, T.M. 2005. *Real and Nominal Stochastic Convergence: Are the New EU Members Ready to Join the Euro Zone?* *Journal of Comparative Economics*, 33, 387–400.
67. Kuznets, S. 1968. *Towards a Theory of Economic Growth*. Yale University Press, New Haven CT.
68. Leamer, E. E. 1987. *Paths of Development in the Three-Factor, n-Good General Equilibrium Model*. *Journal of Political Economy* 95: 961–999.
69. Leamer, E. E. 1980. *The Leontief Paradox, Reconsidered*. *Journal of Political Economy*, 88(3), 495–503.
70. Leamer, E. E. 1989. In: *Search of Stolper–Samuelson Linkages Between International Trade and Lower Wages*. V Susan Collins (ed.). *Imports, Exports, and the American Worker*. Washington, D.C.: The Brookings Institution.
71. Leamer, E. E. 2000. *What's the Use of Factor Contents?* *Journal of International Economics*, 50(1), 17–49.
72. Leontief, W. 1933. *The Use of Indifference Curves in the Analysis of Foreign Trade*. *Quarterly Journal of Economics*, 47(2), 493–503.
73. Leontief, W. 1953. *Domestic Production and Foreign Trade: the American Capital Position Re-examined*. *Proceedings of the American Philosophical Society*, 97(4), 332–49. Reprint in W. Leontief. 1966. *Input–Output Economics*. New York: Oxford University Press.
74. Leontief, W. 1956. *Factor Proportions and the Structure of American Trade*. *Review of Economics and Statistics*, 38(4), 386–407. Reprint in Leontief W. 1966. *Input–Output Economics*, New York: Oxford University Press.
75. Leontief, W. 1964. *Review of "An International Comparison of Factor Costs and Factor Use" by B.S. Minhas*. *American Economic Review*,

54(4), 335–45.

76. Leontief, W. 1970. Comments on John Chipman's "Induced Technical Change and Patterns of International Trade," in Raymond Vernon, ed. *The Technology Factor in International Trade*. National Bureau of Economic Research Conference Series, 132–42.
77. Leontief, W. 1973. Explanatory Power of the Comparative Cost Theory of International Trade and Its Limits. In: *Economic Structure and Development: Essays in Honor of Jan Tinbergen*. New York: North Holland, 153–60.
78. Leontief, W. 1974. Structure of the World Economy: Outline of a Simple Input–Output Formulation. *The Swedish Journal of Economics* (Nobel Memorial Lecture), Vol. 76. Reprint in *American Economic Review*, 64(6), December.
79. Leontief, W., Carter A. P. and Petri 1977. *The Future of the World Economy*. New York: Oxford University Press.
80. Levin, A. in Lin, C. F. 1992. Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties. University of California–San Diego Discussion Paper No. 92–23.
81. Levine, R. 1997. Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature* 35, 688–726.
82. Lewis, W. A. 1954. Economic Development with Unlimited Supplies of Labour. *Manchester School* 22, 139–91.
83. Mankiw, N. G., Romer D. and Weil D. N. 1992 A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics*, May.
84. Martin, C. in Velázquez C. F. 2001. An Assessment of Real Convergence of Less Developed EU Members: Lessons for the CEEC Candidates. Working Paper No. 5/2001, European Economy Group.
85. Matkowski Z., Próchniak M. 2004. Economic Convergence in the EU Accession Countries, In: *Composite Indicators of Business Activity for Macroeconomic Analysis* (ed. Z. Matkowski). RIED Papers and Proceedings, vol. 74. Warsaw School of Economics, 405–425
86. Matkowski Z., Próchniak M. 2005. Convergence of economic growth in Central and Eastern European Countries relative to the European Union. *Ekonomista* 3, 293–320.
87. Matkowski, Z. 2003. Economic Situation of Post–Socialist Countries: Economic and Social Effects of Transformation. *Ekonomista*, 6, 737–774.
88. Matkowski, Z. 2004. Post–Socialist Countries: Macroeconomic Performance, Growth Prospects, and Social Welfare. *Eastern European Economics*, 3, 44–80.
89. Matkowski, Z. 2005. *Macroeconomic Performance in Transition*

