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MULTIGENERÁCIA V SÚČASNÝCH ORGANIZÁCIÁCH V SÚVISLOSTI S RIADENÍM ĽUDSKÉHO KAPITÁLU

Dariusz KŁAK

Abstract
This paper focuses on the issue of generational diversity of employees, which constitutes one of the vitally important factors determining the human capital management of contemporary organisations. In addition to outlining the situation and main trends of the labor market in the European Union, we analyse the character of particular generations. Furthermore, we present the results and conclusions of the research conducted among the youngest generations regarding their professional preferences, attitudes and expectations towards their employers.

Keywords: human capital, generational diversity, management, generations of employees

Abstrakt
Tento článok sa zameriava na otázku generačnej rozmanitosti zamestnancov, ktorá predstavuje jeden z životne dôležitých faktorov určujúcich riadenie ľudských zdrojov v súčasných organizáciách. Okrem načrtnutia situácie a hlavných trendov na trhu práce v Európskej únii analyzujeme aj charakter jednotlivých generácií. Ďalej uvádzame výsledky a závery výskumu uskutočneného medzi najmladšími generáciami, pokiaľ ide o ich profesionálne preferencie, postoje a očakávania voči zamestnávateľom.

Kľúčové slová: ľudský kapitál, generačná rozmanitosť, riadenie, generácie zamestnancov

Introduction

The contemporary labor market is facing increasing transformations in the demographic structure of the workforce and work processes. Dynamically occurring changes in the environment of the organization pose numerous challenges for the management. Special consideration is given to the generational diversity of human capital accumulated in the organization. Due to the time of birth, development determinants or educational perspectives, individual generations have specific features for them. Each generation perceives authorities, work, participation in the organization or ways to meet their needs to a different extent (Kopertyńska & Kmiotek, 2014). They often present completely different attitudes, values, motivation or expectations conditioning their approach to work.

Considering the growing difficulties in choosing the right staff, employers understanding the important role of human capital attach more and more importance to meeting this expectations. It requires the discernment of many determinants, including generational diversity and workplace complexity (Linley, Harrington & Garcea, 2013).

The purpose of the publication is to outline the generational diversity of employees in organizations by selected identifying dominant features and expectations characterizing individual generations of employees and related implications for human capital management. The analysis was based on the literature on the subject and secondary research, covering generations of millennia's and Gen Zs, coexisting on the labor market.

1 Labor market in the European Union

According to Eurostat (European Union Statistical Office responsible for publishing high quality European statistics and indicators which make it possible to compare countries and regions), in the third quarter of 2018 the unemployment rate in the 28 European Union countries was 6.7% on average(for comparison in Poland 3.8%.) The vacancy rate in the analyzed period in the EU was at the level of 2.1%, slightly higher than in 2017 (1.9%). The countries with the most vacancies were headed by the Czech Republic (5.9%), Belgium (3.6%) as well as Germany, the Netherlands and Austria (3% each). Among the countries with the lowest rates were Greece (0.6%), Spain (0.8%) and Bulgaria (0.9%). Poland and Slovakia achieved the result of 1.2%

(https://ec.europa.eu/info/departments/eurostat-european-statistics_en). In the first quarter of 2019, 6.4% of jobs were laid off in the Czech Republic, which gives the highest value in the EU, followed by Belgium (3.6%) and Germany (3.3%) (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Job_vacancy_statistics, accessed 10.09.2019).

From the data of Cedefop (established by the Council Regulation of 10 February 1975, establishing the European Center for the Development of Vocational Training (Cedefop) EEC No. 337/75, Official Journal of the European Communities, L 39, 13.2.1975, amended by Council Regulation No. 2051/2004), it follows that the indicator of the number of people ready to take up work (labor force) will be progressive, in contrast to the rate of economic activity(Skills forecast: trends and challenges to 2030, accessed 10.09.2019). The main reasons for the increase in the labor force index are the growing number of the oldest population (55+), also legal regulations providing for longer professional activity. In turn, the regression of the economic activity rate will be affected by the falling number of people between 25-54 years old. Due to the limited framework of the study, attention was paid to selected indicators and main trends in the EU labor market.

2 Description of generations

Before proceeding to the characteristics of generational differences, it is worth briefly thinking about the meaning of the term generation. The term generation has been present in scientific discourse for many years. In the literature on the subject, generation is understood as "all individuals born and living at the same time. Belonging to the generation is determined not only by the year of birth, but

also by the community of experiences shaped by a specific society" (Giddens & Sutton, 2012). Other authors also speak in a similar tone, proposing to recognize people born in the same age group as a generation, who, which is important - in particular due to a similar age - experienced similar events, grew up in similar conditions and times (Baran, 2014). Having the concept of a generation outlined, comments on the specificity of individual generations are made in the following.

The literature on the subject distinguishes several generations (Hardey, 2011, pp. 749-751; Reisenwitz & Iyer, 2009, pp. 91-103; Kotler, 2005; Smolbik-Jęczmień, 2017, p. 140; Wiktorowicz & Waras 2016, p. 22):

- generation of traditionalists (the Silent Generation) - born until 1945,
- baby-boomers (BB, baby boom generation, Generation me, VietnamGeneration) - people born in 1946 - 1963/1964,
- generation X (Post-Boomers, Gen X, Generalich 13, Baby Busters, Twenty-somethings, NOTHING generation) - born in 1964/1965 - 1977/1979,
- Generation Y (WWW Generation, Net Generation, Thumb Generation, Internet Generation, Millenium generation, flip and ipod generation, Google generation, SMS generation) - people born in the years 1980 - 1994,
- Z (C) generation (iGeneration, Gen Tech, Gen Wi, Net Gen, DigitalNatines, Gen Next, Post Gen) - 1995 is recognized as the beginning of its birth.

The indicated age ranges are indicative, as there is no consensus among researchers of the analyzed issues regarding the exact specification of dates setting generational boundaries (Wong, Gardiner, Lang & Coulon, 2008).

Of all groups, the generation of traditionalists is barely represented on the labor market. However, it can be observed that for financial reasons the decision to retire is sometimes postponed by them. Duty, responsibility, loyalty to the organization, and ethics are the main features of the Silent Generation.

The baby-boomers generation is considered loyal to employers and not willing to change jobs. They show responsibility, loyalty, conflict avoidance, patience and the ability to handle difficult situations. It probably results from the post-war period in which they had to grow up, demanding determination and hard work in achieving better living conditions for their descendants.

Ambition, strong motivation, awareness of own value, preferring personal contact are the main distinguishing features of BB (Ballone, 2007; Hoole & Bonnema, 2015; Hammill, 2005). Baby boomers value work and do not intend to part with it after reaching the retirement age, thereby feeling their usefulness (Kliombka-Jarzyna, Kuba, Warwas, Stankiewicz & Staszewska, 2016).

Generation X, compared to Generation me, values independence, self-sufficiency and a balance between private and professional life more (Burke, Cooper & Antoniou, 2015; Hart, 2006; Glass, 2007). They are primarily

characterized by the ability to find themselves in various social situations, loyalty, high commitment to work, reliability, initiative, respect in contacts (Doraczyńska, 2012, p. 60; Polański, 2015, p. 276).

Generation Y prefers fast communication, easily reaches information, creates communities, likes to surround themselves with electronics (Stosik & Leśniewska, 2015, p. 187). WWW Generation representatives value independence, creativity and teamwork. Unlike previous generations, they have a different mentality or way of working (Pink, 2009, p. 2.). They are not so loyal to the employer, they pay much more attention to their own needs, hence they are often referred to as the claim generation. It is estimated that this generation will soon dominate the labor market, which is why much attention is paid to research their needs and their perception of the world.

The youngest of generations, due to the period of birth, is well versed in new technologies, and often communicates using mobile telephony (Ballone, 2007). They are characterized by openness and directness, using foreign languages, they are much more focused on watching than listening. They show considerable interest in ecology-related issues. Generation Z enters the labor market, expecting flexibility, realization of their own passions and ideas.

3 Generations of employees in the light of research

Interesting information on the functioning of one generation is provided by the Report "Gen Z. How to understand today the generation of tomorrow" (http://infuture.institute/aktualnosci/gen-z-pokolenie-z/). The survey conducted using the CAWI (Computer-Assisted Web Interviews) method on the Mobile Institute panel in January this year covered a group of 537 respondents aged 15-24. Research work was developed by Dentsu Aegis Network Polska and Infuture hatalska foresight institute.

The research shows, among other things, that 41% of respondents work seasonally, 18% have permanent work, and 13% work odd. 28% of respondents indicated that they had not taken a job during the last year. Given the place of residence (small communities with at least 500,000 inhabitants), in the future, occupations in which work with and for people (e.g. teacher or doctor) plays a dominant interest will be the most popular - 19% and 16% responses respectively, and also work for the financial sector (19% and 13% of responses). Respondents from small centers have the least liking for work for the environment and animals (only 4% were in favor of such a solution). A similar percentage of representatives of the Generation Z living in large agglomerations least dream of craft work in which manual skills are necessary.

For 18% of respondents, employment stability is the most important, as are high earnings (18%). Of the respondents, 14% indicated that in the future their work should be characterized by lack of stress and pressure, 13% were in favor of realizing their interests and passions, and developing skills. Keeping balance

between work and family life is important for 9% of respondents, while 8% of respondents noticed the sense of their work and its value for society. Generation Z intends to achieve professional success demonstrating primarily its creativity and innovation (19%) and entrepreneurship (18%). The ability to find yourself in various situations has gained slightly fewer indications , the ability to creatively solve problems and technical competences related to the operation of machines and equipment, requiring specialist knowledge (15% -17%). According to 9% of respondents, the smallest achievements are related to mathematics, technology, engineering and natural sciences.

It is worth mentioning that "The Zets" focus on innovative, informal recruitment methods that contribute to the creation of partnership relations with the employer.

Considering the financial aspect, recent regulations have undoubtedly been beneficial for the Polish generation Z. In August 1, 2019, a new relief in personal income tax (PIT) for persons under 26 years of age was introduced into the Polish legal system. According to the estimates of the Ministry of Finance, more than 2 million young employees will benefit from the relief allowing annual profits depending on the monthly salary from over PLN 1,500 to almost PLN 6,800 (https://www.gov.pl/web/finanse/bez-pit-dla-mlodych, accessed on 10.09.2019).

Valuable information is provided by The Deloitte Global Millennial Survey Report 2019, containing the opinions of several thousand representatives of the millennial generation from various continents, born between January 1983 and December 1994, and several thousand Gen Zs, born from January 1995 to December 2002. The first of the examined generational groups included people with higher education (66%) and without (34%), employed both full-time and part-time (respectively 69% and 31% of respondents). Among the diverse group of Gen Z respondents there were, among others, high school students, students who completed or continue their studies (including vocational studies), full-time and part-time employees, and the unemployed (https://www2.deloitte.com/content/dam/Deloitte /global/Documents/About-Deloitte/deloitte-2019-millennial-survey.pdf, accessed 10.09.2019).

The millennials' survey covered respondents from the following 42 countries and territories: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Finland, France, Germany, Hong Kong, India, Indonesia, Republic of Ireland, Israel, Italy, Japan, Malaysia, Mexico, The Netherlands, New Zealand, Nigeria, Norway, Peru, The Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, The UK, The US, Turkey. Regarding the numbers, in each country from 200 to 500 people were surveyed, in total 13,416 respondents.

In the case of Gen Zs, the study was conducted on a group of 3 009 people in 10 countries(Australia, Canada, China, France, Germany, India, Italy, Japan, The

UK, The USA). The total sample size was 16 425 people. The survey was conducted from December 4, 2018 to January 18, 2019.

According to the report, the respondents' significant intentions are traveling and exploring the world (57% of millenials and Gen Zs each). High salaries and being rich were indicated by over half of the respondents (52% millenials, 56% Gen Zs). Both generations dream of having their own home (49% millenials and 52% Gen Zs) and setting up a family (39% millenials, 45% Gen Zs).

According to the millenials, companies should primarily generate profits (55%). Every third respondent paid attention to innovations by developing new products and services as well as new ideas. Almost three out of ten respondents (30%) believed that the task of the company was to create jobs, produce high-quality goods and services (27%). Almost every fifth respondent (18%) indicated improving employees' skills, 16% of responses were given to education, reducing inequalities, initiatives, and 12% to environmental protection activities. Respondents were also asked about the impact of Industry 4.0 on employment. Less than half of millenials (49%) saw increase in jobs in new technologies, every fourth respondent predicted no impact, 15% expressed concern about the possibility of full or partial replacement of employee responsibilities. In the case of 46% of respondents, concerns also concerned the change in the nature of work, which could cause difficulties in finding it. As many as 70% recognized deficiencies in their skills.

In millenials' opinion, the greatest responsibility for preparing employees for Industry 4.0 lies with employers (30%) and educational institutions (24%). In the case of Gen Zs the order is reversed because 36% of respondents were in favor of education, 25% opted for companies.

If it is possible to choose, as much as 49% of respondents would give up their current job within 24 months. Compared to surveys carried out 2 years ago dissatisfaction increased by 11%, which certainly does not fill employers' with optimism. The survey results also indicate the reasons for leaving. The most common were dissatisfaction with payment (43% millenials, 34% Gen Zs) and poor possibilities (35% millenials, 33% Gen Zs). Next, lack of learning and development opportunities (28% millenials, 27% Gen Zs), a sense of underestimation (23% millenials, 15% Gen Zs), lack of flexibility between work and life (22% millenials, 19% Gen Zs) were indicated. In both generations, boredom (21%) and work environment (15%) obtained the least indications.

Work in large corporations seems attractive to over 80% of the generations surveyed. Among the main reasons for this state of affairs, respondents indicated earning more money, working at appropriate hours (over 50% and 40% responses respectively). However, among the concerns, the respondents mentioned irregularities in terms of hours, or difficult plans to implement (in both cases about 30%). Respondents drew attention to innovative ways of understanding customer

needs, the balance between private and professional life and earnings, aspects related to work- respect issues (the answers provided ranged from 41-60%).

Due to diverse topics contained in the questions and limited framework of the study, the publication focuses on selected, important aspects regarding the attitudes and expectations of respondents towards work.

Ending the research thread, it is worth mentioning that statistical data shows that in highly developed countries subsequent generations reach a longer age compared to the parents' generation, by an average of 10-15 years.

Conclusion

Current demographic transformation forces employers to pay more attention to multigenerationalism and the related diversity in the organization's personnel policy.

Based on the theoretical considerations presented briefly and taking into account the research results presented, it should be stated that each generation, due to birth and adolescence at a specific time and socio-economic realities, is at a different stage of life path, including the professional path. As an example, baby-boomers are getting used to retirement because of their age, while iGeneration is still learning or is just entering the labor market. The age diversity results in different ambitions, attitudes, expectations, motivations and perceptions of the surrounding world that are brought into the organization. This forces employers to take an individual approach to employees of various generations.

Managers should have appropriate competences in the management of generational diversity, be able to see the positives and limitations of multi-generational human capital accumulated in the organization, properly motivate, communicate and seek a path to cooperation that is satisfactory for all parties.

The management has an extremely difficult task of effectively using both the competences of professionally mature staff and younger generations operating on the labor market. One way is to implement a mentoring partnership strategy. Increasingly, apart from traditional mentoring in which the person holding a senior position was the mentor of an employee with less experience, reverse mentoring is used, where a younger employee with richer experience in specific areas becomes a mentor.

The presented observations may contribute to a more effective solution of various internal organizational problems resulting from generational diversity and to the development of mechanisms enabling the achievement of goals in relation to the conducted human capital management policy, and thus the organization's success.

References

1. Ballone, C. 2007. Consulting your clients to leverage the multigenerational workforce. In: Journal of Practical Consulting 2(1).
2. Baran, M. 2014, Pokolenie Y – prawdy i mity w kontekście zarządzania pokoleniami. In: Marketing i Rynek No. 5.
3. Burke, R.J., Cooper, C.L., & Antoniou, A.G. 2015, The multigenerational and aging workforce: Challenges and opportunities. Cheltenham, UK, Edward Elgar Publishing Ltd.
4. Cedefop, Skills forecast: trends and challenges to 2030.
5. Doraczyńska, N. 2012. Generacje X, Y, C. Jak zarządzać reprezentantami różnych pokoleń. In: Personel i Zarządzanie No. 12/273.
6. Gen Z. Jak zrozumieć dziś pokolenie jutra – raport.
7. Giddens, A. & Sutton, P. 2012. Socjologia. Warszawa: Wydawnictwo Naukowe PWN.
8. Glass, A. 2007. Understanding generational differences for competitive success. In: Industrial and Commercial Training 39(2).
9. Hammill, G. 2005. Mixing and managing four generations of employees. In: FDU Magazine Online. Winter/Spring.
10. Hardey, M. 2011. Generation C content, creation, connections and choice. In: International Journal of Market Research Vol. 53, No. 6.
11. Hart, K.A. 2006. Generations in the workplace: Finding common ground. In: Medical Laboratory Observer 38(10).
12. Hoole, C. & Bonnema, J. 2015. Work engagement and meaningful work across generational cohorts. In: SA Journal of Human Resource Management 13(1).
13. http://infuture.institute/aktualnosci/gen-z-pokolenie-z/.
14. http://www.cedefop.europa.eu/en/about-cedefop/what-we-do/cedefop-regulation.
15. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Job_vacancy_statistics.
16. https://ec.europa.eu/info/departments/eurostat-european-statistics_en.
17. https://www.gov.pl/web/finanse/bez-pit-dla-mlodych).
18. https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/deloitte-2019-millennial-survey.pdf.
19. Kopertyńska, M.W. & Kmiotek, K. 2014. Budowanie zaangażowania pracowników pokolenia Y. Prace Naukowe, no 358, Wrocław: Uniwersytet Ekonomiczny.
20. Kotler, P. 2005. Marketing, Poznań: Rebis.

21. Linley, P.A., Harrington, S. & Garcea, N. 2013. The Oxford handbook of psychology and work. New York: Oxford University Press.
22. Pink, D. 2009. Retention Y.: What is the key to retention of Generation Y. Top Employers CRF Awarded by CRF.com. CRF Instituite.
23. Polański, G. 2015. Pokolenie X i pokolenie Y – analiza wybranych aspektów funkcjonowania. Raport z badań. In: J. Morbitzer, D. Morańska & E. Musiał (eds), Człowiek. Media. Edukacja. Dąbrowa Górnicza.
24. Reisenwitz, T.H. & Iyer, R. 2009. Differences in Generation X and Generation Y: Implications for the organization and marketers. In: Marketing Management Journal Vol. 19, Iss. 2.
25. Stosik, A. & Leśniewska, A. 2015. Innowacyjne rozwiązania w zarządzaniu zasobami ludzkimi – perspektywa adaptacji i różnic pokoleniowych. Studia i prace Wydziału Nauk Ekonomicznych i Zarządzania, no 39, vol. 3, Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego.
26. The Deloitte Global Millennial Survey 2019.
27. Wiktorowicz, J. & Waras, I. 2016. Motywowanie zróżnicowanych zespołów pracowniczych. In: J. Wiktorowicz, I. Waras, M. Kuba, E. Staszewska, P. Woszczyk, A. Stankiewicz, J. Kliombka-Jarzyna (eds), Pokolenia – co się zmienia? Kompendium zarządzania multigeneracyjnego. Warszawa: Wolters Kluwer.
28. Wong, M., Gardiner, E., Lang, W. & Coulon, L. 2008. Generational differences in personality and motivation. In: Journal of Managerial Psychology 23(8).

