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VÝZVY, TRENDY A INŠPIRÁCIE NA TRHU PRÁCE 2022

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Faculty of Social and Economic Relations

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10. - 11. November 2022
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Tematické okruhy/Conference Topics

1) World Economy within the Industry 4.0
2) Digital economy and education system changes within the labour market demand
3) Human capital quality performance within the Slovak economy competitiveness

Program

Štvrtok / Thursday - 10. November 2022:

Online Registration ***9^{30} - 10^{00}***

Opening ceremony and plenary session ***10^{00} - 12^{00}***

- ***Adriana GRENČÍKOVÁ***

  Chairman of the Scientific Committee of the Conference, Alexander Dubček University of Trenčin

- ***Eva IVANOVÁ***

  Dean of Faculty of Social and Economic Relations, A. Dubček University of Trenčín

- ***Jana MASÁROVÁ***

  " Presentation of Projects VEGA no. 1/0689/20 and VEGA no. 1/0357/21"
  Head of the Department of Economy and Economics, A. Dubček University of Trenčín

- ***Marcel KORDOŠ***

  " Presentation of Project VEGA no. 1/0462/20 "
  Project representative, A. Dubček University of Trenčín

Keynote speakers:

- ***Martin HOŠTÁK***
  " CURRENT ISSUES IN THE ENTREPRENEURIAL ENVIRONMENT IN SLOVAKIA "
  The National Union of Employers

- ***Lucia LEDNÁROVÁ DÍTĚTOVÁ***
  " LABOR MARKET 2030+ - THREAT OR OPPORTUNITY "
  Manager of the Labor Market and Human Resources Department, TREXIMA Bratislava.

Lunch **12^{30} - 13^{30}**
Conference sections **14^{00} - 17^{30}**
Coffee break **15^{35} - 16^{00}**
Dinner and social event **18^{00} –**

Section 1 (CP105) - Industry 4.0 and Labor Market Changes

Chair: doc. Ing Adriana GRENČÍKOVÁ, PhD.

- ***Daniela NOVÁČKOVÁ – Silvia MATÚŠOVÁ***
  MODEL UDRŽATEĽNÉHO SOCIÁLNEHO PODNIKANIA
- ***Darina SAXUNOVÁ – Ingrid MELICHEROVÁ***
  FAKTORY OVPLYVŇUJÚCE VÝVOJ AUDÍTORSKEJ PROFESIE A VÝKONU AUDITU
- ***Ľuboš POLAKOVIČ***
  KOLAPS TRHU PRÁCE V ROKU 2026. MANAŽÉRSKY POHĽAD
- ***Silvia MATÚŠOVÁ – Vojtech KOLLÁR***
  VÝZVY CIRKULÁRNEJ EKONOMIKY NA TRHY PRÁCE A VZDELÁVANIA
- ***Petra MARKOVÁ – Miroslava MÍLKVA – Peter SZABÓ – Eliška KUBIŠOVÁ – Samuel JANÍK***
  THE BENEFITS OF DIGITALIZATION FOR THE LABOUR MARKET
- ***Jaromíra VAŇOVÁ - Natália VRAŇAKOVÁ - Augustín STAREČEK - Zdenka GYURÁK BABEĽOVÁ***
  SUSTAINABLE CORPORATE SOCIAL RESPONSIBILITY IN THE INDUSTRY 4.0 AND COVID-19 ERA
- ***Peter SIKA***
  STARNUTIE AKO PRÍLEŽITOSŤ PRE HOSPODÁRSKY RAST A INOVÁCIE V SLOVENSKEJ REPUBLIKE
- ***Henrieta ŠUTEKOVÁ***
  ZMENY NA TRHU PRÁCE V 21. STOROČÍ

Section 2 (CS101) - Digital economy and education system changes within the labour market demand

Chair: PhDr. Jana ŠPANKOVÁ, PhD.

- ***Eva HOKE – Romana HEINZOVÁ***
  CAUSES AND CONSEQUENCES OF THE CAPACITY CRISIS IN HEALTH CARE ORGANIZATIONS
- ***Ján DVORSKÝ – Marinko ŠKARE***
  EFFECT OF PERSONNEL ASPECTS ON SUSTAINABLE DEVELOPMENT OF SMES IN THE VISEGRAD REGION
- ***Michal HRNČIAR – Eva RIEVAJOVÁ***
  PRACOVNÉ MIESTA S NÍZKYM RIZIKOM OHROZENIA AUTOMATIZÁCIOU V PODMIENKACH SLOVENSKEJ REPUBLIKY
- ***Erika MOŠKOVÁ – Katarína BUGANOVÁ***
  BUSINESS INTERRUPTION LIKE AN INCREASINGLY FREQUENT THREAT TO THE BUSINESS ENVIRONMENT

Section 3 (CS102) – Human capital quality performance within the Slovak economy competitiveness

Chair: Ing. Magdaléna TUPÁ, PhD.

Section 4 (CS103 & online MS TEAMS) - World Economy within the Industry 4.0

Chair: Ing. Marcel KORDOŠ, PhD.

- ***Nadiia DAVYDENKO – Zoya TITENKO – Alina BURIAK – Inma DAMYANENKO***
  INVESTMENT PROVISION FOR THE CREATION OF NEW WORKING PLACES IN THE AGRICULTURAL SECTOR OF UKRAINE

- ***Andris OZOLS – Janis BICANS – Valdis AVOTINŠ***
  CHALLENGE OF LABOUR SUPPLY TO GROWING DIGITAL ECOSYSTEM: REVIEW OF IT SECTOR OPERATION IN LATVIA

- ***Ieva PETROKE – Valentinas NAVICKAS***
  MACRO-ENVIRONMENTAL FACTORS AND THEIR MUTUAL INTERACTION INFLUENCING THE DEVELOPMENT OF SHARING ECONOMY ON TOURISM SECTOR

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- ***Danka LUKÁČOVÁ***
  TRH PRÁCE V UČIVE ZÁKLADNÝCH ŠKÔL V SLOVENSKEJ REPUBLIKE

11. November 2022

Section 1 (CS101) - World Economy within the Industry 4.0; Digital economy and education system changes within the labour market demand

Chair: Ing. Karol KRAJČO, PhD.

- ***Eva IVANOVÁ – Veronika ŽÁRSKÁ***
  DIGITALISATION, THE LABOUR MARKET AND THE EDUCATION SYSTEM IN THE SLOVAK REPUBLIC

- ***Eva KOIŠOVÁ – Jana MASÁROVÁ***
  TRH PRÁCE VO VZŤAHU K VÝKONNOSTI EKONOMIKY

- ***Dana JAŠKOVÁ***
  FAKTORY OVPLYVŇUJÚCE VYUŽITIE ĽUDSKÉHO KAPITÁLU

- ***Jana SOCHUĽÁKOVÁ***
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- ***Katarína KRÁĽOVÁ***
  ROZVOJ ĽUDSKÝCH ZDROJOV V PODNIKU AKO PREDPOKLAD TRVALO UDRŽATEĽNÉHO ROZVOJA PODNIKU

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- ***Karol KRAJČO – Nikolaj SINIAK***
  HUMAN RESOURCES AND DIGITAL TRANSFORMATION IN COMPANIES

- ***Marcel KORDOŠ***
  THE ISSUES AND CHALLENGES OF SPANISH HEALTHCARE SECTOR WORKERS SPANISH LABOR MARKET CHANGES VERSUS INDUSTRY 4.0 ASPECTS

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OBSAH

Úvod

Medzinárodná vedecká konferencia „*Výzvy, trendy a inšpirácie na trhu práce 2022*“ nadväzuje na predchádzajúce úspešné konferencie z minulých rokov 2018, 2019, 2020 a 2021, ktorých zborníky sú evidované v databáze Web of Science spoločnosti Clarivate Analytics (roky 2020 a 2021 v procese evaluácie). Ide o sériu tradične poriadaných podujatí Fakulty sociálno-ekonomických vzťahov v oblasti riadenia ľudských zdrojov, personálneho manažmentu a trhu práce. Konferencia sa obyčajne koná v prostredí kúpeľného mestečka Trenčianske Teplice. Z dôvodu globálnej pandémie sa konferencia koná v hybridnom režime na pôde Fakulty sociálno-ekonomických vzťahov Trenčianskej univerzity Alexandra Dubčeka v Trenčíne a online prostredníctvom platformy MS Teams. Konferencia a predkladaný zborník tvoria sériu výstupov v rámci projektov *VEGA č. 1/0462/20 “Vyhodnotenie zmien v kvalitatívnej štruktúre medzinárodných ekonomických vzťahov pod vplyvom Industry 4.0 s implikáciou na hospodárske politiky EÚ a SR”, VEGA č. 1/0689/20 „Digitálna ekonomika a zmeny v systéme vzdelávania ako reflexia na požiadavky trhu práce“ a VEGA č. 1/0357/21 „Multiplikačné efekty kvality ľudského kapitálu na ekonomickú výkonnosť a konkurencieschopnosť ekonomiky SR“*. Zameriava sa na aktuálne otázky trhu práce a na oblasť riadenia ľudských zdrojov, vyhľadávania zamestnancov, pracovnej migrácie, sociológie, politológie, právnych disciplín, hospodárskej politiky, medzinárodných ekonomických vzťahov, medzinárodného obchodu, regionálneho rozvoja, demografie a na problematiku zavádzania nových technológií vo všetkých oblastiach spoločenského a ekonomického života.

Na plenárnom zasadnutí vystúpi Ing. Martin Hošták, PhD. z Republikovej únie zamestnávateľov a PaedDr. Lucia Lednárová Dítětová - TREXIMA Bratislava, spol. s r.o.. Medzinárodný vedecký a organizačný výbor zaručuje dosiahnutie vysokej kvalitatívnej úrovne uskutočnenej konferencie. Pod jeho vedením bude vydaný recenzovaný zborník príspevkov, ktorý bude zaslaný na indexáciu do databáz Web of Science spoločnosti Clarivate Analytics a Scopus spoločnosti Elsevier.

Cieľom konferencie je stanoviť základné otázky pre nezávislý základný výskum, ktorý bude realizovaný v rámci projektov VEGA, realizovaných na Fakulte sociálno-ekonomických vzťahov Trenčianskej univerzity Alexandra Dubčeka v Trenčíne.