- Countries, paper presented at the 27th CIRET Conference, Warsaw, 15 Sept. 2004. In: Adamowicz, E. and Klimkowska, J. (ed.) Economic Tendency Surveys and Cyclical Indicators. Polish Contribution to the 27th CIRET Conference ('The RIED Papers and Proceedings', vol. 75), SGH, Warsaw, 285–323.*
90. Matkowski, Z. and Próchniak, M. 2006. *Economic Convergence between CEE–8 and the EU. Eastern European Economics* 4.
 91. Matkowski, Z. and Próchniak, M. 2007. *Economic Convergence between the CEE–8 and the European Union. Eastern European Economics*, 45, 59–76.
 92. Mentz M. and Sebastian S. P. 2003. *Inflation Convergence after the Introduction of the Euro. CFS Working Paper No. 03–30.*
 93. Mill, J. S. 1965. *Principles of Political Economy*. New York: A. M. Kelly Publishers.
 94. Mrkaic, M. 2002. *The Growth of Total Factor Productivity in Slovenia. Post–Communist Economies*, 14(4), 445–54.
 95. Ng, S. and Perron P. 1995. *Unit Root Tests in ARMA Models with Data–Dependent Methods for the Selection of the Truncation Lag. J. Amer. Statist. Assoc.* 90, 429:268–281.
 96. Ng, S., and P. Perron 2001. *Lag Selection and the Construction of Unit Root Tests with Good Size and Power. Econometrica* (69): 1519–1554.
 97. Próchniak, M. 2006. *Real Convergence or Divergence of the Average Income Level. In: Weresa, M.A. (ed.) Poland. Competitiveness Report 2006. The Role of Innovation, World Economy Research Institute. Warsaw School of Economics*, 28–37.
 98. Rapacki, R. 2007. *Structural Reforms. In: Rosati D. (ed.): New Europe, Report on Transformation, XVII Economic Forum, Foundation Institute for Eastern Studies, Warsaw.*
 99. Quah, D. T. 1992. *International Patterns of Growth: Persistence in Cross–Country Disparities Working Paper (London School of Economics, London).*
 100. Quah, D. T. 1996. *Empirics for economic growth and convergence. European Economic Review, Vol. 40*, 1353–75.
 101. Ramsey, F.P. 1928. *A mathematical theory of saving. Economic Journal* 38, 543–559. Summarised in: Stiglitz, J. in H. Uzawa. 1969. *Readings in the Modern Theory of Economic Growth. MIT Press.*
 102. Rey, S. J. in Montouri B. D. 1998. *US Regional Income Convergence: A Spatial Econometric Perspective. Regional Studies, Vol. 33*, 145–156.
 103. Romer, P. M., 1986. *Increasing returns and long–run growth. Journal of Political Economy*, 94 (6), 1002–1037.
 104. Romer, P. M. 1990. *Endogenous Technological Change. Journal of*