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TAX SYSTEM IN SLOVAKIA AND COUNTRIES V4

DAŇOVÝ SYSTÉM NA SLOVENSKU A KRAJINÁCH V4

Eva MANOVÁ – Janka KOPČÁKOVÁ

Abstract
The tax system is different in each country. At present, in Slovakia we distinguish taxes from several aspects, but the most used division is into direct, indirect and local taxes. The paper presents the tax system and an explanation of individual taxes in the Slovak Republic, but also in individual countries that belong to the Visegrad Four. Although each country has its own distribution of taxes, all Visegrad countries have the same basis of a tax system in which they distinguish between personal income tax, corporate income tax and value added tax, which in today's world is a universal indirect tax that brings the greatest revenue to state budgets. It is also the same in the Slovak Republic, where the largest share of selected taxes in the state budget comes from value added tax.

Keywords: tax, direct taxes, indirect taxes, local taxes, tax rate

Abstrakt
Daňové systémy sú v jednotlivých krajinách rôzne. V súčasnosti na Slovensku rozlišujeme dane z rôznych hľadísk, avšak najčastejšie sa používa rozdelenie na priame, nepriame a miestne dane. Článok prezentuje daňový systém a vysvetľuje jednotlivé dane v Slovenskej republike a členských krajín V4. Napriek tomu , že každá z týchto krajín má vlastné rozdelenie daní, tieto krajiny majú rovnaký princíp daňového systému, kde rozlišujú medzi daňami fyzických osôb, dane podnikateľských subjektov a daň z pridanej hodnoty.

Kľúčové slová: daň, priame dane, nepriame dane, miestne dane, daňová sadzba

Introduction

The tax system of each country is different. However, they have a common goal. The main goal of the tax system is to raise funds for the state budget. The state budget is then redistributed among the individual ministries, thus ensuring the constant operation of the individual ministries. The allocated funds are then redistributed by the ministries to individual goods such as education, healthcare, the environment, and security and transport.

Each state introduces its own taxes, which are similar in most countries and differ only in the level of the tax rate. In the area of taxes, amendments to tax laws are becoming more frequent. The tax system of the Slovak Republic underwent a major change at the time of accession to the European Union in 2004, when the harmonization of individual laws with the established regulations of the European Union.

1 The concept of tax

The term tax can be explained as a payment that is non-refundable and determined by law. This payment can be regular or recurring. Taxes are collected

by the state or local government. The payment thus becomes part of the state budget.

Following terms are associated with the taxes:

- tax subject - this term means a person who is obliged to pay tax. We divide these persons into natural persons (a person, an individual who pays local taxes, for example, but also sole proprietors), or legal persons (limited partnership, public trading company, limited liability company, joint stock company, cooperative, etc.),
- subject of the tax - represents what the tax is paid for,
- tax base - represents the amount of value from which the tax is calculated by a specified percentage, fixed amount or combined,
- tax rate - can be determined as a percentage, a fixed value, or a combination of the above methods,

Taxes also play various functions such as:

- allocation function - considered to be the oldest function. Its task is to achieve financial resources, which thus become part of the state budget,
- distribution function - its main task is the correct redistribution of funds obtained,
- stabilization function - its main goal is to ensure the improvement of macroeconomic factors.

2 Breakdown of taxes in Slovakia

According to the valid legislation in Slovakia, taxes are divided:

Table 1 Distribution of taxes in Slovakia

State taxes		**Local taxes**
Direct taxes	**Indirect taxes**	
Personal income tax	Value added tax	Real estate tax (land tax, building tax, apartment tax)
Corporate income tax	Mineral oil tax	Dog tax
	Wine tax	Tax on the use of public space
	Beer tax	Accommodation tax
State taxes		**Local taxes**
Direct taxes	**Indirect taxes**	
	Alcohol tax	Vending machine tax
	Tax on tobacco and tobacco products	Tax on non-winning gaming machines
		Tax for entry and stay of a motor vehicle in the historical part of the city
		Vehicle tax

Source: Own processing

- Direct taxes - are precisely tied to a specific person. It is most often paid from income, natural persons, or legal entities. Direct taxes also include local taxes, but the difference is that local taxes are paid to the relevant local authority.
    - personal income tax - the subject of this tax is the sum of personal income from dependent activity, from self-employment, from business, from rent. Every income-earning citizen is obliged to pay this tax. If the tax base of a natural person was less than or equal to € 37,163.36, this natural person is obliged to pay tax, which will be calculated from the tax base at the basic tax rate of 19 %. If the tax base of a natural person was higher than € 37,163.36, this natural person is obliged to pay tax, which will be calculated from the tax base at a tax rate of 25 %,
    - corporate income tax - the subject of this tax is the sum of corporate income (companies such as a limited liability company, joint stock company and the like). The tax is calculated on the basis of the tax base, which is the profit or loss adjusted by deductible and deductible items.

      The corporate income tax rate is set at 21 % for 2020. This tax developed gradually and over 20 years had the highest value for the years 2000 - 2001, which represented up to 29 %. In Table 2 below we can see the development of corporate income tax.

Table 2 Overview of the corporate income tax rate for a period of 20 years

Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Tax rate	29 %	29 %	25 %	25 %	19 %	19 %	19 %	19 %
Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Tax rate	19 %	19 %	19 %	19 %	19 %	19 %	22 %	22 %
Year	**2016**	**2017**	**2018**	**2019**	**2020**			
Tax rate	22 %	21 %	21 %	21 %	21 %			

Source: Own processing according to the law Act 595/2003 Coll. as amended

- Indirect taxes - with this type of tax, it is not possible to initially determine the person who will be the final taxpayer. The tax can be divided into two basic groups, namely value added tax and excise taxes, which include a tax on mineral oils, a tax on wine, a tax on beer, a tax on alcohol and a tax on tobacco and tobacco products.
    - value added tax - most often referred to as VAT. This tax is levied on goods and services in all countries that are part of the European Union. Value added tax is also levied in the V4 countries, namely Hungary, Poland, the Czech Republic and Slovakia. At present, value added tax is specified and regulated by Act no. 222/2004 Coll.,

The Value Added Tax Act, as amended. In January 2020, the VAT was amended. The amendment did not concern the tax rate. The rate remained unchanged at 20% as the basic tax rate and 10% - a reduced tax rate. The amendment adopted new types of goods that are subject to a reduced tax rate, such as newspapers, magazines, foods such as chewing gum, beverages, drinking water, and so-called "healthy foods".

- tax on mineral oils - the subject of the tax are mineral oils. The tax rate is broken down on the basis of a precise specification of mineral oil such as motor gasoline, gas oil, medium oil, heating oil, liquefied hydrocarbon gases, lubricating oils and other oils. This tax is specified in more detail by Act no. 98/2004 Coll., Act on Excise Duty on Mineral Oil, as amended.
- wine tax - the subject of the tax is wine. The tax rate is set for still wine at € 0 per hectolitre, sparkling wine at € 79.65 per hectolitre, sparkling wine with an alcohol content of less than 8.5 % at EUR 54.16 per hectolitre, still fermented beverage at € 0 per hectolitre and sparkling fermented drink of € 79.65 per hectolitre. This wine tax is further regulated by Act no. 530/2011 Coll., Act on excise duty on alcoholic beverages, as amended.
- beer tax - the subject of the tax is beer. The tax rate may be set at a basic rate of € 3,587 per hectolitre and a reduced tax rate of € 2,652 per hectolitre, which is used in the case of beer production by a separate small brewery. Beer tax is specified in more detail Act no. 530/2011 Coll., Act on excise duty on alcoholic beverages, as amended.
- alcohol tax - the subject of the tax is alcohol. The tax rate is determined as a basic tax rate of € 1,080 per hectolitre, or as a reduced tax, the rate of which is set at an equally fixed amount of € 540 per hectolitre. This tax is specified in more detail by Act no. 530/2011 Coll., Act on excise duty on alcoholic beverages, as amended.
- tax on tobacco and tobacco products - The subject of the tax is tobacco products.
- The tax rate is set on the basis of a precise specification of the tobacco product, such as tobacco, cigarettes and cigars at € 76.70 per kilogram and cigarettes at € 64.10 per 1,000 cigarettes. Act no. 106/2004 Coll., The Act on Excise Duty on Tobacco Products, as amended, further defines the tax on tobacco and tobacco products.

- Local taxes - represent income for individual local governments. The payers of local taxes are citizens and they pay them to cities or municipalities. Local taxes include:
  - real estate tax - by this term we mean the tax on flats, the tax on land

and the tax on buildings. The tax administrator (city, municipality) always levies real estate tax on 1 January of a given year. If the given tax is lower than 5 €, the tax administrator does not collect the given tax from the taxpayer. In this sense, the taxpayer is the person who owns the property. Each municipality sets the tax rate separately, but in accordance with Act no. 582/2004 Coll. on local taxes and local fees for municipal waste and small construction waste, as amended. The city of Prešov, for example, sets local taxes as follows:

Table 1 Example of real estate tax in Prešov

Type of buildings	**Value in € per m^2**
Gardens	5.31
Building land	53.11
Buildings	0.340
Flat	0.340

Source: Own processing according to
file:///C:/Users/pc/Downloads/VZN_MESTA_PRE%C5%A0OV_12_2015.PDF

- for a tax for a dog - the subject of the tax becomes a dog. The taxpayer is obliged to pay the tax for the dog in the amount determined by the city or municipality. Taxpayer means a person who is the owner of a dog or is the owner of a dog. The tax base depends on the number of dogs that the owner keeps. This tax is specified in more detail by Act no. 582/2004 Coll. on local taxes and local fees for municipal waste and small construction waste, as amended.
- tax for the use of public space - taxpayer means a legal or natural person who uses public space. The tax base is the area of public space in m^2. The tax rate is determined by each city or municipality separately in euros per m^2.
- accommodation tax - the tax must be paid by the taxpayer with whom another person is temporarily accommodated for the funds. The tax base is the number of nights of the accommodated person. The tax rate is determined by the city or municipality in euros per person per night.
- tax for vending machines - the subject of the tax means goods issued from vending machines, which are located in premises accessible to the public. Taxpayer means a person who operates vending machines. The tax base is determined by the number of operating machines. The tax rate is determined by the city or municipality for one vending machine in euros.
- tax on non-winning gaming devices - the subject of the tax are devices that provide computer games, mechanical devices and electronic devices that provide fun games. Taxpayer means the person who operates the devices. The tax base is determined by the

number of non-winning devices. The tax rate is approved by the city or municipality for one non-winning device in euros.

- ax for entry and stay of a motor vehicle in the historical part of the city - the subject of business becomes the historical part of the city. A taxpayer is a person who enters the historic part of the city by motor vehicle. The tax base means the number of days the vehicle enters the historic part of the city. The tax rate is determined by the city or municipality.
- motor vehicle tax - paid by a taxpayer (natural person or legal entity) who uses a motor vehicle for business or other activity from which he derives income. The tax base for motor vehicles is determined on the basis of the engine volume in cm^3 for passenger cars. In the case of commercial vehicles, the tax base is determined on the basis of weight in tonnes and number of axles. The tax rate may be set by the territorial unit. It must not be lower than stipulated by law. During the first 36 months, including the month in which the motor vehicle was registered, the annual rate of motor vehicle tax is reduced by 25 %. During the next 36 months, which elapse within 72 months of the purchase of the motor vehicle, the annual tax rate will be reduced by 20 %. During the months 73 - 108, the annual tax rate is reduced by 15 %. If the motor vehicle is in business activity in the months 109 - 144 from the first registration, the annual tax rate is determined according to the Motor Vehicles Act. At the same time, if the motor vehicle is in business in the months from 145 to 156, the annual tax rate will increase by 10 %. The annual tax rate for motor vehicles older than 156 months from the first registration, their tax rate is increased by 20 %. See Table 4 for a better overview. It further specifies and regulates the motor vehicle tax Act No. 361/2014 Coll. on motor vehicle tax, as amended.

Table 2 Amount of motor vehicle tax

Number of months	1 – 36	37 – 72	73 – 108
Tax rate	25 % reduction	20 % reduction	15 % reduction
Number of months	109-144	145–156	157–more
Tax rate	Annex No. 1 to the Act	10 % increase	20 % increase

Source: Own processing according to Act no. 361/2014 Coll. as amended

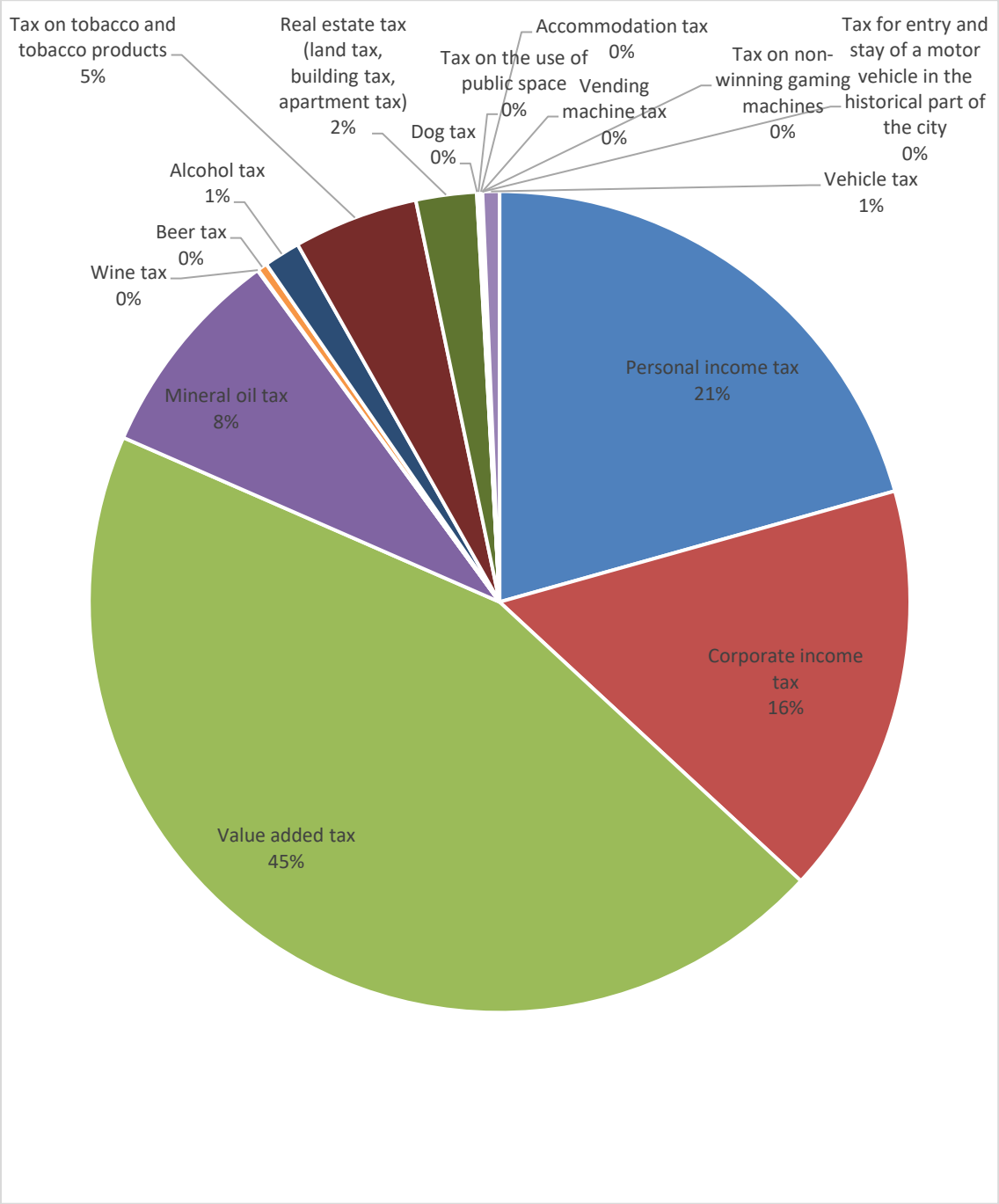
In 2019, the taxes listed in Table 5 were paid in Slovakia.

Table 3 Revenues to the state budget in Slovakia

Type of tax	Income in thousands of €
Personal income tax	3,157,539
Corporate income tax	2,484,204
Value added tax	6,832177
Excise duties	2,320,497
Mineral oil tax	1,286,002
Wine tax	4,735
Beer tax	59,332
Alcohol tax	219,105
Tax on tobacco and tobacco products	751,323
Local taxes	500,803
Real estate tax (land tax, building tax, apartment tax)	364,823
Dog tax	4,603
Type of tax	**Income in thousands of €**
Tax on the use of public space	12,737
Accommodation tax	16,225
Vending machine tax	229
Tax on non-winning gaming machines	285
Tax for entry and stay of a motor vehicle in the historical part of the city	305
Vehicle tax	101,596

Source: Own processing according to https://www.mfsr.sk/sk/financie/institut-financnej-politiky/ekonomicke-statistiky/danove-prijmy/

The data in Table 5 show that the largest revenue to the state budget is indirect taxes, namely value added tax, the value of which in 2019 is EUR 6,832,177. The highest income from local taxes is the motor vehicle tax. An illustrative overview of individual taxes in Slovakia is shown in Graph 1.



Graph 1 Revenues to the state budget in Slovakia in thousands of €

Source: Own processing according to the table 5

2.1 Tax system in the Czech Republic

In the Czech Republic, taxes are divided into direct and indirect. Direct taxes include personal income tax, corporate income tax, real estate tax or road tax. The amount of the tax rate in the Czech Republic is 15 % for personal income tax and 19 % for corporate income tax. Indirect taxes include value added tax and excise duties. The amount of the value added tax rate in the Czech Republic is 21 %, while the reduced income tax is 15 %.

2.2 Tax system in Poland

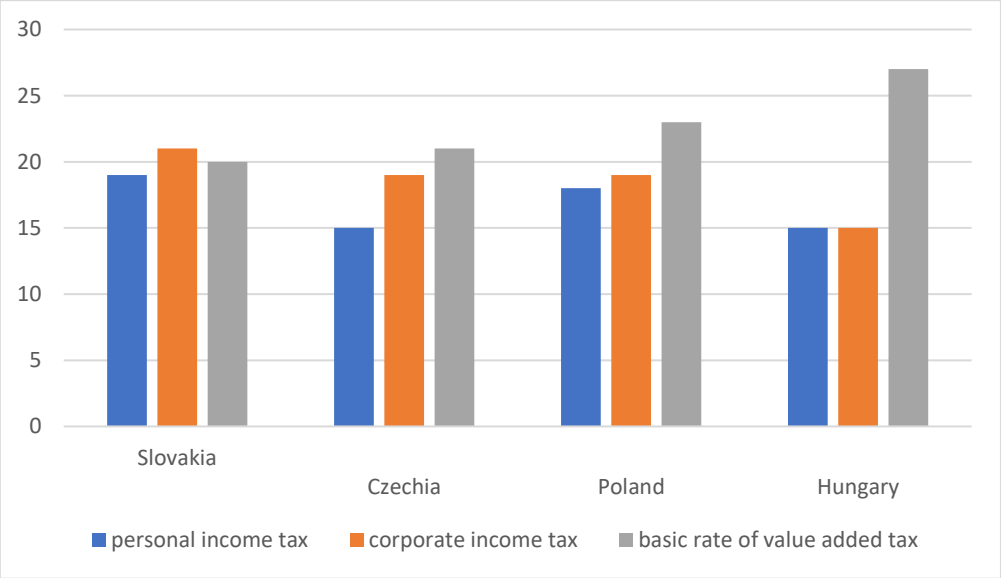
The tax system in Poland introduces two rates for personal income tax. If the annual income of natural persons in Poland does not exceed the value of PLN 85,528 (as of 07.07.2020), the income is taxed at the rate of 18 %. If the annual income of natural persons in Poland exceeds the value of PLN 85,528 (as of 07.07.2020), the income is taxed at the rate of 32 %. The corporate income tax rate is set at 19 % of the total corporate income. In Poland, the basic rate of value added tax is set at 23 %, while the reduced rate of value added tax is 8 % and 5 %.