Introduction

The International scientific conference *"Challenges, Trends and Inspirations within the Labor Market 2022"* builds on previous successful conferences from previous years 2018, 2019, 2020 and 2021 of which proceedings are registered in the Clarivate Analytics Web of Science database (2020 and 2021 within the process of evaluation). It is a series of traditionally organized events at the Faculty of Socio-Economic Relations in the fields of human resources management, personnel management, and the labor market. The conference usually takes place in the spa town of Trenčianske Teplice. Due to the global pandemic outbreak, the conference was held within the hybrid mode at the Faculty of Social and Economic Relations, Alexander Dubček University in Trenčín and online via the MS Teams platform. The conference and the presented proceedings belong to the series of outputs within the projects of Slovak Ministry of Education Grant Agency VEGA *reg. no. 1/0462/20 “The changes assessment within the qualitative structure of international economic relations under the influence of Industry 4.0 with implications for the EU and Slovak Republic economic policies”; VEGA reg. no. 1/0689/20 "Digital economy and changes in education system as a reflection on the requirements of labor market"; and VEGA reg. no. 1/0357/21 "Multiplier effects of human capital quality on economic performance and competitiveness of Slovak economy"*. The conference scope is focused on current labor market issues and human resources management, job search, labor migration, sociology, political science, legal disciplines, economic policy, international economic relations, international trade, regional development, demography and the new technologies implementation in all areas of economic and social life.

The plenary session will be held by the keynote speakers Ing. Martin Hošták, PhD. - The National Union of Employers and PaedDr. Lucia Lednárová Dítětová - TREXIMA Bratislava, spol. s r.o. The International Scientific and Organizing Committee guarantees to meet the high-quality level of the conference. Under its leadership, a peer-reviewed collection of papers within the Conference proceedings will be issued and published and submitted for indexing to Clarivate Analytics' Web of Science and Elsevier's Scopus databases.

The goal of the conference is to outline the principal questions set for the independent basic research, which will be executed under the VEGA projects being solved at the Faculty of Social and Economic Relations, Alexander Dubček University in Trenčín.

THE USE OF PROJECT MANAGEMENT WITH REGARD TO INCREASING THE SUCCESS AND SUSTAINABLE DEVELOPMENT OF ENTERPRISES IN THE SLOVAK REPUBLIC

***Michal BRUTOVSKÝ*[1]**
***Erika MOŠKOVÁ*[2]**

Abstract: *Project management is currently one of the most frequently used tools for optimising and innovating processes as well as introducing changes. In any project management that operates in the current dynamic environment of corporate projects, managers should focus on increasing the safety of activities and processes, which is a prerequisite for increasing the success of the implemented project activities of enterprises from the point of view of risk and sustainable development. Raising awareness of the possibilities and approaches to risk management in project management supports the success of implemented activities, the development and increase of the knowledge level of all interested parties. The aim of the article is to present the conclusions of a statistical survey that mapped interest in key project topics such as optimisation, innovation and transformation during the COVID 19 pandemic in Slovakia in comparison to neighbouring countries over the course of one year.*

Key words: *development, enterprise, management, project, risk*

JEL Classification: *O3, I25, L2*

1. INTRODUCTION

In today's turbulent business environment, projects are the main tools for optimising and implementing innovation and are characterised by their uniqueness and uncertainty. Businesses in Slovakia are making great efforts to address the challenges associated with the current business environment to ensure their success and sustainability. For this reason, it is a prerequisite that managers are interested in the possibilities of using projects as a tool for introducing change and achieving corporate goals. By optimising production, business but also administrative processes, companies can save financial resources and at the same time increase efficiency.

The pressure of the business environment to improve performance and the ability to respond flexibly has become a factor that ensures the success, prosperity and competitiveness of a business today. Therefore, project management is used to plan and execute complex, usually one-off actions that need to be carried out in the required time with the planned costs in order to achieve the set objectives. In the context of the COVID 19 pandemic in particular, project management has emerged as an appropriate tool to reduce the risk of failure to achieve objectives. However, it is not suitable for dealing with a crisis as such, where specific activities are needed as part of crisis management.

Project management is currently one of the most effective ways to manage change and solve strategic or other important tasks in companies or organizations. It is about planning, delegating, monitoring and managing all aspects of a project, motivating stakeholders and achieving project objectives within the expected parameters of time, cost, quality, scope, benefits and potential risks.

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2. PROBLEM FORMULATION AND METHODOLOGY

The business environment in Slovakia is affected by the current global situation and the impact of the Covid 19 pandemic, the conflict in Ukraine and the related energy crisis, as well as the unstable political situation and environmental changes. To ensure sustainable development and business success, companies need to focus on optimisation, transformation and innovation of key processes. Globally, project management is one of the most widely used tools for implementing change and achieving business objectives within the constraints of time, cost and quality at the output.

The aim of the paper is to present the findings of a statistical survey that mapped the interest in key project topics such as optimization, innovation and transformation during the COVID 19 pandemic in Slovakia in comparison with neighbouring countries over a period of one year. In line with the stated aim, the methodology of the paper was chosen. In the first part of the article, an analysis was made, focusing on project management and key themes such as optimization, transformation and innovation. Empirical research and analysis, synthesis and comparison of data from statistical surveys were used to assess the current state of interest in project topics in Slovakia and to draw conclusions.

3. PROBLEM SOLUTION

A project is seen as an activity that needs to be planned, thought through and implemented. The following definitions and terminology are the most common in the literature and have their own specificities depending on the methodology or standard in which they occur. A project is a temporary effort aimed at creating a unique product, service or result (PMBOOK®Quide, 2013). The Prince2 methodology defines a project as a temporary organisation that is created for the purpose of delivering one or more products in accordance with an agreed project rationale (PRINCE2®2009). The aim of the project is to bring about change in the form of a new product design, an organisational change or a change in the processes that are carried out in the enterprise.

Project management is the application of knowledge, skills, tools and techniques to project activities so that the project meets its requirements. It involves planning, organising, monitoring and reporting on all aspects of the project and motivating all those involved to achieve the project's objectives (ICB – IPMA Competence Baseline 2006). Project management is closely related to concepts such as optimization, innovation and transformation. By linking project management activities with other automated activities within a company's information and management systems, work tasks are optimised and thus costs are minimised. Nowadays, innovation and innovation capability of an enterprise is considered as a necessary condition for its competitiveness on global markets. According to the European Commission, innovation is defined as the renewal and extension of the range of products and services and their associated markets, the creation of new methods of production, supply and distribution, the introduction of changes in management, work organisation, working conditions and the qualifications of the workforce (Inovačný, 2017).

In an era of increasing globalisation and digitalisation worldwide, innovation is becoming an increasingly important determinant of business success. It provides businesses with higher growth, increase efficiency, competitiveness and enable businesses to create new markets. Particularly in the current dynamic period, the need for innovation is even greater, as has been highlighted by the current pandemic, during which businesses have been forced to react quickly and flexibly to market changes. Despite the fact that there is already support for innovative enterprises in Slovakia and efforts to create an innovation-friendly environment, Slovakia's innovation performance still lags behind other (mainly Nordic and Western) EU countries, which can be ranked among the global innovation leaders (Inovačný, 2020).

Every company that wants to be competitive in today's globalized market needs to innovate and projects are the tool for innovation, therefore one of the key monitored topics in project management was focused on innovation. The pandemic has also shown that businesses that have focused on digital innovation are able to adapt quickly to new situations. Projects focusing on digital business transformation are on the rise, as several studies show that this digital progress will continue as the transition to digital business is now considered safer and brings with it an increase in profits. Businesses will also focus on building resilience, automating other tasks and encouraging consumers to maintain some of their new digital habits that require fewer face-to-face interactions (Aureusplus, 2022).

Recently, building business resilience has been linked to project management. For some time, the term resilience has been used in project management research to address the ability to organize under a variety of scenarios of uncertainty and sudden change, including disruptions in the form of shocks or stressors. Resilience research goes beyond traditional project risk management and the assumption that humans can manage risks. Risks are potentially unknown in advance and therefore unmanageable, and projects are inherently sensitive to external shocks (Bredillet, 2016). Recently, Nachbagauer and Schirl-Böck (2019) argued that past project management research has neglected risk and uncertainty in hierarchical planning and a control-oriented approach, whereas we need a resilient approach based on self-organization.

4. PROBLEM RESULTS AND DISCUSSION

Raising awareness of the possibilities and approaches to risk management in project management promotes the success of implemented activities, the development and increase of the knowledge level of all stakeholders. The Google Trends tool was used to gather information on the interest in key project topics, which allows to get an overview of the search for keywords or phrases during a defined period of time. The reason for this was the fact that the primary information we want to obtain about a particular issue is gathered through the Internet. The key project management topics were statistically analysed over a period of one year 2/2020 - 2/2021. This period is specific due to the impact of the ongoing COVID-19 pandemic. The latter is expected to result in an increased interest of industrial enterprises in project management topics such as optimization, innovation and transformation in any environment. A comparison between the Slovak Republic and the neighbouring countries of the Czech Republic, Austria, Hungary, Poland and Ukraine was made as part of the analysis. The obtained statistical outputs provided interesting insights.

How the Slovak Republic performs in comparison with our neighbouring countries can be seen in the overview of Table 1.

Table 1: Comparison of interest in project topics in Slovakia and neighbouring countries

Optimisation		Innovation		Transformation	
Country	**Ranking**	**Country**	**Ranking**	**Country**	**Ranking**
Austria	72	Austria	137	Ukraine	28
Ukraine	142	Czech Republic	153	Czech Republic	78
Czech Republic	145	Hungary	167	Austria	97
Hungary	152	**Slovakia**	**168**	**Slovakia**	**122**
Poland	156	Ukraine	177	Hungary	139
Slovakia	**164**	Poland	181	Poland	145
Countries total	170	Countries total	193	Countries total	154

Source: prepared by authors, according to Google Trends (2021)

The obtained results showed that the Slovak Republic ranks 164 out of 170 countries surveyed in terms of interest in the field of optimisation. In comparison, all neighbouring countries ranked better, namely Austria ranked 72 and the Czech Republic 145.

The innovation results confirmed the previous trend that Slovakia is not exploiting the potential of project management, ranking 168 out of 193 countries. Compared to the 5 neighbouring countries surveyed, Slovakia ranked 4th, with less interest in the topic of innovation in Poland and Ukraine. Austria ranked best at 137.

In the last area examined, focused on transformation, Slovakia ranked 122 out of 154 countries surveyed. Interestingly, Ukraine ranked 28th among the countries surveyed. This was indicative of a desire to transform business activities to a competitive level, which has now been prevented by the military conflict in Ukraine. Austria and the Czech Republic are also focusing on transformation projects to a greater extent than Slovakia.

Project management is perceived as a tool to achieve the company's objectives within the set time, quality and within the agreed budget. Awareness and knowledge level about project management and risk management in it is crucial for successful project implementation. Most importantly, projects in these three topics are currently the most in demand.