- Political Economy* 98: 71–102.
105. Rostow, W. W. 1960. *The Stages of Economic Growth*, New York; Cambridge University Press.
 106. Rybczynski, T. M. 1955. *Factor Endowments and Relative Commodity Prices*. *Economica*.
 107. Sala-i-Martin, X. 1990. *On growth and states*. Dissertation. Harvard University.
 108. Sala-i-Martin, X. 1996. *Regional Cohesion: Evidence and Theories of Regional Growth and Convergence*. *European Economic Review*, Vol. 40, 1325–52.
 109. Samuelson, P. A. 1971. *Ohlin Was Right*. *Scandinavian Journal of Economics* 73:365–384.
 110. Samuelson, P. A. 1994. *Tribute to Wolfgang Stolper on the Fiftieth Anniversary of the Stolper–Samuelson Theorem*. V Deardorff A. V. and Stern R. M. (ed.), *The Stolper–Samuelson Theorem: A Golden Jubilee*. Ann Arbor: University of Michigan Press.
 111. Sarno, L. 1997. *Policy Convergence, the Exchange Rate Mechanism and the Misalignment of Exchange Rates: Some Tests of Purchasing Power Parity and Generalized Purchasing Power Parity*. *Appl. Econ.* 29, 5:591–605.
 112. Solow, R. 1956. *A Contribution to the Theory of Economic Growth*. *Quarterly Journal of Economics*, 70: 65–94.
 113. Stiglitz, J. 2000. *Formal and Informal Institutions*. V Social Capital: A Multifaceted Perspective, (ed.) Dasgupta P. in Serageldin I.. Washington, D.C.: The World Bank.
 114. Stolper, Wolfgang F. and Samuelson P. A. 1941. *Protection and Real Wages*. *Review of Economic Studies* 9: 58–73.
 115. Swan, T. W. 1965. *Economic growth and capital accumulation*. *Economic Record*, (5), 334–361.
 116. Vojinović, B. and Oplotnik, Ž. J., 2008a. *Real convergence in the new EU Member States*. *Prague Economic Papers*, Mar., vol. 17, no.1, 23–39, [JCR, WoS].
 117. Vojinović, B. and Oplotnik, Ž. J., 2008b. *Real convergence of the GDP per capita in the new EU Member States*. *Transformations in Business and Econ. (Spausd.)*, 2008b, vol. 7, no. 1 (13), 89–103, [JCR, WoS].
 118. Vojinović, B., Prochniak, M., Acharya, S., 2009. *Convergence analysis among the ten European transition economies*. *Hitotsubashi j. Economics*, Dec. 2009, vol. 50, no.2, 124–141, [JCR, WoS].
 119. Vojinović, B., Oplotnik, Ž. J. and Próchniak, M., 2010. *EU enlargement and real economic convergence*. *Post–Communist Economies*, Sept. 2010, vol. 22, no.1, str. 303–322, [JCR, WoS].
 120. Wagner, M. and Hlouskova J., 2002. *The CEEC10's Real Convergence*

- Prospects. CEPR Discussion Paper 3318. CEPR, Washington.*
121. Wagner, M. and Hlouskova, J., 2009. *Growth Regressions, Principal Components and Frequentist Model Averaging. Economics Series 236, Institute for Advanced Studies.*
122. Walter, I. and Areskoug, K. 1981. *International Economics. Third edition. John Willey and Sons.*
123. Yigit T and Kutan M. 2004. *European Integration, Productivity Growth. Journal of Comparative Economics, 32, 23–36.*

CONCLUSION

In a market economy one of the most important factors in the effective functioning and development of economic entities is the successful implementation of their innovation activities. In turn, the spread of processes for the introduction of innovation by economic entities becomes a key condition for accelerating the socio-economic development of the country.

The results of the author's research in the collective monograph are devoted to solving problems of formation and development of an effective system management of innovative development and theoretical-methodical principles of organizational-economic management by choosing directions of innovative development the economic entities.

Innovative activities are usually carried out by economic entities from time to time, rather than on a regular basis, due to lack of financial and other resources, uncertainty and increased risk of innovation, lack of appropriate experience in innovation management and effective science-based tools formation of the mechanism management of innovative development.

The main advantage of the innovative way of development is ensuring economic growth without proportional increase in consumption of raw materials, formation of conditions under which investment into the creative and scientific potential of society becomes extremely advantageous. After all, innovative development the economic entities, based on the general principles of cyclical development of scientific-technological progress, determines the objective need for changes in generations of technology and technologies, provides of possible alternatives for the implementation of scientific-technological innovations, etc.

The presented results of the research in the collective monograph reflect the theoretical and practical aspects of the introduction of mechanisms for the management of innovative development the economic entities.

It is established that the increase of the efficiency activity the economic entities in the current harsh environment of the competitive environment is based on the improvement of the process management of innovative development the enterprise.