2.3 Tax system in Hungary

The tax system in Hungary consists of several taxes such as income tax, value added tax, corporate tax or local business taxes. Income tax in Hungary represents a flat-rate expenditure of 15 %. In Hungary, the basic rate of value added tax is set at 27 %, while the reduced rate of value added tax is 18 % and 5 %.

2.4 Comparison of tax rates in V4 countries

The group of V4 countries consists of the Slovak Republic, Poland, Hungary and the Czech Republic, which in 1993 formed the Visegrad Four community. Within these countries, well-defined benefits apply and we can compare individual income tax rates as well as value added taxes. We compare the tax rates in the graph 2.



Graph 2 Comparison of tax rates in V4 countries

Source: Own processing

From the Graph 2 shows that the highest personal income tax rate is in Poland, while the countries of Slovakia, the Czech Republic and Hungary have the same personal income tax rate. Slovakia has the highest corporate income tax. However, Slovakia also represents the lowest value of the VAT rate. Other

countries have a higher rate of value added tax, while the highest rate of this tax is in Hungary.

Conclusion

The subject of the article was to clarify the issue of tax breakdown in Slovakia. At the same time, in the article we also deal with the share of revenues from individual taxes in the state budget. Based on the obtained data and overviews on the given issue, we can state that Slovakia has the largest income from value added tax, which represents up to 45 % share. This tax is one of the indirect taxes and represents about half of the state budget revenues. ogether with the corporate income tax (16 %) and the personal income tax (21 %), these three types of taxes bring up to 82 % of the revenue to the state budget.

In the article we also present an overview of tax rates in individual V4 countries (Czech Republic, Slovakia, Poland and Hungary) and we also point out the difference between individual tax rates in individual countries.

Albert Einstein, a well-known physicist and author of the theory of relativity, said: "The hardest thing to understand in the world is the income tax." Although the tax issue is difficult for individuals, because it is subject to all income, which is achieved by legal or natural persons, it is very important for the state budget, because its amount reaches each state, including Slovakia, the state budget is up to 37 %, which ensures continuous the course of the country.

References

1. BABČÁK, V. 2010. *Tax law of the Slovak Republic (Daňové právo Slovenskej republiky)*. 1. vyd. Bratislava: Epos, 2010. 640 s. ISBN 978-80-8057-851-0.
2. CENIGOVÁ, A. 2012. *Double entry accounting for entrepreneurs (Podvojné účtovníctvo podnikateľov)*. 13.vyd. Bratislava: Ceniga. s.r.o. 2012. 671s. ISBN 978-80-969946-4-9.
3. CHORVÁTOVÁ J., 2006. *Taxes (Dane).* Žilina : Systém ekonomických a právnych informácií, 2006. 810 s. ISBN 80-88961-30-0.
4. LENÁRTOVÁ G., 2004. *Tax systems (Daňové systémy)*. Bratislava : Ekonóm, 2004. 264 s. ISBN 80-225-1742.
5. KRÁLIK, J., GRÚŇ, Ľ., BALKO, L. *Basics of tax and customs law (Základy daňového poplatkového a colného práva)*. Vydavateľské oddelenie Právnickej fakulty Univerzity Komenského. Bratislava. 2001. ISBN 80-7160-150-0.
6. MFRS [online]. MFRS. Available from: https://www.mfsr.sk/sk/financie/institut-financnej-politiky/ekonomicke-statistiky/danove-prijmy// [Accessed 14 July 2020].
7. PRESOV [online]. MFRS. Available from: https://www.presov.sk/miestne-dane-clanok/mid/312978/.html [Accessed 14 July 2020].

8. Act no. 98/2004 Coll., Act on Excise Duty on Mineral Oil, as amended. (Zákon č. 98/2004 Z. z., Zákon o spotrebnej dani z minerálneho oleja v znení neskorších predpisov).
9. Act 361/2014 Coll. on motor vehicle tax, as amended. (Zákon 361/2014 Z. z. o dani z motorových vozidiel v znení neskorších predpisov).
10. Act no. 222/2004 Coll., The Value Added Tax Act, as amended. (Zákon č. 222/2004 Z. z., zákon o dani z pridanej hodnoty v znení neskorších predpisov).
11. Act no. 431/2002 Coll., Act on Accounting as amended. (Zákon č. 431/2002 Z. z., Zákon o účtovníctve v znení neskorších predpisov).
12. Act no. 530/2011 Coll., Act on excise duty on alcoholic beverages, as amended. (Zákon č. 530/2011 Z. z., Zákon o spotrebnej dani z alkoholických nápojov v znení neskorších predpisov).
13. Act 582/2004 Coll. on local taxes and local fees for municipal waste and small construction waste, as amended. (Zákon 582/2004 Z. z. o miestnych daniach a miestnom poplatku za komunálny odpad a drobné stavebné odpady v znení neskorších predpisov).
14. Act 595/2003 Coll. on income tax, as amended. (Zákon 595/2003 Z. z. o dani z príjmov v znení neskorších predpisov).

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MANAGEMENT ACCOUNTING PRACTICES IN NIGERIA: DOES IT TRIGGERS MANUFACTURING FIRMS PERFORMANCE?

POSTUPY MANAŽÉRSKEHO ÚČTOVNÍCTVA V NIGÉRII: SPÚŠŤAJÚ VÝKONNOSŤ FIRIEM?

Mary Eberechukwu OZONDU – Patrick Amaeche EGBUNIKE – Godsday Edesiri OKORO

Abstract
This study assessed the extent to which management accounting practices trigger the performance of manufacturing firms. Using descriptive survey and stratified random sampling method, thirty-seven manufacturing firms were selected from the Nigerian Stock Exchange and the data obtained via questionnaire were analyzed using multiple regression statistical tools. Management accounting practices was measured using metrics of strategic analysis, costing, budgeting, and performance evaluation. The study found that strategic analysis, budgeting, performance evaluation and costing predicts manufacturing firms' performance. Also, the study revealed that management accounting practices significantly triggers performance of manufacturing firms. In view of the findings, we recommend heightening of management accounting practice, particularly in areas of strategic analysis, performance evaluation, budgeting and costing in order to drive performance.

Key words: Costing techniques, Budgeting, Performance evaluation, Strategic analysis, Management accounting practices

Abstrakt
V tejto štúdii sa hodnotil rozsah, v akom postupy účtovného riadenia vedú k výkonnosti výrobných spoločností. Použitím deskriptívneho prieskumu a stratifikovanej náhodnej metódy vzorkovania bolo z nigerijskej burzy cenných papierov vybraných tridsať sedem výrobných firiem a údaje získané prostredníctvom dotazníka boli analyzované pomocou viacerých regresných štatistických nástrojov. Postupy manažérskeho účtovníctva sa merali pomocou metrík strategickej analýzy, kalkulácie, rozpočtovania a hodnotenia výkonnosti. Štúdia zistila, že strategická analýza, rozpočtovanie, hodnotenie výkonnosti a kalkulácia odhadujú výkonnosť výrobných firiem. Štúdia tiež odhalila, že účtovné postupy riadenia významne ovplyvňujú výkonnosť výrobných spoločností. Vzhľadom na tieto zistenia odporúčame prehlbovať postupy vedenia účtovníctva, najmä v oblastiach strategickej analýzy, hodnotenia výkonnosti, rozpočtovania a nákladov s cieľom zvýšiť výkonnosť.

Kľúčové slová: Techniky kalkulácie, rozpočtovanie, hodnotenie výkonnosti, strategická analýza, manažérske účtovné postupy

1 Introduction

In modern times, companies employ management accounting techniques to assess their activities and operations. Fundamental among the vital aspects of management accounting techniques employed by organizations include budgeting, variance and breakeven analyses; these techniques no doubt are aimed

at assisting organizations in planning, directing and controlling operating costs in order to augment performance. Horngren, et al (2009) asserted that management accounting practices are vital to the success of organizations. Horngren (2006) sees management accounting as the application of appropriate techniques and concepts in processing historical and projected economic data of entities to assist management in creating a plan for reasonable economic objectives and in making of rational decisions with a view towards achieving these objectives.

Accordingly, Hilton (2011) refers to management accounting as a set of practices and techniques aimed at providing managers with financial information to aid decisions and maintain effective control over corporate resource. Moreover, management accounting practices entail the methods and models imperative for effective planning, controlling via evaluation and interpretation of performance and decision-making. Thus, management accounting practices assist organizations to survive amidst competition and ever-changing business environment. Impliedly, management accounting practices guide managerial actions, motivates behavior, supports and creates cultural value necessary to achieve strategic objectives.

Several researchers (Otley and Berry, 1980; Tiessen and Waterhouse, 1983; Baines and Langfield-Smith, 2003) have identified different dynamics influencing changes in management accounting practices within organizations. Such changes according to them trigger the selection of the appropriate management accounting practices used by organizations. Prior studies (Idowu, 2014; Imeokparia and Adebisi, 2014) have shown that changes in management accounting practices originate due to diverse setting of both economic and cultural environments. However, there are other studies (Alsoboa, Al-Ghazzawi and Joudeh, 2015; Akhavan, Ward and Bozic, 2016) that have shown that management accounting practices have moved from reporting historical information, particularly in areas of variance analysis and strategic planning.

These researchers inter-alia contended that management accounting skills are actively applied in the business environment where both market intelligence is sought and evaluated, strategic decisions are made and putting competitive strategies in place. Therefore, management accountants, mainly those in manufacturing sector are at the forefront in the search and development of innovative and competitive strategies that enable them remain profitable and sustainable. These measures are fundamental particularly for the manufacturing sector where organizations strive to become strategic, attain enhanced budgeting and performance, engage in effective costing and growth (Egbunike, Ogbodo and Onyali, 2014).

According to Uyar (2010), despite the developments in management accounting theory, the practice has not changed, as organizations still prefer to use traditional management accounting tools. In this paper, the extent to which management accounting practices trigger the performance of manufacturing firms

was evaluated. The remaining part of the paper is sectioned as follows: review of related literature, materials and methods, results and discussions and conclusion.

2 Review of Related Literature

2.1 Contingency Theory of Management Accounting (CTMA)

Burns and Stalker (1961) popularized the contingency theory of management accounting (CTMA). The underlying philosophy of CTMA is that there is no single approach that could be used by the management in resolving strategic, costing, budgeting, and performance problems. Otley and Berry (1980) applied CTMA and explained that there is no single general standard accounting practice that can be applied to all organisations. In essence, each organization will have its separate management accounting practices. Worthy of note is the fact that CTMA looks at certain influential dynamics that assist management to decide on an appropriate management accounting practice. These factors can either be technological changes and infrastructure of an organization.

Alleyne and Weekes-Marshall (2011) highlighted which management accounting practices are widely used by manufacturing organizations - budgeting, cost control and performance evaluation. One of the dynamics that influence management accounting practices according to Alleyne and Weekes-Marshall (2011) encompassed budgeting; this informs managers what costs to expect over the next budgeted year and also gives an indication when the organization might expect to go through a seasonal change and impact it will have on the organization's cash flows and revenues. Perhaps this is the main reason why this particular management accounting practice is highly rated over many other practices.

2.2 New Institutional Sociology of Management Accounting Theory (NISMAT)

The foundation of New Institutional Sociology led by Meyer and Rowan (1977) laid down the premise for NISMAT. NISMAT identified inconsistencies and observed loose formal structures, procedures and actual work practices existing within organization, which other management theories could not explain (Meyer and Scott, 1994). The key contention of NISMAT is that some organizations exist in highly institutionalized environment and as such, work task is constrained due to relational networks between the organization and customers, suppliers and other near constituencies.

Moreover, these constituencies pose demands for operational coordination and control within the organization. Impliedly, institutionalized organisations tend to adopt structures and procedures that are valued in their social and cultural environment. They do this in order to achieve legitimacy and secure resources that are essential for their survival. The search for legitimacy and resources explain why specific organizational forms and procedures are diffused across

organizations operating in similar settings, and societal sectors (Scott and Meyer, 1994), or organizational fields (DiMaggio and Powell, 1983). Following this insight, DiMaggio and Powell (1983) suggested that this process of diffusion could create pressures that lead organizations to become isomorphic with other organizations in their institutional setting.

Some of the types of institutional isomorphism according to Hannan and Freeman (1977) are coercive, normative and mimetic isomorphism. Impliedly, organizations must maintain formal management accounting practices structure such as the use of strategic analysis, budgeting, performance evaluation and costing to outplay institutional isomorphism.

2.3Determinants of Organizational Performance

The analysis of determinants of organizational performance is vital for all stakeholders, particularly investors and management. Organizational performance is directly influenced by its market position. However, organizational performance metrics encompassed profitability, which can be decomposed into other components like net turnover, net profit margin, return on asset (ROA), return on equity (ROE) etc. Researchers argued that risk, growth, size and leverage are two other important metrics of organizational performance, given the fact that the market value of an organization is conditioned by the level of risk exposure.

Moreover, the size of organizations can have a positive effect on organizational performance because larger firms can use their advantage to get more financial benefits in business relations. According to Barton and Gordon (2008), entities with higher performance will remain low leveraged because of their ability to finance their own sources. On the other hand, a high degree of leverage increases the risk of bankruptcy of organization.

In most management accounting practices, organizations take into cognizance, strategic analysis, budgeting and performance evaluation, costing, size and leverage. This is evident through the adoption of innovative modern management accounting techniques such as activity based costing, just-in-time, lifecycle costing and performance measurement systems like the balanced scorecard. These modern management accounting practices seem to be gradually adopted by manufacturing companies.

2.4 Extant Studies

There is dearth of empirical evidences on management accounting practices and organizational performance, particularly for manufacturing firms in Nigeria. Moreover, management accounting practices metrics of costing, budgeting, strategic analysis and performance evaluation as they trigger performance of manufacturing concerns have not been deeply researched in management accounting literature; a review of some extant literature buttress the above assertions.

In Jordan, Al-Qudah and Al-Hroot (2017) evaluated the effects of implementing activity-based costing (ABC) on profitability of manufacturing companies. Secondary data of operating margin (OM), ROA and ROE were employed during the period 2000-2011. Using a paired sampled t-test, the study found that OM, ROA and ROE improved due to the implementation of ABC technique.

In Czech Republic, Pokorna (2016) studied the effects of the implementation of ABC on 548 medium-sized and large corporations performance. Performance was measured by ROA obtained from 2005-2011. The t-test result showed that performance of companies that had adopted ABC were lower than those that had not adopted ABC.

In Saudi Arabia, Sajid et al (2015) assessed the impact of ABC on firm's performance via descriptive survey. The correlation result revealed that ABC implementation has aided management in decision-making, identifying relevant cost-drivers and dipping product costs, lowering prices and higher quality of products.

In Nigeria, Oluwagbemiga, Olugbenga and Zaccheaus (2014) examined the link that exists between cost management practices and firm's performance using data from 40 manufacturing firms listed on the Nigeria Stock Exchange from 2003-2012. The t-test result indicated a significant positive link between cost management practices (measured by direct material, direct labour, production overhead and administrative overhead costs) on firm performance (operating profit).

In China, Zhang. Namazi and Isa (2011) investigated the place of ABC in predicting performance of manufacturing firms via descriptive survey. The correlation result showed that manufacturing firms generally attained a moderate level of success in the implementation of ABC.

In Australia, Zaman (2009) studied the impact of ABC on the overall performance of seventeen (17) manufacturing firms via descriptive survey. Findings from the regression result showed that adopting ABC provides value to customers, augment overall revenues, and creates higher financial returns for manufacturing firms.

3 Materials and Methods

In this paper, we adopted the cross-sectional and descriptive survey and the study population is made up of all thirty-seven manufacturing firms publicly quoted on the floor of the Nigerian Stock Exchange (NSE). The stratified random sampling technique was applied since the study population is diverse manufacturing firms, which is considered heterogeneous. In the views of Mugenda and Mugenda (2003), at least 10 per cent of the target population is important for a study. Given the suggestions of Mugenda and Mugenda (2003), thirty-seven manufacturing firms was sampled as shown in table 1.

Table 1 Determination of Sample Size

Sector(s)	No. of Sample Firms	Proportion of Sample Size
Building and Construction	1	3%
Food and Beverages	7	19%
Chemical	4	11%
Energy	3	8%
Plastics	3	8%
Textile	4	11%
Wood Products	1	3%
Pharmaceutical	2	5%
Metal and Allied	4	11%
Leather	3	8%
Motor	1	3%
Paper	4	11%
Total	**37**	**100%**

Source: Compiled by the Authors, 2020

The study used questionnaire, which was administered to employees of selected manufacturing firms. Ten (10) questionnaires each were administered on the thirty-seven sampled firms; however, only three hundred and seven (307) were fully completed and retrieved. Thus, the analysis was based on the three hundred and seven completed and retrieved questionnaire. The questionnaire was designed based on organizational performance and management accounting practices metrics (strategic analysis, budgeting, performance evaluation and costing). Data obtained were analyzed using descriptive (mean, standard deviation, minimum and maximum values) and inferential (multiple regressions) statistical tools; the multiple regression models of the study is as follows:

(eq. 1) $Y = f\ (map)$

(eq. 2) $Orgperf = f\ (stan, bud, perev, cost)$

Where: *Y* is organizational; *map* is management accounting practices metrics (strategic analysis - *stan*, budgeting - *bud*, performance evaluation - *perev*, and costing - *cost*). Multiple regressions was used to predict the extent to which management accounting practices triggers the performance of manufacturing firms. The explicit form of the multiple regression models is as follows:

(eq. 3) $Orgperf = \beta_0 + \beta_1 stan_i + \beta_2 bud_i + \beta_3 perev_i + \beta_4 cost_i + + e_{it}$

Where: *Orgperf* = organizational performance, *stan* = strategic analysis, *bud* = budgeting, *perev* = Performance evaluation, *cost* =costing, β_0= constant or intercept; β_1=β_4 are regression coefficients, and e_t = Error-term. The coefficients of the model was evaluated using mean score response on each 5-point Likert scale data for each manufacturing firm. The mean score obtained for the

individual variable for each firm was regressed against manufacturing firm performance and statistical analysis done via Statistical Package for Social Sciences (SPSS).

4 Results and Discussions

Table 2 Costing as a Metric of Management Accounting Practices

Item(s)	Obs	Mean	Std. Dev.	Min.	Max.
Regression and/or learning curve tools	307	2.32	1.08	1	5
Department or multiple plant-wide overhead rates	307	2.52	1.09	1	5
Separation of variable cost, incremental costs and fixed costs	307	2.87	.84	1	5
Use of plant-wide overhead rate	307	2.33	.97	1	5
Activity-based costing (ABC)	307	2.62	1.04	1	5
Target costs	307	2.21	1.42	1	5
Cost of quality	307	3.11	1.54	1	5
Overall Mean & Standard Deviation		**2.57**	**1.14**		

Source: Researcher's Computation, 2020 via SPSS

The study found that cost of quality (mean = 3.11), separation of costs (mean = 2.87), ABC (mean = 2.62) are the most prevalent management accounting practices (costing) while target costs (mean = 2.21) is the less widely practiced by manufacturing companies. Overall, the mean of 2.57 indicates that costing system were rated as highly used by manufacturing companies. The minimum (min = 1) and maximum (max = 5) value clearly indicates that the instrument of data collection was designed on a 5-point Likert scale.