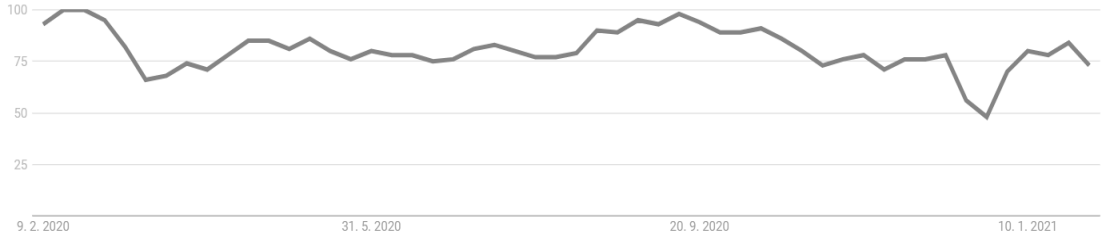
As a result of the significant disruption caused by the global COVID-19 pandemic, many companies and institutions around the world are experiencing ongoing difficulties. These difficulties are exacerbated by the consequences of the ongoing conflict in Ukraine, the energy crisis, etc. Therefore, more time is needed to enable the systems to meet the conditions of the originally set time windows and timelines for the different project processes. This should logically lead to a higher interest in the mentioned topics, because well-optimised and innovated processes or transformed complex systems bring this advantage. The implementation of project activities has a very broad focus, whether it is the overall transformation of the company, the transformation of the IT structure, the start-up of a new product line, the implementation of a new information system, the purchase of production equipment, the optimization of processes, the construction of a customer centre, etc. Figure 1 shows that there was no significant increase in interest during either the first or the second wave of the pandemic. Paradoxically, a downward trend can be observed.

Figure 1: Evolution of the global interest in the project topic "optimisation" via Google search over the period 2/2020 – 2/2021

Source: prepared by authors, according to Google Trends (2021)

Same as with the topic of optimisation, the topic of innovation did not see any ground-breaking interest during the pandemic waves. This is based on the fact that innovation projects entail a higher level of risk than conventional projects. The higher the level of inactivity, the higher the level of risk and often the financial burden of the project, which companies were not willing to take during the pandemic. The development trend in Figure 2 can be considered stable.

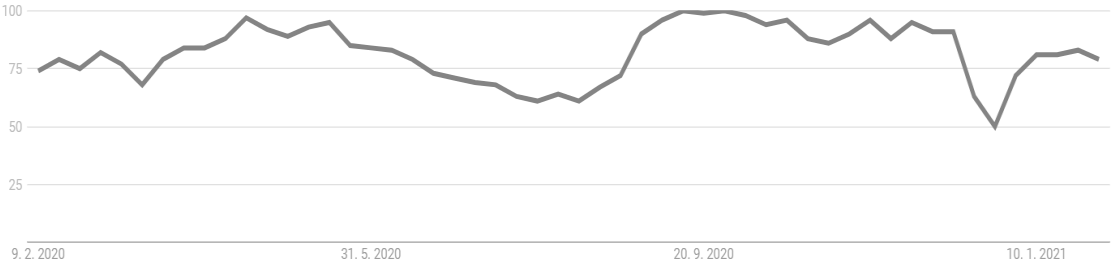
Figure 2: Evolution of the global interest in the project topic "innovation" via Google search over the period 2/2020 – 2/2021



Source: prepared by authors, according to Google Trends (2021)

Figure 3 shows that the transformation theme has seen several increases. This indicates that businesses have shown interest in complex systems change rather than focusing on process improvement.

Figure 3: Evolution of the global interest in the project topic "transformation" via Google search over the period 2/2020 – 2/2021



Source: prepared by authors, according to Google Trends (2021)

The transformation of the company is usually aimed at increasing the efficiency of the company, which was a very important aspect at the time of the pandemic in terms of optimising costs and ensuring continuity of processes. If enterprises can get the continuous

improvement process right, they can make more optimal use of internal resources and succeed in a highly competitive environment.

The obtained results were confirmed by the Survey on Project Management in Slovakia conducted in July - September 2020, which was attended by 237 respondents from different levels of project management. Answers to the question focused on the room for improvement in the field of project management were oriented towards increasing awareness of the importance and benefits brought by experienced professionals in project management, a clear definition of the position of the project manager, his/her competencies and responsibilities. Also the need to introduce project management into government administration, to train people, to raise awareness and expertise (IPMA, 2020).

The latest project management statistics also show that 58% of organisations fully understand the value of implementing project management as a way to achieve better performance. This means that 42% of companies underestimate the importance of project management as a key component of project success. A robust project management system undoubtedly increases the chances of success, saves costs and reduces risk. Project management "Pulse" statistics show that high-performing organizations with project management best practices are 2.5 times more likely to meet their original goals (89% vs. 34%). Also important is the fact that risk management is one of the most prevalent practices and only 3% of respondents said they never use risk management practices (PMI, 2022).

5. CONCLUSION

Project management is one of the tools to increase the success and promote the sustainable development of a company. It is widely used at a time when improving the efficiency of business processes is essential and concepts such as optimization, transformation and innovation are part of everyday managerial decision-making. It is clear that managers have to learn to live with uncertainty and projects are a tool where we can take uncertainty into account and manage the risks associated with future developments. A successful project manager is one who can envision the entire project from start to finish and is able to achieve the set goals. Raising awareness of project management and its application in practice would improve the position of Slovak companies in the global competitive market.

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RISKS ASSOCIATED WITH THE PROVISION OF SUITABLE WORKING CONDITIONS AND THEIR SIGNIFICANCE IN IMPROVING THE PERFORMANCE OF EMPLOYEES IN SPORTS ORGANISATIONS IN SLOVAKIA

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Katarína BUGANOVÁ[4]

Abstract: *A prerequisite for a successful organization is satisfied employees who have created adequate working conditions. A suitable working environment and conditions play an important role, especially in sports organizations and their employees, providing room for improvement and performance growth. Employers realize that employees are key because their potential and ability to perform satisfactorily are directly linked to adequate working conditions and the working environment. This contribution aims to point out the risks associated with ensuring suitable working conditions and their importance in the field of motivation, increasing the satisfaction and performance of employees in sports organizations in Slovakia. For sports organizations in a dynamically changing environment, the retention or acquisition of employees is one of the key attributes that determine the degree of its success and viability.*

Keywords: risks, employees, working conditions, sports organizations, performance

JEL Classification: *J240, J810, M540, M550*

1. INTRODUCTION

Nearly all living and working situations changed as a result of the COVID-19 pandemic (e.g., remote working, virtual communications), requiring ongoing adaptation to shifting circumstances and navigating an unpredictable environment. Due to the pandemic, sports organizations had to deal with a variety of stressors, including an increase in workload, the possibility of being laid off or fired, the risk of contracting the virus, difficulties in communicating with athletes, a rise in athlete mental health issues, and ongoing operational and safety changes. Stress brought on by COVID-19 may have severely hindered people's resources, resulting in a high degree of stress that eventually led many to consider quitting their jobs as a solution to reduce stress. Indeed, due to a more constrained ability to get resources that would mitigate stress, these alterations may have endangered people's ability to resist stress (Hobfoll 1989; Chun et al. 2022).

The number of sporting facilities is growing, which is escalating rivalry within the sector that operates these facilities. For a sports facility, the function of staff who interact directly with clients at service points is essential to thriving in a cutthroat market. Particularly, a leader's management of a sports center organization affects how its members behave. It has a significant impact on organizational success since it dictates the operational direction and job performance. Having supportive coworkers can reduce stress and make it easier to attain goals since social relationships can actually have stress-reducing effects (Hobfoll 2002; Hrabek et al. 2020). The ability of an organization to continue being financially and socially sustainable has been stressed by sports organizations as a critical component of the managerial strategy for decades. Self-leadership is being emphasized as a crucial component for the sustained success of an organization and is one of the internal marketing methods to respond flexibly to

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the quickly changing business environment (Hutchens et al. 2020; Neck et al. 2006; Stenling et al. 2006).

The instability of the business environment of sports organizations has brought several issues that need to be considered in ensuring their competitiveness. A stable working environment and working conditions are a prerequisite for enhancing the performance of employees in sports organizations and are affected by several risks and this topic will be addressed in this article.

2. AIM AND METHODOLOGY

Sports organizations and their activities are an essential component of contemporary society, within which they fulfil several important functions. In addition to the social aspect of sporting activity, organizations active in this field have a particularly important place as part of the national economy, where they create a significant number of jobs. The aim of this article is therefore to analyze and present the issue of the risks associated with ensuring appropriate conditions for employees in the sports sector and the importance of these conditions in the motivation and performance of these individuals. Indeed, one of the specificities of the business of sports is that the success or failure of an organization is very closely linked to the performance of its athletes, which is the basis for other important indicators determining the state in which the organization finds itself.

In line with this objective, an appropriate methodology was chosen for this paper, which consists of the use of empirical research methods, analysis, synthesis, and comparison of data obtained from previous research and scientific literature in this area using exploratory research methods. Based on the above, it is possible to construct a comprehensive framework taking into account the environmental factors acting on sports organizations and describing the relationships between the individual components useful for a closer understanding of the issue of risks and their potential impact.