It is determined that the need for implementation of innovative development the economic entities are stipulated: the intensification of intensive factors the production development, which promote the

application of scientific-technological progress in all spheres of economic activity; the determining role of science in improving the effectiveness of the develop and introduction of new technology; the need for a significant reduction in the timing of creation and implementation of new technology; increase of technical level of production; the need to develop the creative skills of inventors and innovators; increase in costs and deterioration of economic indicators of economic entities when developing new products; rapid moral aging of technology; the objective need for accelerated implementation of new technology, etc.

The system management of innovation development is an open system that constantly interacts with the external environment of activity, providing flexibility and adaptability the economic entity to market conditions. Taking into account these functions makes it possible to conclude that the process of transition the economic entity to the innovative way of development requires the creation of a new system of its organizational management taking into account corrective actions.

Innovative development in the volatile market conditions of the transition economy is characterized by specific features that cause the formation of numerous models of management systems in each particular situation. The choice of a model depends on the conditions of activity the economic entity, the level of economic development, the formation of its innovative potential.

The current stage of expansion of globalization, informatization and market relations provides great opportunities for development at the expense of connecting to innovation processes more advanced economic entities, integrating participants of innovations within the framework of cooperation, attracting Internet technologies, using world achievements and opportunities of international institutions. According to practice the business entities in the formation of organizational potential insufficiently used the possibilities of world consolidation. The main reason for such a situation is the low level of readiness for changes the economic entities. The period of organizational change requires serious investment, which in turn limits the possibilities of the current economic growth the economic entity, regardless of the sources of funding for innovative development programs. At this stage, the formation and flexibility of the management system of innovative activity the economic entity enables to transform into a new way of development without unnecessary expenses. Innovative development is a systemic orientation of activity the economic entity to achieve high performance results at the expense of innovation factors, which are based on a continuous uninterrupted search of new means and

spheres of realization of the potential the enterprise in an unstable market environment. Innovative development at the level of an individual economic entity involves the implementation of the process of introducing promising innovations, the implementation of which should contribute to increasing the competitiveness of the enterprise.

The transition of the economic entity to the way of innovation development requires him to organize a management system capable of responding quickly to changes in both the external and internal environment of operation. Management of innovative activity the economic entity is a complex system of interrelated functions, the sequence of which ensures the formation of competitive advantages through innovative development factors.

The economic situation in recent years is characterized by an increase in the degree of globalization and business informatization, increased competition on the markets of goods and services, capital and labor. Such market development leads to the need to create a sustainable innovation policy, which is based on the integration of economic entities, concentration of capital. As the world experience shows, alternatives to innovative development today do not exist yet, since it is practically impossible to compete in foreign markets in the traditional field of activity. Only fundamentally new technologies, supported by managerial innovations, will create a new competitive environment and provide the prerequisites for achieving leadership positions on the market. In turn, increase of business activity and innovation will allow providing high rates of economic growth, increase of capitalization the economic entities and scale of production.

The generalized researches in the collective monograph indicate that the management of innovative development the economic entities should be considered as a systematic management of innovation activities aimed at creating and ensuring the achievement of economic growth through the rational use, increase and distribution of innovation and economic-technological potential, including material, labor, financial, information resources, in order to transform it into innovative capital, is capable of providing innovative development the enterprise. That is, while managing of innovative development the economic entities there is a systematic decision-making process and the transformation of innovation potential into innovative capital, the very realization of innovation potential leads to the innovative development of economic entities, and the systemic ensures the sustainability of development.

Organizational-economic mechanism of management innovative development of economic entities

Collective monograph edited by
M. Bezpartochnyi

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M. Bezpartochnogo

**Wyższa Szkoła Społeczno Gospodarcza w
Przeworsku**
Gimnazjalna 35, 37-200 Przeworsk, Polska
tel.: +48 721 207 300, +48 16 733 41 36
e-mail: wssg@vp.pl

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