Table 3 Usage of Budgeting as Management Accounting Practices Metric

Item(s)	Obs.	Mean	Std. Dev.	Min.	Max.
Budgeting for long-term plans	307	2.23	1.34	1	5
Zero-based budgeting	307	2.53	1.34	1	5
Budgeting for controlling costs	307	3.03	1.40	1	5
Flexible budgeting	307	2.57	1.35	1	5
Budgeting with "what if analysis"	307	2.95	1.53	1	5
Budgeting for planning	307	2.34	1.39	1	5
Activity- based budgeting	307	2.64	1.35	1	5
Overall Mean & Standard Deviation		**2.61**	**1.38**		

Source: Researcher's Computation, via SPSS

The results show that manufacturing firms used all the budgeting practices. However, budgeting for controlling costs (mean = 3.03), budgeting with 'what if analysis' (mean = 2.95), activity based budgeting (mean = 2.64) are the most prevalent management accounting practices (budgeting) while budgeting for long-term plans (mean =2.23) is the less widely practiced by manufacturing

companies. Overall, the mean of 2.61, implies that budgeting were rated as highly used by manufacturing companies.

Table 4 Usage of Performance Evaluation as Management Accounting Practices Metric

Item(s)	Obs.	Mean	Std. Dev.	Min.	Max.
Non-financial measure(s) related to customers	307	2.97	1.33	1	5
Non-financial measures(s) related to operation/innovation	307	2.64	1.42	1	5
Non-financial measure(s) related to employees	307	2.89	1.52	1	5
Financial measures	307	2.65	1.52	1	5
Economic value added	307	2.53	1.43	1	5
Benchmarks	307	2.65	1.46	1	5
Overall Mean & Standard Deviation		**2.72**	**1.45**		

Source: Researcher's Computation, via SPSS

The results show that manufacturing firms used all the performance evaluation techniques. However, non-financial measure(s) related to operation/innovation (mean = 2.97), non-financial measure(s) related to employees (mean = 2.89), financial measures (mean =2.65) and benchmarks (mean 2.65) are the most prevalent management accounting practices (performance evaluation) while economic value added (mean =2.53) is the less widely practiced by manufacturing companies. Overall, the mean of 2.72, implies that performance evaluation were rated as highly used by manufacturing companies.

Table 5 Usage of Strategic Analysis as Management Accounting Practices Metric

Item(s)	Obs.	Mean	Std. Dev.	Min.	Max.
Competitor strengths/weaknesses	307	2.29	1.23	1	5
Value chain analysis	307	2.87	1.49	1	5
Shareholder value	307	3.05	1.58	1	5
Industry analysis	307	2.49	1.47	1	5
Possibilities of integration with suppliers and/or customers value chains	307	2.26	1.28	1	5
Long-range forecasting	307	2.49	1.28	1	5
Product life cycle analysis	307	2.87	1.38	1	5
Analysis of competitive position	307	2.67	1.36	1	5
Overall Mean & Standard Deviation		**2.62**	**1.38**		

Source: Researcher's Computation, via SPSS

The results show that manufacturing firms used all the strategic analysis. However, shareholders value (mean = 3.05), product life cycle analysis (mean = 2.87), value chain analysis (mean =2.87) and analysis of competitive position (mean 2.67) are the most prevalent management accounting practices (strategic analysis) while possibilities of integration with suppliers and/or customers value chains (mean =2.26) is the less widely practiced by manufacturing companies.

Overall, the mean of 2.62, implies that strategic analysis were rated as highly used by manufacturing companies.

Table 6 Correlation Matrix

	orgperf	***cost***	***bud***	***perev***	***stan***
orgperf	1.0000				
cost	0.0224	1.0000			
bud	0.3739	-0.0286	1.0000		
perev	0.2442	0.00410	0.3816	1.0000	
stan	0.2883	-0.0069	0.3782	0.3069	1.0000

Source: Researcher's Computation, via SPSS

Correlation matrix was used to ascertain the presence or absence of multi-colinearity among pairs of independent variables (cost, bud, perev and stan). The correlation results suggest that there is absence of multi-collinearity among each pair of independent variables as none of the variables correlation coefficients exceeds 0.8 (Gujarati, 2003). Moreover, the correlation matrix revealed that all the independent variables are positively related with the dependent variable.

Table 7 Model Summary

R-Squared	**R Squared Adjusted**	**No. of Obs.**	**Root MSE**
.726[a]	0.616	307	.6672

Source: Researcher's Computation, via SPSS

The table 7 indicates that management accounting practices predict organizational performance by 61.6% as indicated by the adjusted R-squared value. Impliedly, this shows a high predictive ability of the independent variables in explaining the variation in the dependent variable. This clearly implies that the independent variables accounted for 62% of the variance on organizational performance of the selected manufacturing firms in Nigeria.

Table 8 Analysis of Variance (ANOVA) Result

	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Regression	28.0354	4	7.00886	15.74	.0000
Residual	134.4376	302	.4451577		
Total	162.4730	306			

Source: Researcher's Computation, via SPSS

The results in Table 8 showed that F-statistic is 16.74 at 5% confidence level; hence, the f-statistic is significant. In this case, all the predictor variables (costing, budgeting, strategic analysis and performance evaluation) significantly trigger the performance of manufacturing firms.

Table 9 Coefficients of the Study Variables

Model		Unstandardized Coefficients		T	Sig.
		B	Std. Error		
1	(Constant)	1.021601	.2893902	3.53	.000
	Cost	.0484118	.0811868	0.60	.551
	Perev	.0875773	.0568484	1.54	.124
	Stan	.1652282	.061616	2.68	.008
	Bud	.3244236	.06814	4.76	.000
a. Dependent Variable: orgperf					

Source: Researcher's Computation, via SPSS

The results in table 9 revealed that holding the metrics of management accounting practices (*cost, perev, stan & bud*) constant, the performance of manufacturing firms will be 1.02. Impliedly, a unit increase in costing (*cost*) practices will cause a .048 increase in performance, performance valuation (*perev)* will cause a .088 unit increase, strategic analysis (*stan)* will cause .165unit increase and budgeting *(budg)* will cause .324 unit increase in performance.

Additionally, all the management accounting practices metrics are carrying the right signs (positive), indicating that management accounting practices positively trigger the performance of manufacturing firms.

Conclusion

In this paper, we evaluated the extent to which management accounting practice metrics trigger the performance of manufacturing firms. Metrics of management accounting practice used comprised of strategic analysis, costing, budgeting and performance evaluation. Data were obtained from questionnaire administered to employees of manufacturing firms and data analyzed via descriptive and inferential statistics. The study concludes that management accounting practices positively and significantly triggers the performance of manufacturing firms.

In view of the findings, we recommend heightening of management accounting practice, particularly in aspects of strategic analysis, performance evaluation, budgeting and costing in order to drive performance. Besides, manufacturing firms should consider revising their management practices to incorporate strategic analysis, costing, budgeting and performance evaluation in order to meet the peculiarity of the industry for efficient service delivery. In order to promote this attitude or practice, management accounting curriculum in tertiary universities should be designed to the changing role of accountants to make management accountants skillfully utilize management accounting techniques efficiently.

References

1. Akhavan, S., Ward, L., and Bozic, K. J. (2016). "Time-Driven Activity-Based Costing More Accurately Reflects Costs in Arthroplasty Surgery". *Clinical Orthopaedics and Related Research*, 4(1), 8-15.
2. Alleyne, P. and Weekes-Marshall, D. (2011). "An Exploratory Study of Management Accounting Practices in Manufacturing Companies in Barbados". *International Journal of Business and Social Sciences*, 2(9), 49-58
3. Al-Qudah, L.A.M., and Al-Hroot, Y.A. K. (2017). "The Implementing Activity-Based Costing Technique (ABC) and its Impact on Profitability: A Study of Listed Manufacturing Companies in Jordan". *International Journal of Economics and Financial Issues*, 7(2), 271-276.
4. Alsoboa, S., Al-Ghazzawi, A., and Joudeh, A. (2015). "The Impact of Strategic Costing Techniques on the Performance of Jordanian Listed Manufacturing Companies". *Research Journal of Finance and Accounting*, 6(10), 116-127.
5. Baines, A. and Langfield-Smith, K. (2003). Antecedents to Management Accounting Change: A Structural Equation Approach. *Accounting Organization and Society*, 28(7-8), 675-698.
6. Barton, K. and Gordon, R. (2008). "The Performance Measurement Manifesto" *Harvard Business Review*, 69(1), 131-137
7. Dimaggio P.J. and Powell,W.W. (1983). The Iron Cage Revisited: Isomorphism in Organizational fields. Advances in strategic management 48(2), 147-160.
8. Egbunike, F.C., Ogbodo, C.Y. & Onyali, C.I. (2014). "Utilizing Cost Management Techniques (CMTs) for Sustainability Performance Measurement". *Research Journal of Finance and Accounting*, 5(13), 140-153.
9. Gujarati, D.N. (2003). *Basic econometrics* (4ed.). New York: McGraw-Hill Inc.
10. Hannan, M,T. and Freeman, J. (1977). "The Population Ecology of Public Organization". *The American Journal of Sociology*, 82(5), 929-964. doi:10.1086/226424
11. Hilton, R.W. (2011). *Managerial Accounting, Creating Value in Dynamic Business Environment,* (9th ed.), New York, NY: McGraw-Hill, Irwin.
12. Horngren, C.T. (2006). *Cost Accounting: A Managerial Emphasis* (10th ed.) London: Pearson Prentice Hall.
13. Horngren, C.T., Datar, S.M., Foster, G., Rajan, M., and Ittner, C. (2009). *Cost Accounting: A Managerial Emphasis* (13th ed.). London: Pearson Prentice Hall.
14. Idowu, A.S. (2014). "Impact of Target Costing on Competitive Advantage in the Manufacturing Industry: A Study of Selected Manufacturing Firms in

Nigeria". *International Journal of Academic Research in Accounting, Finance and Management Sciences,* 4(3), 97-108.

15. Imeokparia, L. and Adebisi, S. (2014). "Target Costing and Performance of Manufacturing Industry in South-Western, Nigeria". *Global Journal of Management and Business Research: D Accounting and Auditing,* 14(4), 50-58.
16. Mugenda, A. and Mugenda, O. (2003). *"Research Methods: Quantitative and Qualitative Approaches".* Nairobi: ACTS Press.
17. Oluwagbemiga, O.E., Olugbenga, O.M., and Zaccheaus, S.A. (2014). "Cost Management Practices and Firm's Performance of Manufacturing Organizations". *International Journal of Economics and Finance,* 6(6), 234.
18. Otley, D.T. and Berry, A.J (1980). "Control, organization and accounting". *Accounting, Organizations and Society,* 5(2), 231-244
19. Pokorná, J. (2016). "Impact of Activity-Based Costing on Financial Performance in the Czech Republic". *Acta Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis,* 64(2), 643-652.
20. Sajid, A., Alaa, M., Malo-Alain, A.M., and Imdadul-Haque, M. (2015). "Impact of Activity-Based Costing on Firm's Performance in Saudi Arabia". *The Science International (Lahore),* 27(1), 597-606.
21. Scott, W.R. and Meyer, J.W. (1994). *"Institutional Environments and Organizations: Structural Complexity and Individualism".* USA: Thousand Oaks, CA: Sage Publication.
22. Tiessen, P. and Waterhouse, J.H. (1996). "Towards a Descriptive Theory of Management Accounting". *Accounting, Organizations and Society,* 8(2-3), 251-267
23. Uyar, A. (2010). "An Exploratory Study on Quality Costs in Turkish Manufacturing Companies". *International Journal of Quality & Reliability Management,* 25(6), 604-620.
24. Zaman, M. (2009). "The Impact of Activity Based Costing on Firm Performance: The Australian Experience". *International Review of Business Research Papers,* 5(4), 200-208.
25. Zhang, Y.I., Namazi, M., & Isa, C.R. (2011). "Investigating the Empirical Effect of ABC Stages on the Performance of Companies". *Iranian Journal of Management Studies,* 10(1), 175-205.

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SECURING AND COLLABORATION SUSTAINABLE SUPPLY CHAIN IN FOOD INDUSTRY WITH EXAMPLE FROM SLOVAK COMPANY

ZABEZPEČENIE A SPOLUPRÁCA UDRŽATEĽNÉHO DODÁVATEĽSKÉHO REŤAZCA V POTRAVINÁRSKOM PRIEMYSLE S PRÍKLADOM SLOVENSKÉHO PODNIKU

Michal PRUŽINSKÝ

Abstract
In nowadays we should look in more details on processes among the entire stages in the supply chain to maintain secure collaboration within them. It is a complex in which take a part the stakeholders involved in the activities who prioritize their financial benefits without putting aside social development and environmental responsibilities. The objective of this paper is to focus on sustainable supply chain and its securitization even collaboration. Sustainability aspects that consist of economic, environment, and social and the model of sustainable supply chain are analysed. Moreover, collaboration in sustainable supply chain management is also studied from vertical and horizontal perspectives because we learned there are few studies focusing on the integrated collaboration to achieve sustainable supply chain system. Additionally, not all sustainable aspects are covered thoroughly.

Keywords: sustainable supply chain, securitisation, collaboration.

Abstrakt
V súčasnosti je potrebné podrobnejšie sa zaoberať procesmi v rámci všetkých etáp dodávateľského reťazca, aby sme v ňom zabezpečili bezpečnú spoluprácu. Jedná sa o komplex, v ktorom sa zúčastňujú zainteresované strany zapojené do aktivít, v ktorých uprednostňujú svoje finančné výhody spolu so zabezpečením sociálneho rozvoja, spoločenskej zodpovednosti a udržania životného prostredia. Cieľom tohto príspevku je zamerať sa na udržateľný dodávateľský reťazec a jeho sekuritizáciu a spoluprácu zainteresovaných podnikov. Analyzujeme aspekty udržateľnosti, ktoré spočívajú v hospodárskom, environmentálnom a sociálnom hľadisku a diskutujeme model udržateľného dodávateľského reťazca. Spolupráca v oblasti riadenia dodávateľského reťazca je skúmaná z vertikálneho a horizontálneho hľadiska spolupráce, pretože sú dostupné viaceré štúdií zamerané na integrovanú spoluprácu s cieľom dosiahnutia udržateľného systému dodávateľského reťazca. Súčasne si uvedomujeme, že v danom príspevku sa nevyjadríme ku všetkým aspektom trvalo udržateľnej spolupráce v dodávateľskom reťazci.

Kľúčové slová: udržateľný dodávateľsko-odberateľský reťazec, sekuritizácia, spolupráca.

Introduction

Secure sustainable supply chain and collaboration is the key concept that essential to be applied in business environment. Those concepts have been discussed in the literature. The purpose of this paper to review the current research in both area and to identify the limitations and provide suggestions for the future research related to sustainable supply chain collaboration. In specifically, this

study covers sustainability aspects in sustainable supply chain management that consists of economics, environment, and social dimensions. The secure sustainable supply chain management models also discussed comprehensively. Moreover, collaboration models in sustainable supply chain management are investigated by clustered it into vertical collaboration, horizontal collaboration, and the combination of both types of collaboration. Therefore, this review will highlight the area of improvement which lead to suggestion of the future works.

In Europe, food industry has significant impact on the economic, environmental, and social simultaneously (Turi, et.al., 2014). In Scotland, food and drink supply chain become major sector that support economic benefits in Scottish community and deal with large number of employee (Leat, et al., 2011). Moreover, agri-food industry has also supported economic benefits in developing countries. Supporting the development of agri-food product, supply chain has the important role. In agri-food, supply chain encompasses all processes and activities from farmers and suppliers who provide raw material, food manufacturers who process the food products to secure and increase the added value, distributors and retailers who distribute the product into the customers through the systematic business processes. Each stakeholder in agri-food supply chain suffers the cost and collects the benefit even though sometimes it is unfair for some stakeholders. Therefore, supply chain needs to be maintained to spread the benefit along and across the supply chain in fair and positive ways.

The more complex a secure supply chain configuration is, the more challenges the parties will face. Global competitions and unique characteristics of agri-food products demand that the food chain maintains the food quality throughout the processes from farm to the end consumers. Otherwise, it will become waste since it cannot be consumed (Yu & Nagurney, 2013). One of critical factors in the food supply chain is how to ensure fair collaboration among stakeholders and give attention to food security, economic, environmental, social, organizational, marketing, food safety factors, and obligation over the firms, consumers, and society (Fritz & Schiefer, 2008). Deal with the complexity of agri-food supply chain, sustainability is one of perspectives that can be applied to maintain the competitive strategies in security economic, environmental, and social aspects that is called triple bottom line (TBL). The economic dimension includes revenue, cost, and consumer satisfaction, and service level (Varsei, et al., 2014; Wang, et al., 2011). The environmental dimension refers to natural resource consumption, carbon footprint, environmental legislation, waste management, and hazardous chemical and materials (Varsei, et al., 2014). The social dimension covers impacts on a society such as food security, working conditions, community development, consumer health and safety, human rights, and child labour (Klassen & Vereecke, 2012). Within those three dimensions, optimal competitive advantages can be achieved while support the social development and reduce the environmental impacts.

Agri-food supply chain and sustainability

The sustainability requires product quality assurance without compromising the price, the availability of natural resources and the continuity of raw material without damaging the environment, climate change, and employee welfare. The dependence on weather, short shelf life, limited raw materials, food safety regulations, and global competition force the stakeholders to keep abreast of the demographic changes to offer high quality, value added, and sophisticated food products in the right time and the right quantity to consumers. But financial benefits remain the main priority to be achieved whilst supporting social development and environmental responsibilities. Another critical issue is material handling processes which requires treatments and conditions due to the unique food product characteristics (fragile, perishable, and lower yield).

Collaboration in sustainable agri-food supply chain

Commitment among the stakeholders can be realized in the form of collaboration. Supply chain collaboration is a partnership within the various stages in supply chain as well as its external environments to optimize their competitive advantage throughout the entire processes (Cao & Zhang, 2011; Liao & Kuo, 2014). Collaboration is important to support the long-term partnership and spread the benefits throughout the entire supply chain system, from strategic level into operational level. Within collaboration, stakeholders able to share their assets (materials, labour, infrastructures, facilities and equipment, and machines) and their capabilities (technology, business processes, policy and legislation, and finance). Therefore, they can reduce the uncertainty, share the risk and cost, and able to serve customers in the right time, right quantity, and right quality without disregards the interest of other stakeholders (Wike et al, 2016).

Vertical collaboration is relationship among stakeholders from upstream to downstream along the supply chain. Horizontal collaboration is relationship among stakeholders that play in the same level including competitors and complementary, as well as external parties such as government, NGOs, associations, and universities. Those two types of collaboration must be considered to achieve a better sustainability system for all stakeholders without adversely suffering other stakeholders such as local farmer and SMEs. Without collaboration, the price that comes to consumers will be higher because each stakeholder will increase the price to get the higher benefit and to minimize the risk. The more stakeholders take part in the collaboration system, the more complex the system becomes. The lack of support from stakeholders, insufficient assessment systems, limited information systems, organizational culture, and reluctance to change create obstacles for the application of the collaborative systems.