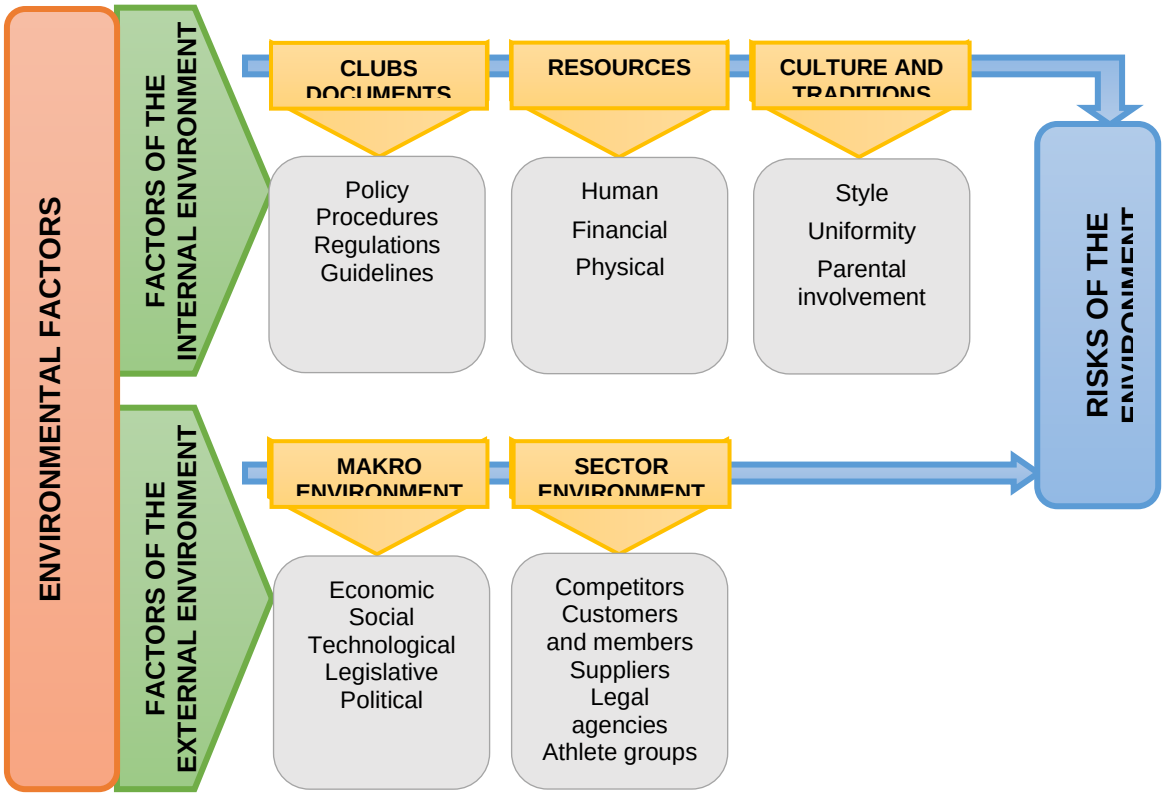
3. THE IMPACT OF THE WORKING ENVIRONMENT ON EMPLOYEE PERFORMANCE

The work environment and the factors that determine it are one of the key areas with a major impact on the employees of an organization and thus on their work performance. Employees are one of the most important elements in an organization, and the basic requirement for the success of an organization in a market environment lies precisely in sufficient motivation, reward, and care, all of which should ultimately lead to sufficient employee satisfaction. In this context, human resource management is used as a tool designed precisely to ensure and implement appropriate management of employees in the internal environment of the organization and is the answer and the means to create appropriate internal conditions to stimulate employee performance (Diamantidis et al. 2018; Park et al. 2019).

When addressing the issue of the impact of the environment on employee performance, it is particularly useful to recognize that organizations operating in a dynamically changing environment are influenced to a very high degree by specific factors of the external environment, which are also reflected in their internal environment. In this context, it can be stated that the ability of an organization to provide the appropriate conditions for an optimal level of performance and satisfaction of its employees is largely determined by its ability to cope with the effects of external factors (Adámik 2020; Buganová et al. 2021). To further understand the impact of the environment on the organization, it is necessary to define the components of the environment itself. This can be divided into the external environment, representing the influence of factors that originate outside the organization, and the internal environment, whose factors originate from within the organization. The external environment

can be further divided into the global environment, the macro-environment, and the micro-environment. From the organization's point of view, it is further necessary to realize that in a globalized market, the organization itself has very little influence on the factors of the external environment and therefore, in the vast majority of cases, cannot actively change this environment according to its needs (Buganová et al. 2021; Robinson 2010; Varmus et al. 2019). The specific conditions based on the individual components of the external environment have significant impacts on the situation in the organization and thus also on the functioning of the internal environment. The impact of these environments in their specific conditions determines the satisfaction and performance of the employees working in the organization (Figure 1).

Figure 1: External and internal environmental factors influencing the success of sports organizations (adapted from Buganova et al. 2021, Robinson 2010, Varmus et al. 2019)



Source: Manažment rizík v športových organizáciách, Sport club management, Manažment športových organizácií

The eventual success or failure of sports organizations is largely determined by internal and external environmental factors, which can be assessed at the following levels:

- Macro-environmental factors primarily influence the decision-making of managers in individual organizations, but may not directly affect a specific area or activity associated with its operation. Very significant in the environment of the Slovak Republic, in this case, is the influence of legislation, the impact of which is manifested primarily in the area of their financing (the amended Act on Sport).
- Industry environmental factors are those that directly affect the activities and functioning of organizations and have an impact on the achievement of their objectives. These include influences from competitors, athlete groups, members of the organization's legal agencies, etc.
- Factors from the internal environment directly affect the organization and determine

its very character. These primarily include internal documents, and resources of the organization, considered important from the perspective of sports organizations, including club documents, resources, club culture, and traditions. Cultural and traditional or values factors also strongly influence sports organizations in terms of the external environment (Buganová et al. 2021).

However, it should be noted that the specific environmental factors of the organization have a major impact on the employee's performance. For this reason, the conditions in which the employee performs his or her work activity must be taken into account in the evaluation. Kravčáková (2014) states that this area includes mainly conditions at the workplace, the level of technical security, organizational provision of work, remuneration system, safety, spatial arrangement of the workplace, social relations at the workplace and, last but not least, the level of management and the attitude of superiors (Bednárik 2013; Kravčáková et al. 2020). Thus, by taking a proactive approach to improving the conditions in which employees perform their duties, the organization can more or less influence the level of their performance and thus the level of quality of the work performed. It is in the fundamental interest of any organization that its employees perform adequately and thus make a substantial contribution to its development.

3. WORKING ENVIRONMENT IN SPORTS ORGANISATIONS IN THE SLOVAK REPUBLIC AND RELATED RISKS

Sports organizations should be able to respond to and deal with the risks posed by specific aspects of their business environment appropriately. However, risks may also present certain opportunities that provide organizations with room for growth and further development. In this context, it is most appropriate to reflect on the topic of the implementation of a risk management process in sports organizations, both in relation to their business activities and the impact of the working environment on the performance of their employees.

In the environment of the Slovak Republic, the issue of sports organizations and their functioning has entered general awareness, especially with the crisis associated with the pandemic COVID-19. Currently, there are a total of 7233 entities operating in Slovakia that can be considered sports organizations. These organizations can be further classified into different types, with different types of organizations having different representations. It should be noted that a sports organization can be registered in several types of organizations (Table 1) (Buganová et al. 2022).

Table 1: Representation of individual types of sports organizations within the Slovak Republic

TYPE OF ORGANIZATION	REPRESENTATION IN THE SR
	Quantity
National sports organizations	4
National sports associations	74
Sports associations	208
Other sports organizations	447
Other sports organizations	832
Sports clubs	5678

Source: Increasing The Competitiveness And Sustainability Of Sports Organizations Through Risk Management

According to the Slovak Sports Portal administered by the Ministry of Education, Science, Research and Sport, there are currently a total of 349,358 natural persons registered in the Slovak Republic who are active in the field of sport, either within sports organizations or

independently of them. A large number of these persons can be considered employees of sports organizations in various positions. According to the information from the portal, the activities of these persons are classified into several groups. As in the case of the register of organizations, a single natural person can be registered under several types of activity (Table 2).

Table 2: Representation of different types of sports activities of natural persons in sport

TYPE OF ACTIVITY OF A NATURAL PERSON	REPRESENTATION IN THE SR
	Quantity
Amateur athlete	324399
Professional athlete	1468
Trainer	13695
Instructor	2776
Sports massage therapist	1832
Organizer	6588
Main organizer	7397
Security Manager	298
Union delegate	707
Sports referee	7365
Another sports expert	20989
Controller	566
Functionary	9035
Doping Commissioner	1

Source: Register fyzických osôb v športe

A large part of the natural persons listed in Table 2 can be considered employees of sports organizations in Slovakia. This category does not include referees and doping commissioners, who by their activities should be independent of individual organizations and interest groups that appear in the sporting field. According to data from the Statistical Office of the Slovak Republic, a total of 2 409 199 natural persons were employed in the national economy in the second quarter of 2022. Individuals employed in sports organizations, therefore, represent almost 13% of all those employed in the Slovak Republic (Legal 2022; Statistic 2022).

Sports organizations represent a rather specific category of organizations. They move in the sports business environment, which shows certain differences compared to the normal business environment. In the current conditions, sports business and sports organizations are becoming a global phenomenon, with their activities expanding very rapidly. As a result of this rapid and wide expansion, sports are becoming an extremely complex sector that requires specific forms of management and approach in its particular circumstances. One of these specificities is the involvement of a relatively large number of stakeholders, which can include the community of athletes, fans, sponsors, customers, community and non-governmental organizations, as well as governments and public authorities. In recent years, the sport has increasingly become an important component of the national and international economic environment and its impact in this area is growing (Escamilla-Fajardo et al. 2020; Pellegrini et al. 2020; Tükel 2020). Sports entrepreneurship has two main aspects: sport and business. Although the two aspects represent different perspectives on sports entrepreneurship, they are ultimately integral and inseparable parts of it. In the field of sports business, three main objectives can be defined that sports organizations pursue in their activities: *making a profit; achieving sporting results; making a profit, and achieving sporting results at the same time.* The management of a sports organization should keep these groups of objectives in mind and should understand that to succeed in the field of sports business it is necessary to pursue both the sporting and the business side of this activity (Varmus 2019).

The basic characteristics of an entrepreneur include an emphasis on risk-taking. Generally speaking, people in the field of sports are risk takers, regardless of what activities they engage in this field. Groups that take risks in sports include not only athletes but sport event organizers, officials, coaches, club owners, and others. The degree of risk-taking behavior of individuals in sports depends on their characteristics, including entrepreneurial and physical risk. There is now an increasing emphasis on activities related to the care of employees. As employers increasingly recognize that their employees - their potential, ability, and capacity to perform satisfactorily - are the key to progress, caring for them is one of the most important HR activities. Today, sports organizations are affected by several risks that can fundamentally threaten their operations or eventual survival. The main feature of such risks is the high degree of variability and dynamic occurrence based on external and internal factors. In terms of employee performance, sports organizations are currently most frequently threatened by destabilization of the working environment closely linked to fundamental changes in the external environment of the organization, the negative impacts of the COVID-19 pandemic (canceled events, closed venues, reduced or no access to training for athletes). Another important factor is the conflict in Ukraine, which puts international sporting events at risk, or the participation and participation of foreign athletes in sporting events in general. In the Slovak Republic environment, there are specific other risks, such as funding cuts and the subsequent lack of financial resources in the organization, which are the main causes of their failure. One of the most pronounced problems of today is the energy crisis, which carries several risks for sports organizations, mainly related to the almost unsustainable operation of sports venues. Closely linked to the energy crisis is the political instability, not only at the national level but also across the whole of Europe, which is also affecting the working environment in the sports sector. In terms of the internal environment, the risks stem mainly from cultural and interpersonal relations, insecurity and unsuitable working conditions, inappropriate management, lack of opportunities for career progression and development, and lack of recognition for individuals and groups. The physical risks caused by the effects of the COVID-19 pandemic on the health and performance of staff, which will continue to occur in the long term, must also be taken into account (Buganová et al. 2022; Hudáková et al. 2022).

Experts dealing with this issue also mention the following risk factors: poor sports performance and its impact on club funding and fan interest, rising costs associated with the current economic situation, loss of fan interest and subsequent economic and performance decline for organizations, problems arising from injuries to athletes, or the low number of sports venues and their inadequate condition, often requiring major renovation. A particular factor, in this case, is the political obstacles accompanying the acquisition of some foreign athletes as a result of the Russian attack on Ukraine (Adámik 2020; Buganová et al. 2021; Hrabek et al. 2020; Marsh 2020; Zajíčková et al. 2020). Furthermore, organizations operating in the field of sports face a range of business, innovation, and social risks that also have a direct impact on their internal environment (Oliver 2006; Kedar-Levy 2008). Business risks are most often taken by team owners and organizations offering multi-million contracts to athletes based on the assumption of their future performance. In addition, the cost of expanding stadiums and increasing franchise fees add to the operational risk. Similarly, event cancellations are generally considered to be a type of event failure. In this area, several main reasons have been identified that cause event failure: deficiencies in strategic planning and financial decision-making, increasing competition in markets, conflicting and socially unacceptable behavior of participants or adverse weather conditions, military conflicts, and epidemics (Poczta et al. 2020).

Thus, the performance and success of a sports organization are largely dependent not only on financial security, efficient management, and material and technical equipment, but the main and decisive factor is the employees or human resources. Satisfied employees are good employees who can perform better in meeting their needs. To provide them with a stable working environment, sports organizations need to implement risk management in their

management systems. They can make use of the ISO 31000:2019 Risk Management Standard - Guidelines, which apply to all types of organizations. Prevention in terms of risk assessment and management will enable them to prepare for adverse circumstances that may arise from the nature of their business environment, enabling their employees to work in a stable environment and focus on their performance, and thus also be able to improve the overall competitiveness of their organization.

4. CONCLUSION

The business of sports, like any other business in general, takes place in an environment that is inherently unstable and exhibits a high degree of variability. The factors that cause this instability therefore also affect the sports organizations themselves and fundamentally determine the degree to which they succeed or fail. One of the main tasks of organizations operating in such an environment is to ensure the highest possible degree of stability regarding the conditions of their internal and external environment to create a stable working environment that enables their employees to improve their performance. It is the topic of employee performance that is one of the key issues in sports organizations, as their success or achievement is measured, among other things, by the sporting results they exhibit.

It is imperative for employers to be aware that employees represent one of the key resources of any organization, as their potential and ability to perform satisfactorily are directly linked to adequate working conditions and the working environment. To this end, it is necessary to continuously highlight the potential risks associated with ensuring appropriate working conditions and, in particular, their importance in motivating, and enhancing the satisfaction and performance of employees in sports organizations in Slovakia. Not only retention but also the ability to attract quality employees is one of the key attributes that sports organizations should possess to survive, and cope with crises and their future development. Emphasis on this area should therefore be an integral part of the sports business itself.

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INVESTMENT SECURITY FOR THE CREATION OF NEW JOBS IN THE AGRICULTURAL SECTOR OF UKRAINE

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Abstract: *The welfare of the population living there is at the heart of the recovery and development of rural areas of any country. Today, lack of jobs, unemployment, is often a problem in Ukrainian villages. Employment of the population in rural areas has its own character and peculiarity. The most acute problems of the rural population are poverty; labor migration; unemployment; decline of social infrastructure; the deepening of the demographic crisis and the death of villages, which are directly related to the sphere of employment. Population employment is one of the main indicators of transformational processes in the economy. A characteristic feature of the rural labor market at the current stage is the preservation of a long-term negative trend in the growth of both open and hidden unemployment among the rural population. The crisis in the last ten-year period led to a sharp reduction in the demand for labor both directly in rural areas and beyond. The purpose of the article is to determine directions of investment support for the creation of new jobs in the agricultural sector of the economy. The practical significance of the work is that the author's conclusions, new provisions and factual material enrich the source base of the researched problem, expand the cognitive canvas of economic literature.*

Key words: *demographic crisis, investment support, jobs, rural settlements*

JEL Classification: *E20, E27, H32, J10, J43*

1. INTRODUCTION

In the light of the activation of the European vector of the development of the economy of Ukraine, the implementation of the European experience in the development of rural areas is gaining special relevance. At the current stage, the main problem of the development of rural areas of Ukraine is the reduction of rural settlements and the aging of the population. Ukraine has significant agricultural potential with scientifically based technologies and experienced personnel. However, agrarian and land reforms led to a socio-demographic crisis in rural areas of Ukraine. Thus, over a long period of time in Ukraine, the population of villages is decreasing, the rural settlement network is shrinking. The changes that have taken place here during the past quarter of a century are amazing. Thus, at the beginning of 2021, there were officially 28,254 rural settlements in Ukraine, which is 408 units. less than on the date of the last preliminary survey (01.11.2005), conducted by the State Statistics Service of Ukraine (Lanchenko, 2019), and by 616 settlements less than at the beginning of 1990. In addition, 394 settlements (1.3% of their total number) had no population at all, but they were not removed from the register. The reduction of the rural settlement network was accompanied by a significant decrease in the density of the rural population both in Ukraine as a whole and in individual regions.

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2. PROBLEM FORMULATION AND METHODOLOGY

Yes, we believe that unemployment and poverty of the rural population remain the main problems hindering the effective development of rural areas. These processes led to significant migration processes observed in Ukraine in recent years. An important place is occupied by pollution of the natural environment in rural settlement networks, which is far from the incentive that makes the rural area attractive for investment. Such trends led to the flow of negative consequences not only in rural areas, but in the entire state. Under such circumstances, a necessity arises activation of entrepreneurial activity as a key driver of socio-economic development of the village. It requires the implementation of a comprehensive comprehensive policy for the development of rural areas, which would provide for the creation of favorable conditions and the formation of a favorable environment for the existence of business in the agrarian sector of Ukraine.

In the process of research, general scientific and special methods were used, in particular: dialectical - to determine the relevance and theoretical basis of the investigated problem; abstract-logical - for determining the essence and relationship of economic categories and forming conclusions; monographic, economic-statistical, system analysis - for the study and analysis of socio-economic indicators of the development of the agrarian sector; graphic - for processing and providing visualized information, generalization method - for summarizing.

3. RESULTS

Activation of investment activities of agricultural employers of Ukraine is of great importance for reproductive processes in the agrarian sector of the economy of Ukraine, improvement of the structure of means of agricultural production, quality of manufactured products and increase of jobs in the agrarian sector of the economy. An unsatisfactory situation has developed in the field of employment - there is a rapid reduction of the labor force in the agricultural sector, but alternative jobs have not been created, which increases migration flows in the direction from the village to the city or other countries of the world.

Agricultural enterprises invest mainly in technical renewal and re-equipment of the machine-tractor park to ensure the timely implementation of all agro-technological techniques. A positive trend is the increase in the amount of capital investment in the construction of premises (buildings and structures), in particular for animal husbandry, and their reconstruction. Reproduction of the fixed assets of agricultural employers requires a larger volume of investments, special credit provision of working capital, the formation of a system of state support and the corresponding organizational and economic mechanism of investment in the agricultural sector. Deterioration of indicators of financial and economic activity of animal husbandry caused their investment unattractiveness, which made further growth of the agrarian economy impossible.

When assessing the investment potential of the agricultural sector, it is first of all important to pay attention to the volume of capital investments, which allow companies to earn income for many years due to the addition or improvement of production capacities and improvement of operational efficiency. For a long time, own funds accounted for up to 87% of capital investments in the agricultural sector. Unfortunately, for most small and medium-sized agricultural enterprises, their own financial resources are not enough to ensure extended reproduction and development. Data on the inflow of capital investments show that (Table 1):

Table 1: Indicators of the dynamics of the inflow of capital investments into the Ukrainian economy

Indicator	2017	2018	2019	2020	2021
Capital investments in the economy, million hryvnias.	448461,5	578726,5	623979,0	508217,0	528802,0
Growth rate of investments in the economy, %	124,7	129,1	107,8	81,4	104,1
Capital investments in agriculture, UAH million.	63400,7	65059,5	58555,0	50189,0	49127,4
Specific weight of investments in agriculture, %	14,0	11,3	9,4	9,9	9,3
Growth rate of investments in agriculture, %	127,6	102,7	90,0	85,7	97,9

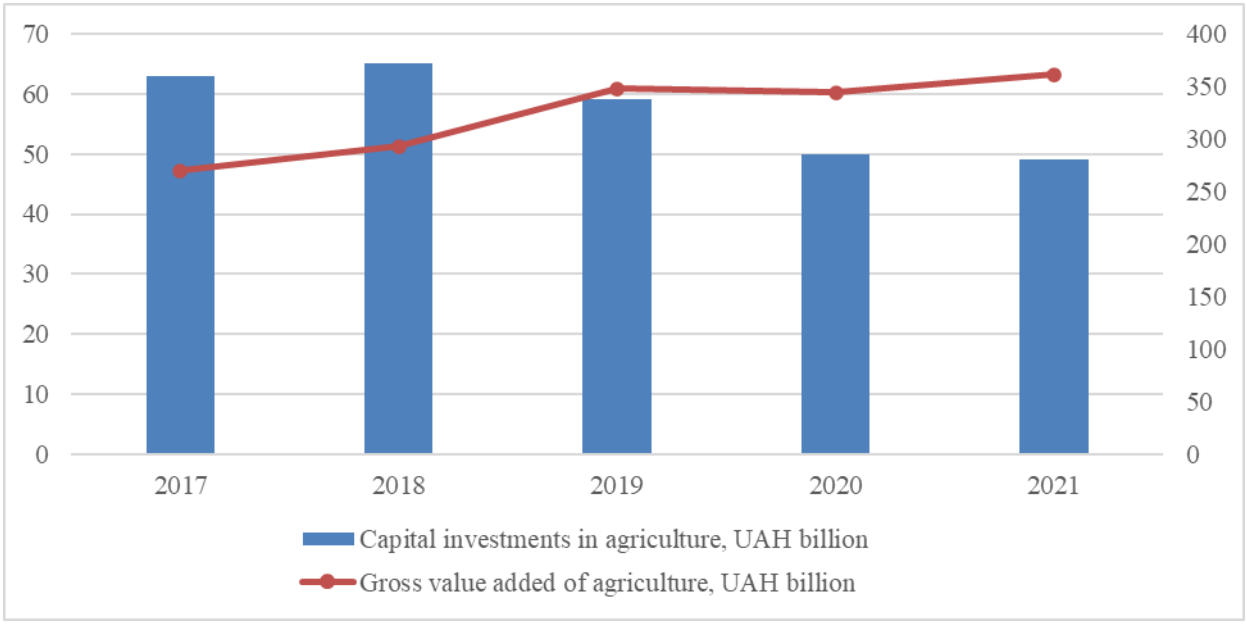
Source: calculated by authors based on data Kernasyuk, 2022

- capital investments in the Ukrainian economy have been growing in recent years, although a noticeable decrease in this dynamics in 2020-2021 due to the Covid-19 pandemic;

- capital investments in agriculture have slightly decreased since 2019 compared to previous periods;

- the specific weight of investments, as well as the rate of growth of investments in agriculture, shows a downward trend, which partly demonstrates the real state of the sector's investment attractiveness. At the same time, the indicator of capital investments in the agricultural sector has an unstable trend, in particular, investments in the sector are disproportionate to production, as shown in Figure 1.