On the other hand, sufficient technology and information are required to support the collaboration. In addition, to build mutual trust among partners, there

needs to be eagerness from both parties to commit to a positive collaboration how it is shown on Figure 1.

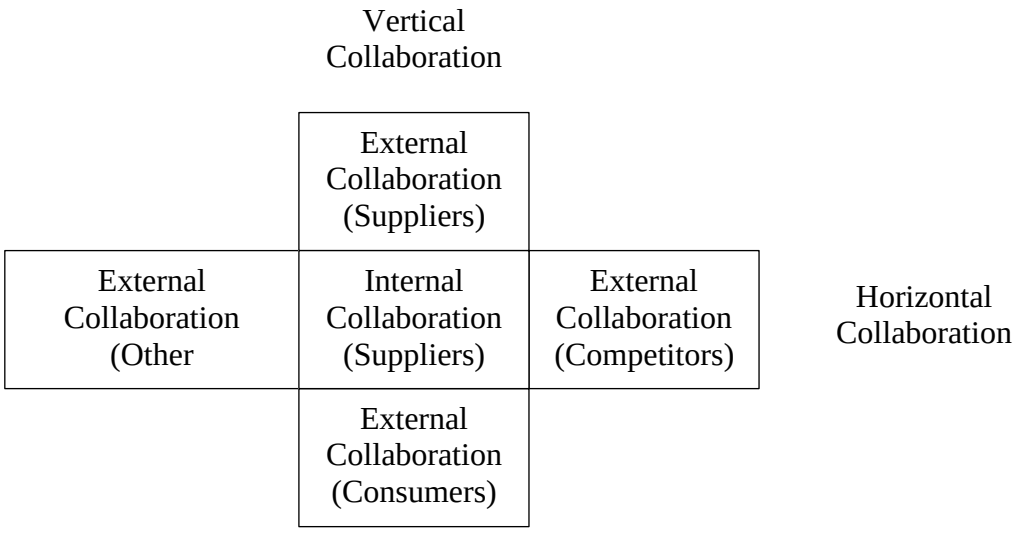

Figure 1.The Scope of Collaboration

Source: Barratt, 2004

1 Literature review

Some research related to collaboration among stakeholders in agri-food supply chain management are identified. Therefore, it will give overview about the current research in both concepts that can lead to the identifying area for further research.

Secure sustainable supply chain management in agri-food industry

In developed countries agri-food industry, security and sustainability is a concept that is still continuously improved. Food industry has a main role in sustaining consumers' health, taking part in an economic growth, and assuring an environmental impact reduction (Turi, et al., 2014). Therefore, sustainability is important for maintaining a value, awareness, society, and business reputation as well as enhancing a business environment and cooperation along a supply chain (Lin & Tseng, 2014; Shokri, et al., 2014). Consisting of economic, environment, and social aspects, it is expected to respond to the dynamic environment in the food supply chain that has high food safety expectation, food regulation, and environmental legislation (Validi, et al., 2014). Moreover, the implementation of sustainability in an agri-food supply chain be an effective way to attract stakeholders to collaborate in achieving common goals (Rota, et al., 2013).

1.1 Economic Dimensions in Agri-food Industry

Economic dimensions are critical drivers in food business processes which implement sustainability (Shokri, et al., 2014). These dimensions refer to an allocation of resources in an appropriate manner to achieve efficiency and competitiveness to enhance contribution to the society (Leat, et al., 2011). The

implementation of sustainability may lead to an incremental cost while adjusting internal and external facilities to create the advantages for all food business partners (Li, et al., 2014). Indeed, economic dimensions are influenced by social and environmental dimensions while they become the most important aspect in the sustainable supply chain (Yakovleva, et al., 2010). Economic dimensions can be categorized into macroeconomics and microeconomic factors (Brandenburg, et al. 2014). Macroeconomic factors focus on labour productivity, market concentration, and import dependency under economic sustainability to achieve several goals such as promoting the economic growth, enhancing the competitive economy, and altering the customers preferences in food products (Yakovleva, et al., 2012). Microeconomic factors address revenues, production and transportation costs, and overtime costs as economic indicators (Dwi, et al. 2013). In addition, Yan and Ma (2012) assessed the economic dimensions by using inventory level and supply cost (procurement aspect), energy and fuel costs, delivery methods, inefficiency operation processes (internal operation), packaging materials and suitability between packaging and product requirements (product development and stewardship). Based on the survey, they proposed that sustainability in the food industry can be achieved by creating the proper business model, finding the trade-off between quality and cost-effectiveness, and finding the mature sourcing (Gold, et al., 2013).

1.2 Environmental Dimensions in Agri-food Industry

While running the business, the decision making is not only considering the economic aspects, they also have to pay attention to environmental aspects (Ala-Harja & Helo, 2014). Currently, most countries need to support the reduction of GHG emissions since the declaration of Kyoto Protocol which has a target to achieve it in the next certain years. In the low-income countries, the contribution of the carbon footprint in food industry is higher compare to developed countries (Li, et al, 2014).

Environmental dimensions encompass input oriented (energy and natural resources) and output oriented indicators (waste and pollution) (Brandenburg, et al., 2014). Yan and Ma (2012) divided the environment supply chain issues into three categories, namely procurement (raw material, long and short-term supply, waste, and packaging), internal operation (water, air, soil pollution, health impact, and waste management), and product development and stewardship (product impact, substitute product, disposal, and traceability). On the other hand, Leat, et al., (2011) argued that there are three major categories in the environmental issue, namely climate change and eco-efficiency, green production and food safety, and animal welfare.

1.3 Social Dimensions in Agri-food Industry

Social issues are also needed to be considered in all strategic management processes in supply chain, even though these aspects are the most difficult aspect

to be measured compare to others since it is having correlation with intangible aspects such as with culture, social communities, lifestyle, politics, health, human rights, and communities' aspiration (Vachon & Mao, 2008; Wang, et al. 2011). The social focus in the food industries can be related to the raw material procurement from the local farmer, vitamin added in the local food, and increase the local income by providing the healthy and affordable local products (Gold, et al., 2013). These social dimensions support community development, labour opportunities, and human welfare (Leat, et al., 2011). Yakovleva, et al., (2012) determined wages, employment, and gender ratio to survive in creating fair market share and maintain productivity. Yan and Ma (2012) added labour standards, life balances, working hours, consumer demands, and inflation become the indicator in social dimensions. Furthermore, quantitative indicators have been established to measure the social dimensions such as number of employees trained, management levels with specific environment responsibility, number of improvement suggestions submitted by employees (Turi, et al., 2014).

2 Models of sustainable supply chain management in agri-food industry

Sustainable supply chain management is important to be applied in agri-food industry. It will influence not only internal organizations but also external relationship with other parties. It will help the development of socio-economic and environmental aspects, as well science and technology (Li, et al., 2014). These sustainability aspects also give a strong influence in the food supply chain particularly regarding the natural resources and labour issues, health and safety, biotechnology, fair trade, community, and procurement (Maloni & Brown, 2006). Research in sustainable agri-food supply chain is limited. Some models for assessing sustainable agri-food supply chain from various perspectives. However, not all the models cover economic, environment, and social dimensions.

Some research only focuses on environmental and economic aspects in sustainable supply chain. They tried to link the environmental impact into economic value in their model. For instance, Hamprecht et al. (2005) developed a model to control the sustainability of upstream material flow in cereal and fresh milk industry. It adapted total quality management (TQM) to support the social development while following the environmental policy by monitoring the labour standards and the nutrition demands of the land. The result indicates the important variable to achieve the high quality fulfil the food safety regulation is traceability, Moreover, the incentives program for high quality farmers is also helping to support the quality assurance. Other research also argue that sustainability has strong correlation with quality, temperature, and energy (Zanoni & Zavanella, 2012). This model has been proposed to enhance the preservation process in chilled or frozen foods by linking economic and environmental dimensions. Another model that was proposed by Turi, Goncalves and Mocan (2014) considers quality, time, cost, logistics, and productivity to assess the sustainability in food industry. Sustainability performance can be assessed by several ways.

Economic Input-Output Life Cycle Assessment (EIO-LCA) and Data Envelopment Analysis that has been designed by Egilmez et al. (2014) can be applied to analyse the direct and indirect carbon footprints. In this model, Sustainability Performance Index (SPI) has been used as an input for policy makers to propose recommendations. Other model has been designed by Validi, Bhattacharya and Byrne (2014) to analyse the sustainability performance of two layers supply chain from manufacturer to drop off points of one dairy product supply chain. This study only focuses on environmental perspectives by emerging trade-off between carbon emissions and distribution costs. Furthermore, there are some research that considered all triple bottom line aspects in their proposed model. Sustainability can be assessed based on quality, responsiveness, flexibility, consumption, and total supply chain (Bourlakis et al. 2014). Comparing between different food firm sizes (micro, small, and medium enterprises) shows that medium manufacturers are more mature in maintaining the sustainable supply chain, because they tend to play in local scopes that have fewer risks and under control, and they seem to be more responsive and flexible. However, small firms, except manufacturers, present better sustainability performance. Yakovleva (2007) proposed a model that can be applied to benchmark different kind of agri-food companies in the UK based on economic, environment, and social dimensions. She recommended several indicators and analysed them by using spider diagram. Later Yakovleva, Sarkis and Sloan (2012) applied another method for benchmarking. They use Analytic Hierarchy Process (AHP) and expert opinion to determine overall index of sustainability. However, this study has limitation since it is assumed that all variables are independent. Therefore, they suggested Analytic Network Process (ANP) and optimisation tool to be applied in the future study. Moreover, efficiency score of sustainable supply chain can be analysed by using Data Envelopment Analysis (DEA) (Tajbakhsh & Hassini, 2014). This model could analyse the individual and overall efficiency score of stakeholders in beverage industry from farmer to retailer. In summary, this review highlights that not all the studies cover all the three aspects of triple bottom line on models as well as all stages in the supply chain. Some studies also limit the case by assuming that all indicators are independent. In fact, there are many potential issues that still need to be investigated comprehensively.

3 Collaboration in agri-food supply chain management

Collaboration is needed in agri-food supply chain system to minimize cost, increase the profit, fulfil the quality assurance, and as the result is gaining the trust from consumers. Collaboration involves all activities such as production processes, sharing information and infrastructure, skills, and knowledge among all stakeholders in the agri-food supply chain such as farmers, food manufacturers, distributors, retailers, consumers, government, NGOs, and finance providers. Each stakeholder has limitation that can be solved by conducting collaboration. This collaboration needs strong commitment from all organization involved to

achieve the common goal. However, there is a complexity in the application of collaboration, particularly integrated collaborations in agri-food industry. Trust, Commitment, and willingness to share risks become the main keys in achieving a long-term goal to create strong collaboration (Bezuidenhout, et al., 2012). Unfortunately, encouraging stakeholders to address these characteristics is not an easy task, particularly for food industry that has a complex system (Rota, et al., 2013). Moreover, the existence of global regulations, global trading, and emerging consumer preferences also bring another risk to the collaboration system (Matopoulos, et al., 2007). Various studies on collaboration on agri-food supply chain have been conducted. There are some studies that only focus on vertical collaboration, horizontal collaboration, or considering both types of collaboration.

3.1 Vertical Collaboration

Various studies on vertical collaboration on agri-food supply chain have been conducted. In dyadic relationship between growers and millers in Swaziland sugar industry supply chain, organizational behaviour such as commitment, trust, and cooperation are important in supporting the contractual relationship (Masuku et al. 2003). Their research investigated that individual trust is more important than authorized relationship. On the other hand, in fresh product and food processing supply chain, it is important to combine macro factors (globalization, consolidation, consumers' attitude, and fixed regulations) and micro factors (industry's structure and product features) (Matopoulos, et al., 2007). These factors are linked with the two pillars of supply chain: design and the government of supply chain activities, and the establishment and the maintenance of supply chain relationship.

A theoretical framework, such as complexity theory can also be applied to analyse the collaboration among stakeholders in supply chain. In the upstream supply chain interaction, that involving sugarcane farmers, hauliers, and millers, it indicates that different goals, interests, power levels, and perspectives become the obstacles to generate good collaboration. Other theoretical frameworks such as supply chain management, transaction cost economics, and resource-based view theories can be used to analyse a sustainable relationship and collaboration (Rota, et al., 2013). The results suggest the key driver of sustainability that influences the performance of sustainability is vertical collaboration.

Another model, Viable System Model (VSM) can also be applied to analyse the complexity of supply chain collaboration (Hildbrand & Bodhanya, 2014). In the farmers-millers interaction, inefficiency tends to be caused by soft issues and organizational behaviour rather than hard issue. Additionally, local autonomy is important in supporting farmer-local mills relationship. Furthermore, qualitative approach also can be applied to analyse supply chain vertical collaboration (Laham, 2014). He divided supply chain into two categories, upstream supply chain and downstream supply chain and analyses their different characteristics

based on product characteristics, business relationships, business processes, positions in supply chain, and information sharing. The results indicate that the business relationship is the most important drivers in collaboration. Furthermore, a high-level collaboration exists in upstream supply chain.

3.2 Horizontal Collaboration

Beside vertical collaboration, some studies analyse the relationship among stakeholders that play in the same level including external organizations that is called horizontal collaboration. These studies discuss the collaboration from different perspectives and variables. In dairy industries, cooperative and noncooperative organizations have differences preferences in applying horizontal collaboration (Van der Krogt, et al., 2007). Cooperative organizations prefer to join in joint ventures, mergers, general collaboration, and licensing agreements. On the other hand, equity share holdings and acquisitions are more suitable for non-cooperative organizations. Cooperative strategies are more appropriate for industries that have limited equity capital, need minimum risk, and during the growth stage. If horizontal collaboration is applied in sugarcane farmers' collaboration, strategic alliance, farm management, and ratoon management fund are important to overcome the common problems, such as high production costs, poor ratoon management, low income, and high levels of debt (Malaza & Myeni, 2009). It will enhance the productivity and competitiveness among local farmers. Horizontal collaboration can also be applied in reducing outbound transportation among confectionary SMEs participating in a logistic system consortium (Ghaderi, et al., 2012). For SMEs that have small orders can implement the horizontal collaboration by combining the load among the parties. Horizontal collaboration is also can be applied to support the relationship among the food retailers. It is identified that collaboration among retailers need enthusiasm, strong commitment, a high level of maturity, and willingness to override individual actions. Companies prefer to cooperate with an organization that has a similar size, structure, capabilities, and resources. However, it is difficult to get strong commitment in the collaboration and supporting the sustainability.

3.3 Combining Vertical and Horizontal Collaboration

Even though collaborations have been studied independently, some researchers realized that both vertical and horizontal collaborations are also important to be investigated comprehensively. Wright, Score and Conner (2007) investigated the collaboration among local government, universities, agri-business, and local societies. It shows that motivation from stakeholder to engage in collaboration form is important. The reasons are there is dependency of the community into agricultural aspects to achieve the prosperity and to support the socio-economic development. Collaboration strategy also has the implication into pull innovation in agri-food supply chain to increase the value creation (Weaver, 2008). Vertical collaboration helps to gain better coordination within the supply

chain stages in term of product design and development. However, the processing time can be reduced significantly by horizontal collaboration since innovation processes work parallel. Another study discovered that both types of collaborations, vertical and horizontal, exist in the traditional food supply chain in Belgium, Hungary, and Italy (Gellynck & Kühne, 2010). The result indicates that vertical collaboration is well established. However, horizontal collaboration only exists if there are associations among organizations. The biggest barrier in creating collaboration form is lack of understanding, trust, knowledge, financial and physical resources. Farmers suffer the most cost and get the less benefit compare to others. It indicates that the collaboration is inefficient. To overcome this problem, horizontal collaboration among farmers is important by creating association organization. Furthermore, power sharing and agreement among stakeholders in the within vertical collaboration are essential to support good quality of collaboration.

Another study argues that external collaboration is more important than internal collaboration within organization for controlling performance achievement (Steele & Feyerherm, 2013). In seafood industry, sustainable organization can be achieved by strong commitment and organization's clarity. Furthermore, sustainable collaboration is also influenced by having good management systems and performance tracking. Moreover, risk management is important to be considered in achieving the flexibility through vertical and horizontal collaboration (Leat & Revoredo-Giha, 2013). It shows that the flexibility of the primary supplier has an impact on the supply chain resilience. Therefore, good collaboration on facilitate risk management among the stakeholders is important.

4 A case study based on Slovak company Lunys s.r.o. (Ltd.) Poprad

Lunys s.r.o. (Ltd.) Poprad is a wholesaler of fruits, vegetables, and additional assortment, which provides its services exclusively to registered customers and businesses. It has two distribution and logistics centres in Bratislava and Poprad. The company was established in 1994 as a family business with several stores and market locations in Poprad. With a suitably chosen development strategy, the company has developed into a top supplier and distributor of fruits and vegetables in the Slovak Republic.

At present, the Lunys company has warehouses in Bratislava with an area of 4000 m2, in Poprad with an area of 3500 m2. From the branch in Bratislava, it provides delivery for the region of western Slovakia. It serves Central and Eastern Slovakia from the Poprad branch, where it has created five cross dock centres (Košice, Prešov, Brezno, Martin, Ružomberok). The production and logistics centre of Poprad also includes the production part of the company. The annual volume of transported goods exceeds 28,000 tons, the company's revenues exceeded 30 million euros. The company employs more than two hundred employees within the entire organizational structure. The implementation of the

quality management system according to the ISO 9001 standard has been completed.

Company's growth is remarkable from both the assortment of products and services related. The primary focus of the company is the sale of fruits and vegetables. It has approximately 1,000 stock cards installed in this segment. The specificity of this assortment is that each type of fruit and vegetable is further divided according to variety, package size, quality category, and country of origin. The product range is divided into 8 product groups: fruit, vegetables, exotic fruits, exotic vegetables, herbs, bunches, and sprouts, cleaned fruit, purified vegetables.

Part of the purchased products is modified in production (cleaning, cutting, dice, packaging), which increases the offered assortment by another, approximately 200 stock cards. Another assortment with which the company supplies mainly gastronomic operations is the so-called foodstuffs. This assortment is managed on approximately 300 stock cards.

Assortment of services was created I order to develop good collaboration primarily with external stakeholders. Lunys s.r.o. has been providing comprehensive freight transport services at the level of national and international transport and forwarding for more than 15 years. It provides imports and exports mainly from Germany, Austria, Italy, France, and Spain. Services offered: international and domestic freight transport in Europe, full truck loads (FTL), partial shipments – light track loads (LTL), express shipments with delivery within 24 hours, transport of oversized goods by special vehicles, transport of dangerous goods in accordance with the ADR agreement, transport of goods with large-capacity semi-trailer sets Megatrailer and Jumbo, transport of goods under temperature regime (refrigerated, frozen) or tempered goods, delivery within Slovakia.

Logistics processes in the company Lunys s. r.o. strictly follow the rules of effective supply chain management. The purchase is primarily made from the EU environment. Fruits and vegetables are bought mainly from Spain, Italy, Poland, and the Netherlands. Part of the assortment is imported from Turkey. In 2020, the company also focused on the direct import of goods from countries outside the EU. Imports from countries such as Serbia, Macedonia, Egypt, and Ecuador are developing. With the additional assortment, the group of purchases is made from Slovakia, the Czech Republic as well as Austria (higher quality standard of products).