Figure 1: Comparison of production and capital investments in the agricultural sector of Ukraine.



Source: constructed by the authors.

According to the State Statistics Service of Ukraine, the total added value in 2020 was UAH 3,595 billion, and the added value of agricultural products was UAH 344 billion (Table 2).

Table 2: Added value of agricultural production in Ukraine

Indicators	2015	2017	2018	2019	2020
Gross value added, million hryvnias	1689387	2516906	3017896	3421628	3594990
Gross added value of agriculture, million hryvnias	232368	270395	293162	347501	344023
% of gross value added	13,8	10,7	9,7	10,2	9,6

Source: Compiled by authors based on data Kernasyuk, 2022

According to Table 2, the share of agricultural production in the economy has decreased by 4.2% over the past five years, which is quite significant and indicates the gradual loss of importance of agriculture in the economy. In 2020, the growth of added value in all industries amounted to 5%, and in agribusiness it decreased by 1%. In addition, there are also certain problematic aspects of assessing the effectiveness of the current model of agricultural production development, which are associated with the formation of an unbalanced structure of industry specialization, when the gross output of crop production significantly exceeds livestock production (Kernasiuk, 2022).

The decrease in the number of agricultural enterprises also led to a reduction in the number of their employees. This, in turn, led to a situation in which the dismissed workers had to search for new types of employment. The most successful and active ones, who had access to the necessary resources, started their own entrepreneurial activities.

An important element in the assessment of investment potential is the well-being of the population, which is expressed in the ability to have a stable job and a high salary. 17.1% of the country's population is employed in agriculture, which is a fairly high indicator, and also confirms the importance of this industry for the employment of the population (Table 3). In particular, it is important for rural employment, which includes entrepreneurs and owners of agrarian businesses. The analysis of the dynamics of employment indicates the unevenness of work: the most employed were in 2019 - 3 million people, and in 2020 - about 9% of people lost their jobs. But in general, the decrease in employment in agriculture is logical, since the level of automation of crop and livestock production processes is increasing every year. The average monthly wage in the agricultural sector was UAH 9,757 in 2020. It should be noted that in 5 years, the level of wages in agriculture increased by 2.5 times, which affected the interest of the population to work in this field.

Table 3: Employment in agriculture of Ukraine

Indicators	2015 year	2017 year	2018 year	2019 year	2020 year
Number of employed population, thousands of people	16443,2	16156,4	16360,9	16578,3	15915,3
Employed in agriculture, thousands of people	2870,6	2860,7	2937,6	3,010,4	2721,2
Employees, thousands of people	5930	5844	599,5	6369,6	6213,7
The number of agricultural workers, thousands of people	569,4	558,1	545,7	535,0	499,9
Share of the population employed in agriculture, %	17,5	17,7	18,0	18,2	17,1
Share of employees employed in agriculture, %	9,6	9,5	91,0	8,4	8,0
Labor productivity in agriculture, thousand UAH	624,0	755,4	867,7	928,6	857,2
Average monthly salary in agriculture, UAH	3309	6057	7557	8856	9757
The share of agrarian wages in relation to the average wage, %	78,9	85,3	85,2	84,4	84,2

Source: calculated by authors based on data Kernasyuk, 2022

According to data for 2020, the average salary of the population in agriculture is 84.2% of the average salary in the country. At the same time, the peak of wage growth in agriculture was observed in 2017-2018, after which the level of wages in agriculture decreased compared to other sectors of the economy. Today, the automation of agriculture is considered a cornerstone of its future development, as the reduction of labor costs leads to a decrease in the cost of production, which allows more export contracts to be concluded.

At the national scale, the directly proportional impact of investment volumes on the employment level is confirmed by the results of research by Yu. M. Marshavin. He substantiated three levels of influence of investments on the functioning of the labor market. At the first level, investments form the quantitative and qualitative composition of jobs in construction, in enterprises and in industries that produce means of production. The second level of interaction between investment and employment consists in the formation of new jobs created at the stage of investment impact of the first level, and the modernization of existing ones. At the third level, investments, causing structural shifts in the components of the macroeconomic system, contribute to the development of highly profitable industries and enterprises. The elements of labor market regulation are defined as: investments; interest rate on loans; taxes; net export; consumer spending; development of entrepreneurship (Marshavin, 2013).

In agriculture, there is a trend of significant differentiation of forms of management, namely, the concentration of production in large agricultural holding companies on large areas of agricultural land, and the production of labor-intensive agricultural products in rural households, and the production of medium-sized employers is decreasing. However, these agricultural holdings are not recorded in the statistical accounting, since the holding (parent) company can own property or a corresponding share of property in various agricultural enterprises, which according to the accounting can fall into different categories: large, medium, small and micro enterprises.

In the agricultural economy of Ukraine during the last decade, there is a trend of increasing investments, but the social and labor problems of the development of the industry remain unresolved. In connection with the intensification, introduction of innovations and improvement of technical and technological equipment of any production, the problem of "substitution of labor by capital" arises (Zoyarna, 2011). However, due to the conservative features of the development of labor-intensive types of agricultural activity - cattle breeding, pig breeding and fruit growing, where automation, electrification and mechanization of technological processes have already reached a high level, and many labor techniques are difficult to adapt to these processes, then such a problem is less threatening in ensuring rational employment in the field (Zakharova, 2010).

G. T. Kulikov, having studied the methodological and practical principles of creating new jobs, generalized the value approach to their assessment (Kulikov, 2015). This is necessary for analyzing the costs of creating new jobs, forecasting their number and value for the future, determining the amount of investments in fixed and working capital. A trend of increasing the cost of creating one workplace in Ukraine has been established, which indicates the need to increase investment volumes. It is different depending on the country, region and type of economic activity.

In general, the average cost of creating 1 workplace in the agricultural sector of the economy is UAH 999.1 thousand. Then, in order to ensure additional rational employment in agricultural enterprises of 938.7 thousand people, it is necessary to attract 937.9 billion UAH of investment resources. Thanks to the increase in rational employment in the formal sector of the agrarian economy, the state can receive additional financial resources of UAH 160.6 billion every year (taxes and fees, savings from unemployment benefits and utility subsidies) (Lanchenko, 2019).

4. CONCLUSION

Today, the domestic labor market remains in a state of crisis, in need of change, as well as adaptation to global standards. In modern conditions, the main factors affecting the processes taking place in the labor market are: structural restructuring of the economy, in particular, the predominant development of the agricultural sector; accelerated economic growth; increasing the potential of entrepreneurship; scientific and technical progress, informatization of society; state regulation of labor potential development, labor market and employment.

Among the labor market regulation tools, the most promising are those that take into account the objective influence of global trends and are aimed at activating innovative employment, entrepreneurial activity of the population, ensuring the balance of the educational services market and the labor market, forecasting the volume and structure of demand and supply in the labor market, increasing competitiveness of specialists and expanding the circle of decent jobs. The development of organic agriculture in the countries of the world has shown a number of advantages for the village, which can be implemented in Ukraine as well: creation of new jobs in rural areas; increasing the efficiency of the functioning of small farms due to the diversification of agricultural products; increasing the income of agricultural enterprises and, as a result, increasing the budgets of rural communities, other positive social changes that are extremely relevant for the state.

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EFFECT OF PERSONNEL ASPECTS ON SUSTAINABLE DEVELOPMENT OF SMES IN THE VISEGRAD REGION

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Abstract: *The aim of the article is to quantify and evaluate the impact of personnel aspects on the sustainability of small and medium-sized enterprises in the business environment of the countries of the Vyšehrad Group. Empirical research was carried out on a sample of 1,585 small and medium-sized enterprises in four countries of the European Union. The questionnaire was filled out by the owners or top managers of the enterprises. Correlation analysis and linear regression analysis were used to evaluate the scientific question and statistical hypotheses. The subject of the investigation was personnel risks, such as employee turnover, employee error rates, or employee interest in learning. Sustainable development was characterized as the company's ability to remain in the business environment for the next five years. The results yielded interesting findings. All personnel aspects affect the sustainability of the company. Employee turnover is the most important determinant that has the strongest influence on the company's survival in the business environment.*

Key words: *linear regression, small and medium-sized enterprises, personnel risks, sustainable development, Visegrad region*

JEL Classification: *L22, L26, M51*

1. INTRODUCTION

A characteristic feature of the countries of the Visegrad Group is cooperation and common interest in the framework of European integration. This region has a strategic location in the European Union because it is in the center of Europe (Sacio-Szymańska, 2016). Dvorsky et al. (2022) said, that there is a relationship (strong connection) between the attractiveness of the business environment and the stage of the transformation process of each country. It is typical for the business environment of the countries of the Vyšehrad region (V4; Slovak Republic, Czech Republic, Poland, Hungary) that it is a young market economy (time: 30 years - after 1989). Membership in the European Union was an important step for every country from the V4 region. The positive impact on the business environment (BE) is considered indisputable in every country (Buganova et al., 2021).

Witkowska (2007) thinks that the integration and implementation of European policies has an impact on several PP indicators of the V4 region. The BE of the V4 region is affected by: i. conducting business, ii. competition, iii. consumer protection, iv. environment, v. socio-economic cohesion policy and also policy towards SMEs. The integration of these elements supports the improvement of BE and better quality of BE in the V4 countries. On the other hand, Nežinský & Fifeková (2014) state that the development of the BE of the V4 countries progressed differently.

Risk is defined as something unstable, indefinite, related to a phenomenon that disrupts his purposeful behavior. Significant business risks that negatively affect SME business include: sources of economic risk (e.g. macroeconomic environment, monetary policy and interest rates, corporate financing); market risk (e.g. loss of customers, intense competition in the industry, market stagnation) (Virglerová et al., 2021); sources of financial risk (e.g. insufficient profit of the company, indebtedness of the company, outstanding receivables,

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inability to repay obligations) (Civelek et al., 2019); sources of political risk (e.g. legislative environment, state regulation and business support, state bureaucracy) (Kozubikova et al., 2019); sources of security risk (e.g. accidents and external threats (floods, fire, ...), misuse of information, low security (safety and health protection at work), property crime) (Hudáková & Masár, 2018); sources of operational risk (e.g. insufficient utilization of production capacities, old production equipment, low level of innovation, increasing number of complaints) (Panić et al., 2019) as well as sources of personnel risk (e.g. employee turnover, employee error rate) (Gede Riana and coll., 2020). She also defined other business risks, such as competition and a narrower business environment (e.g. Dvorsky et al., 2021).

Research question: Does the management of personnel risks affect the sustainable development of small and medium-sized enterprises in the countries of Central Europe? If yes, what is the magnitude and direction of this effect?

Article structure: the introduction contains important facts about the SME segment and specific information about the Visegrad Group countries, the research question and the structure of the article. The literature review contains two important parts: financial factors and sustainable development of SMEs. The next part contains the aim of the article, research methodology, statistical hypotheses, statements - variables, statistical methods, respondent structure. Conclusion: objective of the paper, most important results, limitation of the case study, future research activities.

2. LITERATURE BACKGROUND

Belas et al. (2019) characterizes the quality of the business environment (QBE) based on the subjective evaluations of entrepreneurs on the following statements: our QBE is of high quality and suitable for business; QBE is reasonably risky in our country and allows us to do business; business conditions have improved in our country over the past 5 years; QBE is suitable for starting a business with us.

On the other hand, other authors use objective metrics to evaluate the business environment, for example the business environment index (Volintiru et al., 2018; Thurik & Wennekers, 2004). One of the determinants of the QBE is personnel risks (Cepel, 2021).

Johnson (1996) defines human capital as the practical knowledge, acquired skills and learned abilities of an individual that increase their potential productivity and enable them to earn in exchange for work.

Many authors dealing with the relationship between human capital and economic growth simply equate human capital with schooling (e.g. Okay-Somerville & Scholarios, 2019). Human capital is one of the determinants of economic growth along with land, labor, capital and technological progress (Batt, 2000). HRM case studies show that employees' voluntary efforts increase their productivity (Mura et al., 2017). It also creates a competitive advantage for the organization (Valizade et al., 2016).

It is important to develop positive interpersonal relationships between individuals working at different levels of the organization (Alnoor, 2020). As employees cooperated with others in building social-interpersonal relationships, this confirmed the need for employee association and belonging (Afsar et al., 2018). The theories of social exchange and reciprocity explain how “the behavior of managers and coworkers determines the quality of these relationships and influences the judgment of employees (Redmond & Sharafizad, 2020).

In 2017-2018, the authors investigated the perception of key sources of personnel risk on a sample of 487 managers in the Slovak business environment (Hudáková & Masár, 2018). The authors consider the following sources to be significant: high employee turnover rate,

insufficient employee qualification, employee mistakes (industrial accidents) and reduced work morale and discipline (Hudáková & Masár, 2018).

Oláh et al. (2019) in 2017-2018 investigated perceived non-financial risks among small and medium-sized enterprises in V4 and Serbia on a sample of 2110 entrepreneurs. The sources of personnel risk were formulated in the same way as in the previous case study (Hudáková & Masár, 2018). The results showed that SMEs in the Czech Republic perceive personnel risk most intensively within V4.

There are several causes of employee turnover in companies and they can be divided into external and internal influences on employees (Duan et al., 2020). The quality of internal communication between employees, the influence of a senior manager on an employee (Adamopoulou et al., 2016). Internal influences are characterized as health problems associated with employment, stress, social media and family ties (Smith et al., 2018).

Human errors are common and can have a significant impact. They can lead to defective products, wasted time, endangering employees, increasing employee stress levels, customer dissatisfaction, etc. (Keith & Frese, 2005). To solve them, companies must have an effective error management system in place. Top managers and owners should address the causes of employee mistakes and their impact on company performance. This attitude is particularly important for SMEs because they have limited resources and small structures that give them less room for error (Kotaskova et al., 2020). If SMEs want to minimize and avoid the negative effects of employee mistakes, managers need to develop the skills and awareness to understand them and effectively minimize and address them (Dysvik & Kuvaas, 2008).

3. AIM, METODOLOGY, DATA AND METHODS

The aim of the article is to quantify and evaluate the impact of personnel aspects on the sustainability of small and medium-sized enterprises in the business environment of the countries of the Vyšehrad Group.

Data collection was carried out in V4 countries in the period 2019/2020. 8,250 SMEs in the Czech Republic were randomly selected; 10,100 SMEs in the Slovak Republic; 7,680 SMEs in Poland and 8,750 SMEs in Hungary. The following SME databases were used: CRIBIS (CR, SR); Central Statistical Office of Poland (PL), Chamber of Commerce and Industry in Budapest (H). Data collection criterion. First: only the owner of the top manager of a small and medium-sized enterprise (SME; SME up to 249 employees) could complete the questionnaire. Second: Respondents' attitudes must be homogeneous. The questionnaire was distributed by e-mail address (online version) and SMEs were also contacted by phone. The research data includes 1,585 respondents. The research sample consisted of 1585 (100%) SMEs in V4: CR - 454 SMEs (28.6%), SR - 368 SMEs (23.2%), PL - 364 SMEs (23.0%) and HU - 399 SMEs (25.2%). Only the owner or top manager of the SME (hereinafter referred to as the respondent) could complete the questionnaire.

The questionnaire contains 77 questions with the following parts: i. sociodemographic characteristics of the SME and the owner/top manager; ii. CSR statements, ethics, future and business failure, sustainable development of SMEs; iii. Business factors (market, financial, personnel, strategic, operational and legal aspects). The questionnaire was compiled in the respondent's native language (4 versions of the questionnaire) - better understanding for the respondent. The questions in the questionnaire were formulated randomly. The questionnaire for better understanding was created in the national languages of the respondents (e.g. the Czech questionnaire is currently available on the Internet at the following link "https://forms.gle/okjZypAru4BpSHFb8"). The questions were randomly assigned to the questionnaire because the authors examined the consistency of the respondent's answers. The questionnaire was secured in such a way that it was not possible to fill in the questionnaire

automatically using a computer. Average return of questionnaires: CR: 5.5%; SR: 3.6%, PL: 4.7%, HU: 4.6%. The sample size test was carried out at MSP in SPSS software. The results showed that 668 SMEs are needed at the 95% confidence level to detect an effect of a given size.

The subject of the investigation were the following variables (independent - PERs, dependent - SDs), whose selected descriptive characteristics are the subject of table no. 1.

Table 1: Formulation of variables and evaluation of their descriptive characteristics

Items	*Independent variables – Personnel risk (PER)*	*M*	*STD*	*SK*	*KU*
PER₁	I assess the personal risk in the company as reasonable and does not have a negative impact on my business.	2.599	1.058	-0.461	0.418
PER₂	Employee turnover is low and does not have a negative impact on my business.	2.495	1.232	-0.758	0.483
PER₃	The error rate of employees is low and does not have a negative impact on my (our) business.	2.478	1.115	-0.517	0.506
PER₄	Our employees strive to improve their performance and work competitiveness prevails among them.	2.666	1.055	-0.506	0.259
SD	***Dependent variables – Sustainable development (SD)***	***M***	***STD***	***SK***	***KU***
SD₁	As an owner (manager), I understand the obligation to prevent the failure of my company and to take appropriate and adequate measures to prevent it without delay.	1.604	0.832	1.244	1.674
SD₂	Our (my) company is not in danger of failure in the next 5 years.	2.346	1.130	-0.221	0.649

Note: M – mean, STD – Standard deviation, SK – skewnees, KU – kurtosis.
Source: own data collection.

To fulfill the main goal of the article, the following hypotheses were formulated:

Hi_SDi_PERj: The selected indicator of personnel risk (PERj) has a significant impact on the selected indicator of sustainable development of SMEs (SDi), where: i = 1.2; i – indicator of sustainable development of SMEs; j = 1,2,3,4; j – indicator of personnel risk.

The structure of the respondents with regard to the selected characteristics (except for the country of business; see table 1) is the subject of table no. 2.

Table 2: Structure of respodennt according to the selected demographic characteristics

Type of Company		**Length of Business Operation**		**Business Sector**	
Micro Business	61.6%	Less than 3 years	9.3%	Service	35.3%
Small Business	23.4%	3 – 5 years	8.8%	Retailing	16.3%
Medium-sized Business	15.0%	5 – 10 years	15.8%	Manufacturing	17.0%
Legal Form		More than 10 years	66.2%	Construction	9.8%
Sole trader	30.2%	**Education to Business Sector Relationship**		Tourism	2.8%
Limited liability company	56.7%			Agriculture	6.1%
Joint stock company	6.0%	Related	43.3%	Transportation	3.3%
Other	7.1%	Related to some extent	32.6%	Another area	9.5%
Highest Academic Degree				**Gender**	
		Not related	24.1%	Male	68.2%
		Age		Female	31.8%
High school with school leaving qualification	28.1%	Less than 35 years of age	19.7%	**Position in the SME**	
		Aged between 33 – 44 years	30.0%	Owner	26.6%
Bachelor	14.3%	Aged between 45 – 54 years	28.5%		
Ing/Master	50.0%	More than 55 years of age	21.8%	Manager	73.4%
PhD	7.5%				

Source: own data collection.

Linear regression modeling (LRM) was applied to quantify causal relationships between dependent and independent variables. All variables (SDs, PERs) are evaluated on the same scale (same metrics - 1 "strongly agree" to 5 "strongly disagree"). The statements are formulated so that the respondents' positive attitudes towards the independent variables (PERs) linearly converge to positive attitudes towards the dependent variables (SDs). The assumption of normal distribution of variables was verified by calculating descriptive characteristics such as skewness and kurtosis. Correlation analysis – pairwise correlations of the coefficients were calculated and the results were presented in a modified correlation matrix. The t-test was applied to evaluate the statistically significant pairwise coefficient. The least squares method was used to estimate the regression coefficients (RC) of the independent variables. RC is statistically significant if the p-value of the t-test is less than the significance level. The general form of a linear regression model (LRM) is:

$$LRM_i : SD_i = \beta_0 + \beta_1 \times PER_1 + \beta_2 \times PER_2 + \beta_3 \times PER_3 + \beta_4 \times PER_4 + \varepsilon_n \quad (1)$$

where: i = 1,2; i – indicator of sustainable development of SMEs; j = 1,2,3,4; j – indicator of personnel risk.