Demand prediction and planning was created in an accordance with a wide customer base where collaboration communication aims to the customer. At the end of 2017, the company registered 2,500 collection points. When creating demand forecasts, the company uses a top / down approach based on creating forecasts for all 32 sales markets at once. The company's information management system provides enough information.

Receiving of goods Company realises through central receiving location, which is equipped with a recessed platform scale for weight control. Subsequently, the shift manager checks for numbers, weight, quality and accompanying documentation what maintain good relationship with collaborating firms. If a parameter does not fit, the complaint process begins. The number of cases the goods are not taken over from the supplier is small. However, complaints in the fruit and vegetable segment are relatively common, as the goods may be subject to the so-called drying, where its weight decreases with time. Qualitative complaints are also relatively common since these are goods subject to possible rot and other changes in quality characteristics.

The company has: Cooling chambers as large as: 150 m2 with a temperature regime of up to 4 degrees Celsius, 150 m2 with a temperature regime of up to 10 degrees Celsius, 10 m2 with a temperature regime of up to 2 degrees Celsius for proper operations with the goods. There are also freezers, and warehouse tempered of up to 20 degrees Celsius with a relative humidity of up to 70%. The warehouse includes two large-capacity ripening chambers for ripening bananas with controlled temperature. Part of the goods is stored directly in the hall, of course at a controlled temperature. The temperature regime is continuously recorded by an electronic temperature measuring device as well as by the physically leading shift at its beginning and end. Records of storage conditions are kept. Company intent of secure goods and good collaboration demanded creating non - stop call centre for receiving and processing orders. Like in other developed companies' orders might be taken by telephone or via e-shop or e-mail redirected into the information system. The stock status is monitored online, so it is excluded that the customer does not receive the ordered goods. If stocks are not sufficient to cover customer requirements, the call centre staff is offered the customer alternative goods or a new date when the goods will be in stock and his request will be satisfied. Based on the received orders for own production, the production technologist prepares a list of necessary inputs (raw materials, packaging, labels, ...) and asks the warehouse worker to prepare them. Priority is given to the input of raw materials (fruits, vegetables) so that the production process begins at 14:00 hrs., then the other inputs are removed from storage.

Even knows Lunys' main activity is the wholesale of fruit and vegetables. It serves retail, wholesale, and school facilities. In recent years, the company has significantly profiled itself in the Gastro segment. Customers in this segment expect, in addition to regular supplies of fruit and vegetables, also higher added value in the form of modified semi-finished products (cleaned, cut, sliced, grated, ...), which significantly reduces their operating costs. For this reason, the company had invested heavily in fruit and vegetable processing technology. The investment and innovation were given into packaging (pallet containers, corrugated pallets, large-capacity bags, crates, sacks). The main reason is a better purchase price, optimal use of transport and storage capacities as well as optimization of the product portfolio. Based on the picking sheets, the warehouse staff prepares

individual items of the customer's order. At the same time, they record the real weight of the prepared goods for the weighed items in the picking sheet. The letter modified in this way serves as a basis for issuing a delivery note and subsequent invoicing. Goods picked up for the customer are stored on pallets and then moved to the areas designated for finished orders. Here, the goods are divided according to individual logistics directions. Priority is given to picking goods for distribution to the company's cross dock centres, subsequently for distribution carried out directly from the Poprad distribution centre.

All orders are processed through the logistics distribution program Plantour, which evaluates the number and weight of shipments. The output of this logistics planning program is the optimal number of cars, as well as routes on individual distribution directions. The expedition always starts in the company at 02:00 hrs. The first goods shipped from the warehouse are distributed through Lunys cross dock centres. The goods are delivered to individual cross dock centres by trucks with a capacity of 12 to 20 pallets and a load capacity of 5 to 12 tons. The required number of vans is available in the individual centres, while the goods are transferred from the pallets to the loading area of the car. Vanload capacity is up to 2 tons. These cars are used for distribution to the end customer.

By analysing processes at Lunys s.r.o. Poprad we found possible innovations to improve the logistics state. First chance is to replace of crates and distribution packaging. The company uses many plastic crates for distribution, which are only removable, so they take up a large volume during return, which causes problems in the distribution of goods, as the driver collecting them may not have space on the empty crates of the car. The solution possible is in two alternatives. Gradually replace removable crates with today's commonly available plastic crates, which are removable in one position, but in a position rotated by 180 degrees are also slidable into each other. Own non-returnable distribution packaging (cardboard non-returnable crate). It would certainly be worth considering replacing, whether partially or completely plastic crates, with non-returnable cardboard packaging. The benefits of this packaging lead to eliminating tampering. At the same time, this non-returnable crate serves as a carrier for the Lunys advertising and brand. Secondly the process of picking per customer is demanding enough human resources, a total of 24 employees work here in four working groups and three-shift operation. This activity will need to be analysed and subsequently automated to reduce the share of human labour. In the current phase of operation, this centre would be helped by the connection of weighing systems to the information system, which would reduce the administrative burden of creating picking lists and the subsequent implementation of delivery notes. Thirdly analysis of production activities and their improvement is necessary because of high proportion of manual labour that is noticeable in the company's production processes. Along with analysis of production activities, company must look for unification, as a relatively wide portfolio of products is produced in a small space, which can cause problems in the daily fulfilment of orders. At the same time,

production would be helped by extending the shelf life of products, which could lead to production in larger volumes, which is more efficient.

5 Discussions

Based on literature review, even though the agri-food industry has a significant influence on social and economic developments globally, research on sustainable agri-food supply chain is limited. Some studies do not cover all sustainability aspects. Most of them focus on economic and environmental aspects and disregards social aspects that also important to build the strong social development in the communities. Moreover, some studies also limit the case by assuming that all indicators are independent. However, in the more reality, there is possibility that the indicators have the correlation to each other. Therefore, it can be potential issues that can be explored broadly in the future by analysis the dependency among variable and sub-variable. However, even though the products are different, the nature of the research is quite similar. Most of the studies show that indicators of sustainability such as food safety, quality, nutrient, natural resources, labour issues, energy, and carbon footprint become the main issues that need to be addressed in several agri-food industries. Moreover, the problems are discovered from different perspectives, the collaboration structures among the agri-food industries are similar. Mainly, it consists of suppliers/farmers, food manufacturers, distributors, and retailers. In addition, related to collaboration behaviour communication becomes the main problem in collaboration, even though there are other slightly different aspects that need to be concerned. Communication will lead to positive relationship (Bezuidenhout, et al., 2012). In brief, in the future studies, integrated collaboration model that can accommodate all sustainable aspects is potential to be investigates comprehensively. Moreover, other organizational theories can be applied to analyse the complexity of the collaboration to propose the integrated collaboration model.

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Conclusion

Sustainability and collaboration are concept that is important in supporting the complex system in agri-food supply chain management. Sustainability is one of perspectives that can be applied to maintain the competitive strategies in economic, environmental, and social aspects that is called triple bottom line (TBL). Several studies discuss all those element, however economic aspects are still become dominant variables that are considered in analysing the sustainable supply chain. It is important to achieve a better sustainability system for all stakeholders without adversely suffering other stakeholders such as local farmer and SMEs by reducing the uncertainty and sharing the risk and costs among stakeholders involves. Moreover, only some research considers both vertical and horizontal collaboration as a network to achieve the positive competitive advantages. Collaboration as a network will support the long-term partnership and spread the benefits throughout the entire supply chain system, from strategic level into operational level. Both concepts bring significant impact on agri-food industry in term of achieving socio-economic development as well as supporting the reduction of environmental impacts in the world.

As we mentioned company’s operations, the range of products and services and the processes of the logistics system Lunys has maintained a strong market position for a long time, but like all businesses, it is subject to time and therefore needs to move forward, expand its product and service portfolio, and keep pace with innovation related to innovation and customer access. As part of improving the functioning of the company, we suggested possible solutions to problems, innovations in the logistics process, which should ensure progress and facilitate work.

References

1. ALA-HARJA, H. & HELO, P. 2014, 'Green supply chain decisions–case-based performance analysis from the food industry', Transportation Research Part E: Logistics and Transportation Review, vol. 69:97-107.
2. BARRATT, M. 2004. 'Understanding the meaning of collaboration in the supply chain', Supply Chain Management: An International Journal, vol.9(1):30-42.
3. BEZUIDENHOUT, C.N., BODHANYA, S. & BRENCHLEY, L. 2012. 'An analysis of collaboration in a sugarcane production and processing supply chain', British Food Journal, vol.114(6):880-895.
4. BOURLAKIS, M., MAGLARAS, G., AKTAS, E., GALLEAR, D. & FOTOPOULOS, C. 2014. 'Firm size and sustainable performance in food supply chains: Insights from Greek SMEs', International Journal of Production Economics, vol.152:112-130.
5. BRANDENBURG, M., GOVINDAN, K., SARKIS, J. & SEURING, S. 2014. 'Quantitative models for sustainable supply chain management: Developments and directions', European Journal of Operational Research, vol.233(2):299-312.
6. CAO, M. & ZHANG, Q. 2011. 'Supply chain collaboration: impact on collaborative advantage and firm performance', Journal of Operations Management, vol.29(3):163-180.
7. DWI, Y., NOUAOURI, I., ALLAOUI, H. & GONCALVES, G. 2013. 'Sustainable supply chain and collaboration: What is the link and what are the benefits?', 2nd International Conference on Sustainable Intelligent Manufacturing, SIM 2013, 631-636.
8. EGILMEZ, G., KUCUKVAR, M., TATARI, O. & BHUTTA, M.K.S. 2014. 'Supply chain sustainability assessment of the US food manufacturing sectors: A life cycle-based frontier approach', Resources, Conservation and Recycling, vol.82:8-20.
9. FRITZ, M. & SCHIEFER, G. 2008. 'Food chain management for sustainable food system development: a European research agenda', Agribusiness, vol.24(4):440-452.
10. GELLYNCK, X. & KÜHNE, B. 2010. 'Horizontal and vertical networks for innovation in the traditional food sector', International Journal on Food System Dynamics, vol.1(2):123-132.
11. GHADERI, H., DARESTANI, S.A., LEMAN, Z. & ISMAIL, M.Y. 2012. 'Horizontal collaboration in logistics: a feasible task for group purchasing', International Journal of Procurement Management, vol.5(1):43-54.
12. GOLD, S., HAHN, R. & SEURING, S. 2013. 'Sustainable supply chain management in “Base of the pyramid” food projects—A path to triple bottom

line approaches for multinationals?', International Business Review, vol.22(5):784-799.
13. HAMPRECHT, J., CORSTEN, D., NOLL, M. & MEIER, E. 2005. 'Controlling the sustainability of food supply chains', Supply Chain Management: An International Journal, vol.10(1):7-10.
14. HILDBRAND, S. & BODHANYA, S. 2014, 'Application of the viable system model in a complex sugarcane supply chain', British Food Journal, vol.116(12):2048-2068.
15. KLASSEN, R.D. & VEREECKE, A. 2012. 'Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance', International Journal of Production Economics, vol.140(1):103-115.
16. LAHAM, J. 2014. 'Supply chain collaboration in the Malaysian pineapple chains', PhD thesis, School of Agriculture and Food Sciences, The University of Queensland.
17. LEAT, P., REVOREDO-GIHA, C. & LAMPRINOPOULOU, C. 2011. 'Scotland's food and drink policy discussion: Sustainability issues in the food supply chain', Sustainability, vol.3(4):605-631.
18. LEAT, P., REVOREDO-GIHA, C. 2013. 'Risk and resilience in agri-food supply chains: the case of the ASDA PorkLink supply chain in Scotland', Supply Chain Management, vol.18(2):219-231.
19. LI, D., WANG, X., CHAN, H.K. & MANZINI, R. 2014. 'Sustainable food supply chain management', International Journal of Production Economics, vol.152:1-8.
20. LIN, Y-H. & TSENG, M-L. 2014. 'Assessing the competitive priorities within sustainable supply chain management under uncertainty', Journal of Cleaner Production, Available online 17 July 2014.
21. MALAZA, S. & MYENI, D. 2009. 'Integrating smallholder growers into competitive sugarcane production', South African Sugarcane Technologists Association, vol.82:405-408.
22. MALONI, M.J. & BROWN, M.E. 2006. 'Corporate social responsibility in the supply chain: an application in the food industry', Journal of business ethics, vol.68(1):35-52.
23. MASUKU, M.B., KIRSTEN, J.F., VAN ROOYEN, C.J. & PERRET, S. 2003. 'Contractual relationships between small-holder sugarcane growers and millers in the sugar industry supply chain in Swaziland', Agrekon: Agricultural Economics Research, Policy and Practice in Southern Africa, vol.42(3):183-199.
24. MATOPOULOS, A., DOUKIDIS, G.I., VLACHOPOULOU, M., MANTHOU, V. & MANOS, B. 2007. 'A conceptual framework for supply chain collaboration: Empirical evidence from the agri-food industry', Supply Chain Management: An International Journal, vol.12(3):177-186.

25. ROTA, C., REYNOLDS, N. & ZANASI, C. 2013. 'Sustainable food supply chains: The role of collaboration and sustainable relationships', International Journal of Business and Social Science, vol.4(4):45-53.
26. SHOKRI, A., OGLETHORPE, D. & NABHANI, F. 2014. 'Evaluating sustainability in the UK fast food supply chain', Journal of Manufacturing Technology Management, vol.25(8):1224-1244.
27. STEELE, B. & FEYERHERM, A. 2013. 'Loblaw sustainable seafood: Transforming the seafood supply chain through network development and collaboration', Organizing for Sustainable Effectiveness, vol.3:101-132.
28. TAJBAKHSH, A. & HASSINI, E. 2014. 'A data envelopment analysis approach to evaluate sustainability in supply chain networks', Journal of Cleaner Production, Available online 9 Agustus 2014.
29. TURI, A., GONCALVES, G. & MOCAN, M. 2014. 'Challenges and competitiveness indicators for the sustainable development of the supply chain in food industry', Procedia – Social and Behavioral Sciences, vol.124:133-141.
30. VACHON, S. & MAO, Z. 2008. 'Linking supply chain strength to sustainable development: A country-level analysis', Journal of Cleaner Production, vol.16(15):1552-1560.
31. VALIDI, S., BHATTACHARYA, A. & BYRNE, P.J. 2014. 'A case analysis of a sustainable food supply chain distribution system—A multi-objective approach', International Journal of Production Economics, vol.152:71-87.
32. VAN DER KROGT, D., NILSSON, J. & HØST, V. 2007. 'The impact of cooperatives' risk aversion and equity capital constraints on their inter-firm consolidation and collaboration strategies—with an empirical study of the European dairy industry', Agribusiness, vol.23(4):453-472.
33. VARSEI, M., SOOSAY, C.A., FAHIMNIA, B. & SARKIS, J. 2014. 'Framing sustainability performance of supply chains with multidimensional indicators', Supply Chain Management: An International Journal, vol.19(3):242-257.
34. WANG, P.C., HALIM, I., ADHITYA, A. & SRINIVASAN, R. 2011. 'Integrating economic, environmental and social indicators for sustainable supply chains', in E.N. Pistikopoulos, MCG & Kokossis, AC (eds), Computer Aided Chemical Engineering, Elsevier, 1220-1224.
35. WEAVER, R. D. 2008. 'Collaborative pull innovation: Origins and adoption in the new economy', Agribusiness, vol.24(3):388-402.
36. WIKE, A., PRIMA, D., KE, X. & YOUSEF, A. 2015. Collaboration and Sustainable Agri-Food Suply Chain:
37. a Literature Review, Web of Conferences DOI: 10.1051/, MATEC 58 02004 (2016) matec 5 conf/2016 802004 BISSTECH 2015

38. WRIGHT, W., SCORE, M. & CONNER, D.S. 2007. 'Food system makers: Motivational frames for catalyzing agri-food development through multi-stakeholder collaboration', Community Development, vol.38(3):39-59.
39. YAKOVLEVA, N. 2007. 'Measuring the sustainability of the food supply chain: A case study of the UK', Journal of Environmental Policy & Planning, vol.9(1):75-100.
40. YAKOVLEVA, N., SARKIS, J. & SLOAN, T. 2010. 'Sustainability indicators for the food supply chain', Woodhead Publishing Limited, 297-329.
41. YAKOVLEVA, N,, SARKIS, J. & SLOAN, T. 2012. 'Sustainable benchmarking of supply chains: The case of the food industry', International Journal of Production Research, vol.50(5):1297-1317.
42. YAN, X-H. & MA, J. 2012. 'Development of sustainable food supply chain', International Journal of Engineering & Technology, vol.4(2):166-169.
43. YU, M. & NAGURNEY, A. 2013, 'Competitive food supply chain networks with application to fresh produce', European Journal of Operational Research, vol.224(2):273-282.
44. ZANONI, S. & ZAVANELLA, L. 2012. 'Chilled or frozen? Decision strategies for sustainable food supply chains', International Journal of Production Economics, vol.140(2):731-736.

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IMPORTANCE OF AGE MANAGEMENT IN THE CONTEXT OF DEMOGRAPHIC DEVELOPMENT OF THE SLOVAK REPUBLIC

VÝZNAM AGE MANAGEMENTU V KONTEXTE DEMOGRAFICKÉHO VÝVOJA SLOVENSKEJ REPUBLIKY

Martin STAŠKO

Abstract
The aging of the workforce and population currently has serious social as well as economic consequences. If the Slovak Republic wants to continue to achieve economic growth and maintain a stable pension system, it will have to be involved as much as possible in the use of older workers. Age management deals with managing the age structure of employees, especially at the age of "50+". Organizations should be motivated to support older employees themselves, but also to a large extent by the state itself. Given the topicality of the issue and based on forecasts regarding the development of the number and age of the population of the Slovak Republic, we focused on the importance of age management in the context of the demographic development of the Slovak Republic.

Keywords: age management, employment, older workers, aging population

Abstrakt
Starnutie pracovnej sily a populácie predstavuje v súčasnosti vážne sociálne, ale aj ekonomické dopady. Ak bude chcieť aj naďalej Slovenská republika dosahovať hospodársky rast a udržať stabilný dôchodkový systém, bude sa musieť čo najviac zapájať do využívania aj starších pracovníkov. Práve týmto kontextom sa zaoberá Age management, ktorý sa venuje riadeniu vekovej štruktúry zamestnancov, najmä vo veku „50+“. K podpore starších zamestnancov by mali byť organizácie motivované samé, ale vo veľkej miere aj samotným štátom. Vzhľadom na aktuálnosť problematiky a vychádzajúc z prognóz ohľadom vývoja počtu a veku obyvateľstva SR sme sa v príspevku venovali významu Age managementu v kontexte demografického vývoja SR.

Kľúčové slová: age management, zamestnanosť, starší pracovníci, starnutie populácie

Introduction

In recent decades, there have been significant changes in the age composition of the population, both in the Slovak Republic and in other countries of the European Union. The aging of the workforce is a global phenomenon, that has several social and economic impacts and leads to changes in the structure of the labor market. Almost one third of the workforce in the European Union will be between 50 and 64 years old in 2025, and the target employment rate for older workers will be 59 %. By comparison, in 1999, only 33.6 % of people in the age range 55 – 64 years in the European population took an active part in working life, which means, that the involvement of older workers is constantly increasing. However, their real employment rates vary considerably from one European

country to another. Most European countries are now beginning to address the aging of population by the need to increase the participation of older workers in the form of raising the retirement age. Ultimately, the aging of the population will lead to higher demands on employers and society. In this context, it is necessary for societies to cope with the changes and adapt to the new conditions caused by the aging population. It is also important, that employers can manage employees in their companies with regard to their age diversity and implement in the work process the effective involvement of employees of all ages in order to use their potential and experience.

Recently, in connection with the aging of the population, new topics and fields have emerged, such as Age management, which deals with the strategy of employee management, that takes into account the age of employees. It seeks to introduce the management of multi-generational teams or intergenerational cooperation. It also deals with the creation of suitable conditions in the workplace for people in the age group "50 +" and keeping people of this age in an active working life. It also seeks to eliminate prejudices against older employees, as well as to minimize discrimination against potential employees aged 50+. Given the above facts, the aim of this paper is to point out the need for age management in the context of demographic changes in the Slovak Republic. The paper focuses on the analysis of current and future demographic trends, the overall situation of the aging population in Slovakia and the employment rate of the age group 50+ in a comparison of selected countries of the European Union.

1 Meaning and importance of age management

Age management originated in the early 1980s in Finland in response to demographic change and the rapid aging of the population. The Finnish Institute of Occupational Health and professor Juhani Ilmarinen played a key role in this, under the leadership of which a comprehensive tool, the Work Ability Index (WAI), was created. Age management, as management taking into account the age of the employee, aims to promote an approach to addressing the demographic situation and changes in the workplace. Age management does not have to be understood, only as a concept with the phenomenon of aging society, but in principle it is a concept of every age (Cimbálniková, 2012). The authors Paul and Towsend (1992) have already pointed out the aging of the population and the related changes in the labor market. They were of the opinion, that society should create jobs corresponding to different age groups.

Currently, Age management is a management method, that takes into account the age of employees who work in the organization. Its main objective is to promote a comprehensive approach to tackling the demographic situation, which is not very favorable. Age management points out, that the employment of older people also has its advantages, and therefore it also deals with demographic changes in the workplace. It follows, that the concept of age management is

important not only at the social, but also at the organizational level (Urbancová, 2017).

The current literature offers several definitions of the term Age management, each of which looks at it from a different perspective. According to the authors Novotný et al. (2015) Age management, or agediversity management, is common term for a dynamic set of principles, rules, procedures, tools, reserves and investments related to the employability and employment of individuals, while supporting the optimum of economic and social productivity throughout life and enabling workers lead a productive, meaningful and healthy life for all ages, including retirement. Age management as a comprehensive approach is to develop strategies, manage programs, strategies and practices, that address demographic change in the workforce and are designed to promote age diversity in the workplace, recruit and employ older and younger employees, transfer knowledge, health and good atmosphere (Kocianová, 2012). Authors Horváthová, Bláha and Čopíková (2016) state, that Age management is the management of the age structure of employees, at the level of society, organization and individuals, and mainly concerns the unfavorable demographic development - population aging, retirement and employment policy, social responsibility organization, age discrimination, employment of the older generation, especially the so-called group "50+".

Managing an aging workforce is a matter of concern at several levels. In general, we can distinguish 3 levels, at which the main stakeholders in the Age Management programs express and implement their interests (Cimbáliková, 2012). The content of the concept of age management, its goals and strategies are indicated in many European documents and in several projects and research. Age management can be described on three levels: socio-political (national), organizational (corporate) and individual level. It should be noted that these levels do not exist separately but are interconnected. At each of these levels, there are different kinds of problems and opportunities to achieve the goals and results, and at each level there are means and possibilities to solve them.

2 Methodology

To present the current state of the aging population and the expected demographic trends, we used data from the database of the OECD, INFOSTAT and the Ministry of Education, Science, Research and Sport of the Slovak Republic. The evaluation of the nature and dynamics of aging itself is based on standardly used demographic indicators. It is mainly the number and share of people of different age categories in the total population, the change in the population of the main age groups, the development of the post-productive age population and the employment rate of people over 55 years in Slovakia and selected European Union countries.

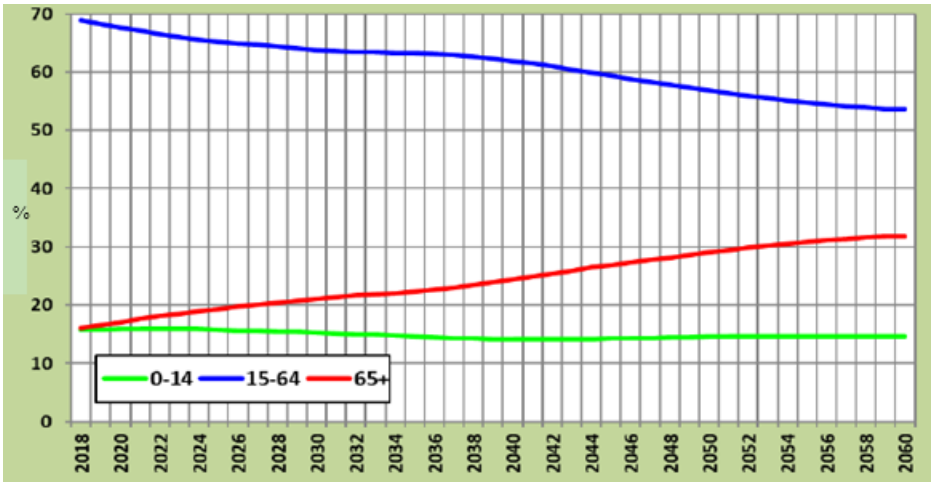
Due to the fact, that defining the exact age interface for a group of older employees is very challenging and influenced by many factors, but especially the

individuality of each person with regard to several facts, we defined the "silver" population according to Páleník et al. (2012) as persons aged 50 years and over. However, as this is a highly heterogeneous population in terms of various relevant characteristics (e.g. economic activity, income, education, health status, health care requirements, etc.), we also worked more deeply with several subgroups. Within Age management, we mean an older employee of an employee whose age is over 50, resp. 55 years. Because we relied on several sources, we will not differentiate between the ages of 50 and 55 years and we will consider them as equivalents.

3 POSITION OF "50+" WORKERS ON THE LABOR MARKET IN THE SR

In the following part of the paper we present the facts concerning the forecast of the development of the population according to age groups, the employment rate in the Slovak Republic in comparison with other European Union countries, especially for people older than fifty years. Based on data from the Demographic Research Center (INFOSTAT), we can prepare for a reduction in population and intensive population aging in Slovakia in the coming decades. Population decline is very likely, population aging is irreversible. It is only possible to think of a change in these main demographic trends after 2060, when strong population years born in the second half of the 20th century will cease to affect the age structure of the population. According to the middle scenario of the latest forecast, in the period 2017 - 2060 the population of the Slovak Republic should decrease by more than 308 thousand. persons, resp. by 5.7 %. Also, the average age of the population should increase by 7 years, resp. by 17.2 %. There are significant changes, that will have serious social impacts (Bleha, Šprocha, Vaňo, 2018).

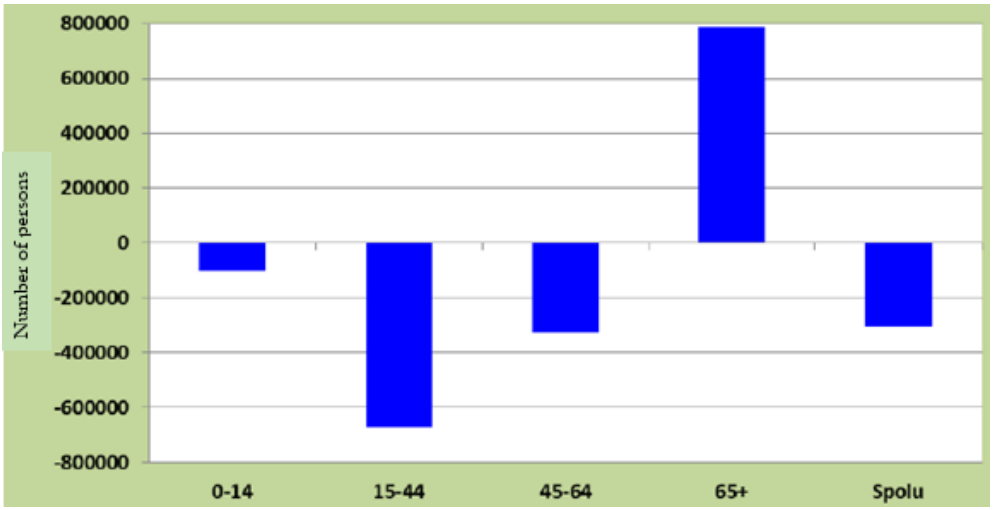
These changes appear even more significant, when we do not take into account the population as a whole, but only individual age groups. The main age groups serve as an example (Graph No. 1). While the share of the population in the pre-productive age will practically not change by 2060 (in this age group significant changes have already taken place mainly in the 1990s), in the group of productive and post-productive population we still waiting the most significant changes. There will be very significant changes in both age groups - a reduction in the number and share of the productive population and an increase in the number and share of the post-productive population, which will last for several decades and will have a major impact on the functioning of society.



Graph 1 Expected development of the percentage share of the population in Slovakia by age groups

Source: Forecast of the development of the population of the Slovak Republic until 2060.

The number of people of working age will decrease significantly by 2060. The decline will affect the population in both younger and older productive age (Chart 2), so the average age of the productive population will not change significantly (it will be close to 43 years). A significant reduction in the number and share of people of working age is an important and direct signal, especially for the labor market, but there are also many other impacts for which society must prepare. A significant decrease in the population at a younger productive age (Chart 2) will have a significant demographic impact.



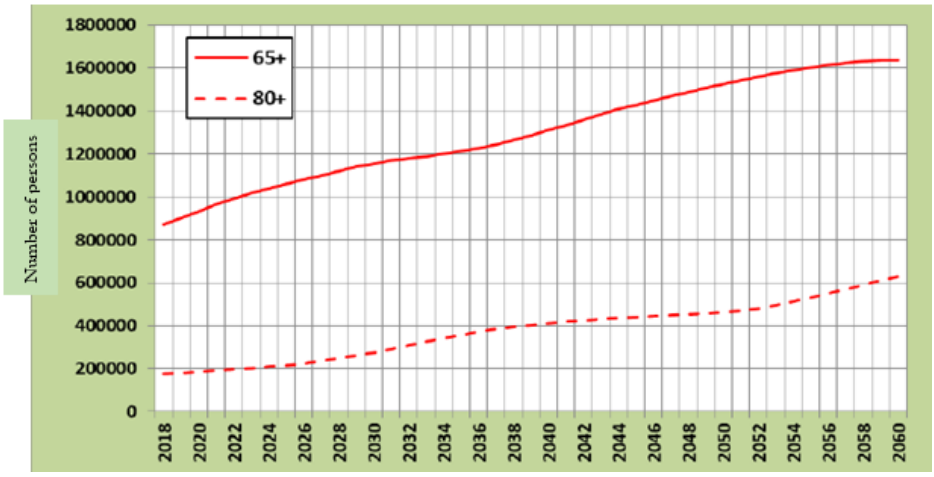
Graph 2 Change in the population of the main age groups for the period 2017 - 2060

Source: Forecast of the development of the population of the Slovak Republic until 2060.

The number of children born will decrease by 2060, even if the expected increase in fertility rates. Given the expected fundamental impacts of demographic development on the labor market, we will focus on the population aged 20 - 64 when assessing the productive population. Given the economic activity of the population, this age group best reflects the potential for the

workforce. This means, that the declining share of the population with basic education is considered, as well as the rising retirement age.

The intensive aging of the population, which brings with it a radical increase in the number and proportion of the population in the post-productive age, is the greatest demographic challenge for the 21st century (Demeny, 2003). In addition, population aging in Slovakia will be very intense compared to other European countries (Vaňo, 2015). The number of inhabitants aged 65 years and over will increase from almost 870 000 in the period 2017 - 2060. to about 1635-ths. persons (Graph No. 3), which represents an increase of 760 thousand persons, resp. 87 %.



Graph 3 Development of the number of inhabitants in the post - productive age in the Slovak Republic until 2060

Source: Forecast of the development of the population of the Slovak Republic until 2060.

Unlike the productive population, the aging of the population will also take place within the post-productive population in the coming decades. The average age in this age group will increase from the current 74 years to 77.8 years in 2060. This means, that the growth of the population in the oldest age will be even more intense, than the growth of the whole group of the post-productive population. In the age group over 80 years, it will be an increase of 450 thousand persons, which means a roughly 2.5-times increase for the period 2017 - 2060 (Graph No. 3). The share of this oldest age group in the total population will increase from the current 3.2 % to 12.2 % in 2060.

The intensive increase in the post-productive population will be maintained until the end of the 1950s, and this increase is expected to stop from 2060. However, the change in the trend does not affect the oldest population, the increase in the population aged 80 and over will continue for several more years (Chart 3). The change in trends in the development of the population in the post-productive age is also due to strong population years born in the second half of the 20th century and their shift in the age structure of the Slovak population.

Table 1 Employment rate of workers aged 55+ in 2018 in selected EU countries

Country / Indicator	Employment rate of workers 55+		
	Employment rate of workers aged 55-59 in %	**Employment rate of workers aged 60-64 in %**	**Employment rate of workers aged 65-69 in %**
Austria	72,8	30,8	9,4
Belgium	68,4	30,0	5,3
Czech Republic	85,9	46,4	13,9
Denmark	81,3	60,3	19,2
Estonia	78,0	58,8	33,3
Finland	79,1	51,7	14,1
France	72,5	30,8	6,5
Germany	80,8	60,3	17,0
Greece	52,3	30,1	10,6
Hungary	74,0	38,2	6,9
Iceland	82,9	78,0	52,6
Ireland	68,1	51,8	22,9
Italy	64,7	41,1	12,3
Lithuania	76,5	53,0	24,6
Latvia	76,9	58,2	22,0
Luxembourg	57,9	19,0	3,3
Netherlands	76,2	58,1	17,0
Norway	79,1	64,4	29,5
Poland	65,8	33,7	10,5
Portugal	71,3	46,0	19,1
Slovak Republic	**76,5**	**32,5**	**8,1**
Slovenia	68,6	24,9	8,6
Spain	63,2	39,2	6,1
Sweden	85,5	70,2	24,0

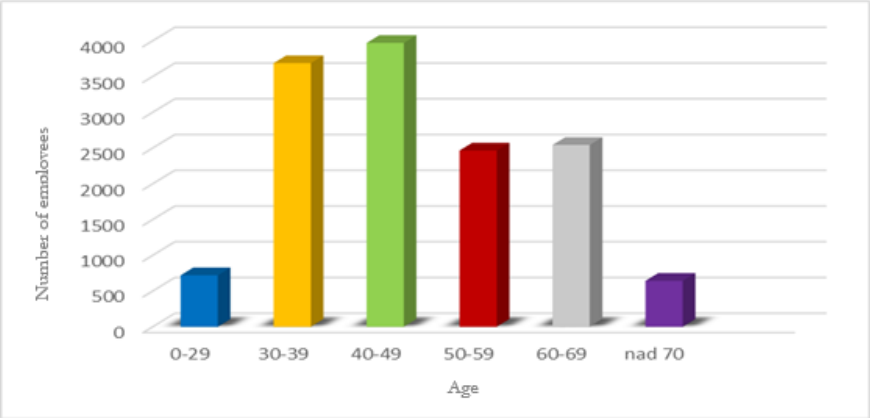
Source: own processing based on OECD data, 2018.

In addition to the prognostic development of the population, we also focused on the current employment rate of people aged 55 to 69 in individual EU countries. The age range has been observed in this survey since the age of 55, because OECD statistics work with a different metric than Age Management itself, which focuses primarily on "50+" employees. In the case of the Slovak Republic, we can state, that out of the population aged 55 - 59, up to 76.5 % of these people work and only 33.5 % are unemployed, either voluntarily or involuntarily. On the other hand, from the population of the Slovak Republic aged 60 - 64, the employment rate is decreasing and reaches only 32.5 %, and finally, of the total population of the Slovak Republic aged 65 - 69, only 8.1 % of people in the given age range work in Slovakia. In comparison with other countries, we can state that in the range of 55 - 59 years, we belong to the countries with the highest employment rate within the given age range. On the contrary, this is no longer the case with the population aged 65 - 69, and we thus belong to the countries with a low employment rate now. Based on tab. 1 we can generally state, that the highest employment rate aged 55 to 69 is recorded mainly by the

Scandinavian countries and we can assume that due to the prognostic development of the Slovak Republic until 2060 Slovakia will gradually copy their trend and the share of employed people aged 55 to 69 years will continue to rise.

4 Analysis of the age structure of employees in selected organization

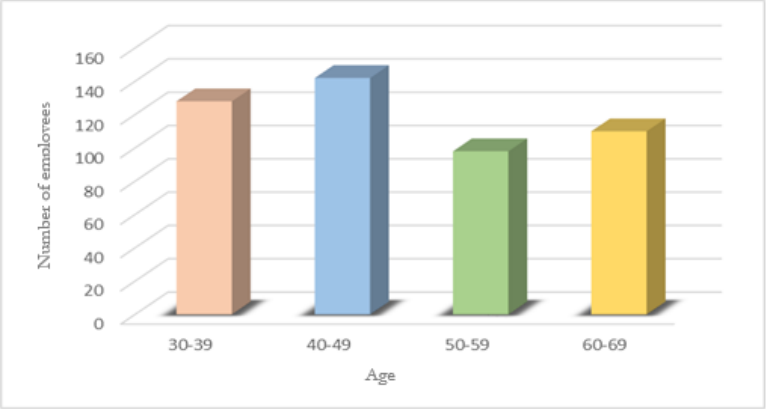
Because this paper deals with the demographic development in Slovakia in the context of age management, we decided to analyze the age of employees of the selected organization. By analyzing the age structure of the selected organization, we want to point out whether the company should pay more attention to age management in the future or not. Given that the author of the paper works within higher education, we decided to analyze this area in terms of age structure and specifically chose the University of Economics in Bratislava as one of the oldest and largest universities of economics in Slovakia. Before we present the age structure of all employees of universities in Slovakia.



Graph 4 Age structure of university employees in Slovakia as at 31 March 2020

Source: own processing based on data from the Ministry of Education, Youth and Sports of the Slovak Republic, 2020.

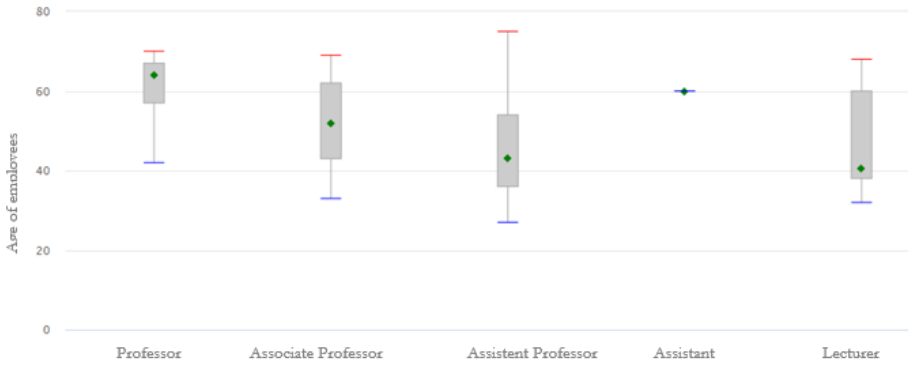
Based on data from the Ministry of Education, Science, Research and Sports of the Slovak Republic, we can state that as of 31 March 2020, a total of 14 028 employees are working full-time in Slovakia. Their age structure is shown in graph no. 4, based on we can state that the largest part of university staff consists of employees aged 30 to 49 years. If we would like to express this as a percentage, employees up to the age of 49 make up a total of 60 % of the total number of university employees. The remaining 40 % are employees over the age of 50 who currently belong to Age Management. For this reason, we can state that the trend of younger researchers under the age of 50 years persists in Slovak higher education.



Graph 5 Age structure of employees of the University of Economics in Bratislava at 31 March 2020

Source: own processing based on data from the Ministry of Education, Youth and Sports of the Slovak Republic, 2020.

As part of the analysis of the age structure of the employees of the University of Economics in Bratislava, you can determine that as of 31 March 2020, a total of 478 employees worked at the university in the positions of professor, associate professor, assistant professor, assistant and lecturer. Based on graph no. 5 it is possible, that the University of Economics also copies the trend of the development of the age structure of higher education in Slovakia, the largest percentage is represented by all employees who work between the ages of 30 and 49 years, namely almost 57 %. Despite the fact, that the highest number of age groups are employees aged 60 – 69 years, to whom the employer should pay more attention and focus on forecasts of future development, it can be assumed that this group of employees will be in a few years prevail over others.



Graph 6 Age structure of employees of the University of Economics in Bratislava at 31 March 2020

Source: own processing based on data from the Ministry of Education, Youth and Sports of the Slovak Republic, 2020.

The last subject of our research was the analysis of the average age of employees of the University of Economics in Bratislava according to job positions, resp. functional positions, which is shown in more detail in graph no. 6. From graph no. 6 the oldest employees at the university are employees in the

position of professor, which is also logical, as it is the highest scientific degree, which requires several years of experience and practice. In this case, the median age is 64 years. The positions of associate professors and assistant professors also follow a logical sequence about the age restrictions that are imposed on him. The median age for associate professors is 52 years and for professional assistants 43 years. From the point of view of gender, we can state that the average age for the position of professor is the same for both men and women. We note the differences in the position of associate professor, where the average age of men is 45 years and women up to 53 years. In the case of professional assistants, on average, men are younger, i. e. the average age of men is 40 years and women 44 years. This development can be attributed to the fact, that women reach individual positions in old age, as they have been devoting themselves to raising children for several years and remain on maternity leave when they are not actively working.

Conclusion

A significant increase in the number of seniors in retirement age will place a burden on pension provision in the future, and a significant increase in the oldest population (over the age of 80) will place an enormous burden, especially on health care and social services. In practice, this means a significant increase in pension recipients and a significant increase in clients using health and social services. The situation with social security is more complicated because the development of the number of productive and post-productive population is contradictory, which increases the economic burden on the population. In 2017, there were 45 people of non-productive age per 100 people of working age. In 2060, there will be 86 unproductive people per 100 productive people. Of these, 27 will be children under 15 and 59 seniors aged 65 and over. Thus, the burden on the productive population by the elderly will increase, for the period 2017 - 2060 it will be a 2.6-fold increase. As the number of children decreases more slowly than the number of people of working age, the burden on the productive population of the child component of the population will also increase, by a factor of 1.2. Overall, in the years 2017 - 2060, the economic burden on the population will increase 1.9 times. For the social insurance company, increasing the economic burden on the population means fewer contributors and more recipients, and thus problems with sustainability.

By analyzing the demographic situation, we found that Slovakia will undoubtedly have a problem with an aging population. Therefore, companies should consider the introduction of the Age Management concept system into their structures, think about how to create suitable conditions for employees and motivate older employees to stay in working life for as long as possible. In the case of older people, it is necessary to realize that it is they who have several advantages over the younger generations in the older productive age. The most important advantages of older employees are their experience, experience, expertise, reliability, opinion stability, responsibility, loyalty, low turnover, or

mature approach to people and the ability to help others and many other benefits. On the other hand, it must not be forgotten that younger employees have other skills that are also very important for the company. That is why it is very important to achieve diversity among employees.

References

1. CIMBÁLNÍKOVÁ, Lenka a kol. Age Management pro práci s cílovou skupinou 50+. Praha: Asociace institucí vzdelávaní dospělých ČR, 2012, 160 s. ISBN 978-80-904531-5-9.
2. DEMENY, Paul. Population policy dilemmas at the dawn of 21st century. In: Population and Development Review, 2003, č. 1, s. 1 – 28.
3. DEMENY, Paul. Policy challenges of Europe's demographic changes: From past perspectives to future prospects. In: Macura, M. (ed.): The New Demographic Regime: Population Challenges and Policy Responses. New York: United Nations, 2005, s. 1 – 9.
4. HOLMEROVÁ, Iva – VÁLKOVÁ, Monika – VAŇKOVÁ, Hana – JURAŠKOVÁ, Božena. Vybrané aspekty zdravotní a dlouhodobé péče o stárnoucí populaci. Demografie, 2011, č. 2, s. 140 – 151.
5. HORVÁTHOVÁ, Petra – BLÁHA, Jiří – ČOPÍKOVÁ, Andrea. Řízení Lidských zdroju – nové trendy. Praha: Manažment Press. ISBN: 978-80-7261-430-1.
6. ILMARINEN, Juhani. Ako si predĺžiť aktívny život. Starnutie a kvalita pracovného života v Európskej únii. Bratislava: Príroda, 2008. ISBN 978-80-07-01658-3.
7. Výskumné demografické centrum - INFOSTAT. [online]. [cit. 10.06.2020]. 2017. Dostupné na: http://www.infostat.sk/web2015/sk/index.php?option=com_content&view=article&id=536&Itemid=214.
8. KOCIANOVÁ, Renáta. Personální řízení východiska a vývoj. Praha: Grada. ISBN: 978- 80-247-3269-5.
9. Ministerstvo školstva, vedy, výskumu a športu Slovenskej republiky. [online]. [cit. 10.06.2020]. 2020. Dostupné na: https://www.portalvs.sk/regzam/stats/age2?range=1&date=2020-03-31&allow_annonym_employment=0&sex=2
10. NOVOTNÝ, Petr a kol. Age management: Jak rozumět stárnutí a jak na něj reagovat. Možnosti uplatnění age managementu v České republice. Plzeň: Grafia, 2015. 142 s. ISBN 978-80-904531-7-3.
11. OECD. [online]. [cit. 10.06.2020]. 2018. Dostupné na: http://www.oecd.org/pensions/pensionsataglance.htm.
12. PAUL, R. J. – TOWNSEND, J. B. 1993. Managing the older worker - don't just rinse away the gray. Academy of Management Executive.

13. PÁLENÍK, Viliam a kol. Strieborná ekonomika v slovenskom, európskom a svetovom kontexte. Bratislava: Ekonomický ústav SAV. 300 s. ISBN 978-807144-205-9.

14. SABOVÁ, Lenka. Vzdelávanie zamestnancov rozvoja ľudských zdrojov v oblasti vekového manažmentu [online]. Bratislava, 2013. Diplomová práca. Univerzita Komenského v Bratislave, Filozofická fakulta. Vedúci diplomovej práce doc. PhDr. Rozália Čornaničová, CSc. [cit. 2017-03-29]. Dostupné zna internete: http://www.promanager.sk/sites/default/files/Vzdelavanie_pracovnikov_rozvoja_ludskych_zdrojov.pdf

15. URBANCOVÁ, Hana. Age management. Praktické využití a přínosy. Praha: Wolters Kluwer ČR, 2017. 260 s. ISBN 978-80-7552-772-1.

16. VAŇO, Boris. Môžeme ovplyvniť proces starnutia obyvateľstva na Slovensku? In: Slovenská štatistika a demografia, 2015, č. 3, s. 59 – 69.

17. VAŇO, Boris. Súčasný a očakávaný populačný vývoj na Slovensku a jeho spoločenské a ekonomické dopady. Prognostické práce, 2015, č. 3, s. 273 – 293.

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SUGGESTION OF AGRO TOURISM DEVELOPMENT IN CHOSEN REGION OF SLOVAKIA

ODPORÚČANIA PRE AGROTURIZMUS VO VYBRANÝCH REGIÓNOCH SLOVENSKA

Erik WEISS – Roland WEISS – Katarína ČULKOVÁ

Abstract
Rural tourism and agro tourism are in present time considered as base for country development. Presented contribution is orientated to present state of agro tourism in chosen region of Slovakia and to the possibilities of its development by increasing of interest of tourism through suggestion of farmyard. According to research made by questionnaire we obtained data from respondents, speaking about need to develop agro tourism in chosen region of Slovakia. Results confirm that potential of tourism in the region is extensive, suggested farmyard could provide profit and attract tourists to the region, which would contribute to the regional development.

Key words: rural and agro tourism, regional development, Slovakia, farmyard.

Abstrakt
Vidiecky turizmus a agroturizmus sú v súčasnom období považované ako základ rozvoja krajiny. Predkladaný príspevok je orientovaný na prezentáciu štádia v akom sa agroturizmus nachádza vo vybraných regiónoch Slovenska a možnosťami jeho rozvoja prostredníctvom zvýšenia záujmu o turizmu na farmách. Na základe výskumu realizovaného prostredníctvom dotazníkov boli získané odpovede respondentov a výsledky naznačujú potrebu rozvoja agroturizmu. Výsledky tiež potvrdzujú potenciál tohto turizmu ako výrazný.

Kľúčové slová: vidiecky turizmus, agroturizmus, regionálny rozvoj, Slovensko, hospodársky dvor

Introduction

Changes in the society after 1989 brought market liberalization and boundaries opening. Countries of middle and Eastern Europe opened to the possibilities to attract new visitors from whole world and to provide them their uniqueness. European Union disposes with data from which results that during last 10-15 years there is increased demand and offer of agro tourism with average annual growth 10-15%. This value is even higher than value in area of tourism as a whole, where average annual growth in following period was 4-5%. Slovakia is country that despite developing industry and mass tourism is still disposing by beautiful nature, rich culture, deep forests that are far away from people from the cities. Village and agro tourism is opening therefore possibilities for people returning to the area of country with its tradition, culture and natural conditions. With aim to develop the area of agro tourism there is necessary to make research, enabling to find out possibilities for agro tourism development with increasing of tourists' awareness and possible attracting of new tourists to the regions of the country, contributing by this way to regional development of the state economy.

Village and agro-tourism presents special form of recreation in the country that uses possibilities of this country (Habán, Otepka, 2004). Rural tourism is often considered an economic alternative for rural areas facing decreasing profits and requiring a second or third economic footing. However, like other tourism activities, rural tourism results in a full range of environmental impacts. Kuo (2008) proposed an eco-inn, the environmentally friendly accommodation based on organic agriculture. The study of Muhammad et.al (2016) is concerned with the environmental impacts of agro-tourism activities.

To improve agro-tourism development and contribution to sustainable economic growth, appropriate capacity building programs on agro-tourism for local community, supported by government budget and/or corporate social responsibility programs will be helpful and useful. (Wayan, Ayu Ambarawati, 2014). Not only does rural tourism provide an additional source of income to the villagers but it also helps showcase the rural life and culture of the people, such as art, crafts, and heritage, etc., of the village and community (Lenka, 2014).

Methodology

Research of the interest about tourism and possibilities of agro tourism had been done by questionnaire during spring 2019. A total number respondent was 202 from different age group from whole Slovakia and 100% of questionnaires returned. Questionnaire consisted from 15 questions, consisted to following parts:

1. General questions: age, gender, country, social status, highest education
2. Questions, orientated to the experiences with agro tourism
3. Areas of agro tourism activities
4. Agro tourism and tourist travel

Materials and data

From total number 202 respondents 53% consisted from women – 108 women, and remain 47% were men – 94 men. As for the age groups, main participation had been from among 21-30 years – 55% - 111 questionnaires. From age group 31-40 years there was 13% respondents, as well as from 41-50 years. Over 51 years 14% respondents participated at the questionnaire. All requested had been from all regions of Slovakia.

Questionnaire had been filled by 23% - 46 unemployed. 10% - 20 respondents consisted from retiree and lowest group – 2% created women at maternity leave – 5 women. Social status presented 40% employed or businessmen, presenting 80% of returned questionnaire. Students created 25% - 51 students

Results of agro tourism research in the region

Due to the finding of agro tourism possibilities in the region following question had been processed:

1. Questions, orientated to the experiences with agro tourism: using and participation on agro tourism services, interest about this type of tourism.
2. Areas of agro tourism: sports activities, agriculture job, caring for animals, culture/ tradition
3. Tourist travel: would be developed rural and agro tourism reason for travelling? Where there would be attractive places for agro tourism?

Moreover questionnaire consisted also question about experiences with agro and rural tourism.

First of all the aim was to find out visitation of the chosen region. 52% respondents visited the region, mainly 105 visitors. Next question is about knowledge of agro tourism possibilities .The question had been answered by 63% - 127 people positively. 37% - 75 respondents did not hear about rural and agro tourism.

Next question is orientated to the participation in agro tourism, when respondents answered according results. Mentioned question had been answered differently. Yet 58%, presenting 116 respondents answered No. 22%, mainly 45 respondents did not know to answer the question. Only 20% answered Yes, which presents 41 requested people.

Following question had been orientated to the area of interest. First question is orientated to the sports activities. Questionnaire provided respondents by sports activities that can be experienced in agro tourism.

In the questionnaire there was also question, orientated to finding if people have interest to care and work with animal and connected activities. Also here there were more possibilities: animal milking, feeding, production of domestic products as for example cheese, butter, etc.

The last question in the questionnaire had to find out, in which areas and county cities of Prešov County would respondents welcome developed agro tourism.

Most answers - yet 77 respondents have chosen Humenné. Second rank belong „in all mentioned county cities“, presented by 50 respondents, followed by 40 respondents, Bardejov – 33, Levoča – 27, Snina – 27, Poprad – 24, Kežmarok – 22. Medzilaborce, Stará Ľubovňa and Vranov nad Topľou obtained equal vote. Equal vote – 13 – had been recorded at Svidník and Stropkov, and the least vote obtained Sabinov – 12 respondents. 8 respondents used possibility to add answer, most of who wrote that they do not care where they would like developed agro tourism and the remaining respondents wrote answers as other cities in Prešov Region.

Discussion

Due to the processing of suggestion for development of agro tourism in the region results of questionnaire had been considered. From the results we see that majority of respondents heard already about agro tourism. But in spite of this fact, yet 58% did not participate at agro tourism and 185 respondents from among 202 would have interest to participate. 93% respondents answered they would welcome development of agro tourism in some of the cities in the county.

There is therefore space for development of agro tourism in the region, where we suggested making it by 3D farmyard, illustrated at Figure, consisting from apartment block, farm building and arable land.

Figure 1 Farmyard visualization

Source: own processing

Apartment block

Apartment block would create two-floored house that is divided to two parts – ground floor and floor. Apartment block will serve for rent room for potential tourists – three two-bed rooms and sanitary facility. Kitchen at ground floor would serve for all inhabitants of the house.

Farm building

Farm building would be divided to two parts. One part serves for stocking of working equipment, tractor, mower and animal feed. Second part would serve for single animals, as hens, chickens, sheep, dugs, pigs. In the internal space of farm building there would be also two stalls for horses. Surrounding of farm building would serve as free moving of animal and feeding by natural food.

Arable land

Arable land would serve for farming of vegetables, potatoes, mainly for domestic consumption and seasonable sale, as well as farming of crops and animal feed.

Financing of the farmyard

Generally, people that want to realize farmyard, do not have enough financial sources for beginning of the farmyard realization. The construction of farmyard demands using of foreign sources. One of the possibilities is to use possibility of bank credit. In Slovakia there is number of banks, provided business credit. Volume of credit depends on costs of farmyard operation.

The cost of farmyard could be divided to two parts: input costs (fixed, investment, unrepeated) and followed by operation costs. In case of considered animals at farmyard, the cost could be calculated according Table 1.

Table 1 Costs of farmyard

Livestock – acquisition costs

	Number of pieces	Price /piece	Total EUR
Chicken – hen	40	3,2	128
Cock	3	0,5	1,5
Sheep – lamb	5	30	150
Ram	1	50	50
Rabbit – female	8	10	80
Rabbit – male	1	10	10
Horse	2	1500	3000
SUM			**3419,5**

Source: own processing

On the other hand, farmyard could bring incomes and revenues, created mainly from rent rooms for visitors. Following calculation (Table 4) shows annual and monthly income from rent rooms during various availability levels. Price is mentioned for rent of whole room per one night.

Table 2 Incomes from eggs sales

Calculation of incomes from rooms rent

	room/night	Number of day in year	Annual income at availability (EUR)			
			100%	75%	50%	25%
3 bed room	80 EUR		29 200	21 900	14 600	7 300
2 bed room	60 EUR	365	21 900	16 425	10 950	5 475
2 bed room	60 EUR		21 900	16 425	10 950	5 475
SUM annually			73 000	54 750	36 500	18 250
Average monthly incomes			**6 083**	**4 563**	**3 042**	**1 521**

Source: own processing

The model suggestion is somewhat simplified but sets out the direction in which it is necessary to orientate when creating a business plan, the pricing and generally in determining whether a business in agro tourism has a sense. It was also considered purely commercial solution without consideration of subsidies from the state, which would greatly facilitate the overall financing of the farmyard.

Conclusion

Rural tourism is one of the important forms of tourist travel. This form is growing rapidly then single tourism. Agro tourism as a part of rural tourism can contribute to the regional development mainly in Slovakia, where there are very good conditions for agro tourism growing.
The goal of the contribution was to find out possibility for development of agro tourism in chosen region of Slovakia and by this way to contribute to the regional development and tourism. The results confirm the fact tourist would welcome agro tourism through trying of traditional gastronomy, milking animal, planting, and work with agricultural machines and production of milk products. Due to the interest about agro tourism in the region there is suggested model of farmyard, financing from bank credit, but bringing considerable revenues and incomes, sufficient for covering of operation cost and credit payment.

References

1. HABÁN, M., OTEPKA, P., *Agro tourism (in slovak).* Nitra: SPU, 2004.
2. KUO, N. W., 2008. *Sustainable rural tourism development based on agricultural resources: The eco-inn initiative in Taiwan, International Journal of Agricultural Resources, Governance and Ecology*, 7(3), 229-242.
3. LENKA, S.K., 2014. *Socio-economic impact of rural tourism: A study on Padmanavpur village of Odisha.* Handbook of Research on Strategic Business Infrastructure Development and Contemporary Issues in Finance. 2014, 98-106.
4. MUHAMMAD, M., HAMZAH, A., YASSIN, S.M., SAMAH, B.A., TIRAIEVARI, N., D´SILVA, J.L., SHAFFRIL, H.A.M., 2016. *Environmental issues of agro-tourism: The view of coastal community in Malaysi´*, Social Sciences (Pakistan), 11(3), 192-195.
5. WAYAN, B.I., I.G.A., 2014. *Community based agro-tourism as an innovative integrated farmin system development model towards sustainable agriculture and tourism in Bali,* Journal of the International Society for Southeast Asian Agricultural Sciences, 20(1), 29-40.

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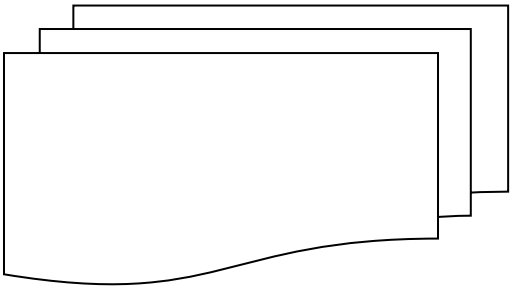

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