The verification of the linear regression model was carried out according to the regression characteristics: MCC - Multiple correlation coefficient; R2 - Coefficient of determination, Adj. R2 - Adjusted coefficient of determination, SE - Standard error, Df. - Degree of freedom, SS - Sum of squares, MS - Mean square. The impact of negative dependencies between independent variables in the LRM was verified by the variation influence factor (VIF; critical value = 5 and above). Autocorrelation was not checked because the research data set is not time series data. The Shapiro-Wilk test (S-W test) was used to verify the normal distribution of errors. Homogeneity of variances was verified according to Bartlett's test. The level of significance was 5%. The result was calculation and implementation in IBM SPSS Statistics software.

4. EMPIRICAL RESULTS

4.1 Verification of dependences between variables

The modified correlation matrix of dependencies between personnel risk indicators (PERs) and dependent variables (SD_1 and SD_2) is presented in Table 3.

Table 3: Overenie závislosti medzi premennými – PERs, SDs

MCM	***SD₁***	***SD₂***	***PER₁***	***PER₂***	***PER₃***	***PER₄***
PER₁	0.197***	0.222***	1			
PER₂	0.218***	0.159*	0.492***	1		
PER₃	0.189**	0.197***	0.397***	0.621***	1	
PER₄	0.150*	0.145*	0.336***	0.368***	0.434***	1

Note: MCM – Modified correlation matrix. Statistical significant correlation on the level of significance 0.1%; 1%**; 5%***.*
Source: own data collection.

The results of the correlation matrix (see Table 3) show that there are statistically significant dependencies between the personnel risk indicators (PER_1, ..., PER_4). All dependencies are positive. The strongest positive dependence can be observed between employee turnover (PER_2) and employee error rate (PER_3; r = 0.621). On the other hand, the results show that the paired correlation coefficients between PERs and SD_1 or between PERs and SD_2 are statistically significant, but with weak positive value dependencies.

4.2 Effect of personnel risk on the ability of the owner/manager to prevent the failure of the SME

Verification of the statistically significant influence of personnel risk indicators on SD_1 is

shown in table no. 4.

Table 4: Verification of the effect of personnel risk on the SD_1

Regression characteristics					
Multiple correlation coefficient				0.2509	
Coefficient of determination				0.0629	
Adjusted coefficient of determination				0.0606	
Standard error				0.8059	
Total number of respondents				1585	
ANOVA - LRM_1					
ANOVA	*Df.*	*SS*	*MS*	*F- ratio*	
Model	4	68.9201	17.2300	26.5269	
Error	1580	1026.2572	0.6495	*p-value*	
Total	1584	1095.1773		0,000	
Estimate and verification of regression coefficients					
Independent variables	*RC*	*SE*	*t-Stat*	*p-value*	*VIF*
Constant	0.9962	0.0669	14.8861	0.0000	-
PER_1	0.0799	0.0225	3.5579	0.0004	1.5842
PER_2	0.0772	0.0224	3.4501	0.0006	2.1768
PER_3	0.0422	0.0142	2.9718	0.0122	1.8727
PER_4	0.0385	0.0218	1.7657	0.0776	1.0146

Note: RC – Regression Coeficient ($\beta_{1,\dots,}\beta_4$); t-Stat – Student-test criterion. Source: own data collection.

The results (see table no. 4) show that the proposed regression model of linear relationships between the ability of the owner/manager to prevent the failure of SMEs and the indicators of personnel risk is statistically significant (F-ratio: p-value = 0.000). The proposed regression model explains only 6.06% of the variability of the dependent variable. Statistically significant SD_1 indicators are: PER_1; PER_2 and PER_3. Now we proceed to the formulation of the linear regression functions:

$$LRM_1 : SD_1 = 0.996 + \mathbf{0.079}\times\mathbf{PER_1} + \mathbf{0.077}\times\mathbf{PER_2} + \mathbf{0.042}\times\mathbf{PER_3} + 0.038\times PER_4 + \varepsilon_n \quad (2)$$

kde: SD_1 – ability of the owner/manager to prevent the failure of SME*; j = 1,2,3,4; j – indikator of personnel risk.*

VIF test values did not demonstrate the presence of multicollinearity in the regression model (see table no. 4). Homoscedasticity was confirmed (Bartlett's test: p-value = 0.376). The normal distribution of the deviations was confirmed by the S-W test (S-W test: p-value = 0.271). Hypotheses H_1_SD_1_PER_1, H_1_SD_1_PER_2 a H_1_SD_1_PER_3 are accepted. Hypothesis H_1_SD_1_PER_4 rejected. The positive effect of personnel risk indicators on the ability of the owner/manager to prevent the failure of SMEs has been proven.

4.3 Effect of personnel risk on the danger of failure of SMEs in the next of 5 years

Verification of the statistically significant influence of personnel risk indicators on SD_2 is shown in table no. 5.

Table 5: Verification of the effect of personnel risk on the SD_2

Regression characteristics					
Multiple correlation coefficient				0.2545	
Coefficient of determination				0.0648	
Adjusted coefficient of determination				0.0624	
Standard error				1.0942	
Total number of respondents				1585	
ANOVA - LRM_2					
ANOVA	*Df.*	*SS*	*MS*	*F- ratio*	
Model	4	130.9948	32.7487	27.3549	
Error	1580	1891.5390	1.1972	*p-value*	
Total	1584	2022.338		5.54E-22	
Estimate and verification of regression coefficients					
Independent variables	*RC*	*SE*	*t-Stat*	*p-value*	*VIF*
Constant	1.4913	0.0909	16.4137	0.0000	-
PER_1	0.1780	0.0305	5.8373	0.0000	2.5742
PER_2	-0.0132	0.0304	-0.4356	0.6632	2.4585
PER_3	0.1233	0.0329	3.7460	0.0002	2.1760
PER_4	0.0447	0.0296	1.5106	0.1311	1.0789

Note: RC – Regression Coeficient ($\beta_{1,\dots,}\beta_4$); t-Stat – Student-test criterion.

Source: own data collection.

The results (see table no. 5) show that the proposed regression model of linear relations between the danger of failure of SMEs in the next of 5 years and personnel risk indicators is statistically significant (F-ratio: p-value = 5.54E-22). The proposed regression model explains only 6.24% of the variability of the dependent variable. Statistically significant SD_2 indicators are: PER_1 and PER_3. Now we proceed to the formulation of the linear regression functions:

$$LRM_2: SD_2 = 1.491 + \mathbf{0.178 \times PER_1} - 0.013 \times PER_2 + \mathbf{0.123 \times PER_3} + 0.045 \times PER_4 + \varepsilon_n \quad (3)$$

where: SD_2 – danger of failure of SMEs in the next of 5 years; j = 1,2,3,4; j – indikator of personnel risk.

The values of the VIF test did not demonstrate the presence of multicollinearity in the regression model (see table no. 5). Homoscedasticity was confirmed (Bartlett's test: p-value = 0.280). The normal distribution of the deviations was confirmed by the S-W test (S-W test: p-value = 0.233). Hypotheses H_2_SD_2_PER_1 and H_2_SD_2_PER_3 are accepted. Hypotheses H_2_SD_2_PER_2 and H_2_SD_2_PER_4 were rejected. The positive impact of personnel risk indicators on the danger of failure of SMEs in the next of 5 years.

5. CONCLUSION

The aim of the article was to quantify and evaluate the impact of personnel aspects on the sustainability of small and medium-sized enterprises in the business environment of the countries of the Vyšehrad Group.

Empirical results have shown positive causal relationships of selected personnel risk indicators on the sustainable development of SMEs in the countries of the Vyšehrad Group. The owner/manager's perception of the presence of personnel risk in the business (RC = 0.079), workforce turnover in SMEs (RC = 0.077) and the error rate of employees in work activities (RC = 0.042) are significant factors that determine the ability of the owner/manager to prevent bankruptcy SMEs. The perception of the presence of personnel risk in business by the owner/manager (RC = 0.178) and the error rate of employees in their work activities (RC = 0.123) are significant factors that determine the threat of SME bankruptcy in a 5-year

horizon. These partial conclusions support the fact that the management of personnel risks affect the sustainable development of small and medium-sized enterprises in the countries of Central Europe. Explicit evaluation of the scientific question is YES. The impact is significant, but there are more factors that determine the sustainable development of the SME segment.

The limiting factor is the location of the research, which consists of only four regions of Central Europe, and the findings are marginal considering the size of the business environment. Another limiting factor is the reporting value itself, given the fact that the attitudes of owners and top managers are often influenced by internal and external factors. Also, the statistical apparatus used in the analytical part has shortcomings, especially in the investigation of causal relationships in only one direction. Also, the values of the coefficients of determination of the models (LRM_1 and LRM_2) indicate that there are several factors that were not investigated in this article.

The authors' findings are significant for SMEs in the V4 countries; for educational companies providing programs and courses dealing with human resource management or the knowledge of owners and top managers in SMEs and national politicians who map the business environment and make proposals for its improvement.Future research will focus on identifying common and different characteristics among entrepreneurs from V4 countries in the perception of other business risks, such as market risk, financial risk and legal risk. The authors would like to prepare a new questionnaire with the attitudes of entrepreneurs during the COVID-19 pandemic. The authors believe that the attitudes of SMEs among the V4 countries will bring additional common, but also different characteristics.

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VÝVOJ SOCIÁLNEHO SYSTÉMU V SLOVENSKEJ REPUBLIKE PO ROKU 1993

DEVELOPMENT OF THE SOCIAL SYSTEM IN THE SLOVAK REPUBLIC AFTER 1993

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Abstrakt: *Začiatkom deväťdesiatych rokov minulého storočia v súvislosti s radikálnou zmenou politickej situácie v postkomunistických krajinách, ktorá je spojená so spoločenskými, ekonomickými a sociálnymi zmenami prichádza aj transformácia sociálneho systému. Nasledujúce roky sú dané transformačné procesy v Slovenskej republike spojené so zvyšovaním efektívnosti sociálneho systému. V našej práci si priblížime postupný vývoj transformačných procesov v sociálnom systéme Slovenskej republiky. Taktiež si priblížime základné východiská sociálnej legislatívy v Európskej únii a jej postupný historický vývoj. V poslednej časti si priblížime štruktúru sociálnych výdavkov v Slovenskej republike a čiastočne zanalyzujeme ich dopad na štátny rozpočet SR.*

Kľúčové slová: *sociálna politika, sociálne výdavky sociálny systém, transformačný process*

Abstract: *At the beginning of the nineties of the last century, in connection with the radical change of the political situation in post-communist countries, which is connected with social, economic and social changes, the transformation of the social system also comes. In the following years, given transformation processes in the Slovak Republic are associated with increasing the efficiency of the social system. In our work, we will approach the gradual development of transformational processes in the social system of the Slovak Republic. We will also take a closer look at the basic principles of social legislation in the European Union and its gradual historical development. In the last part, we will take a closer look at the structure of social expenditures in the Slovak Republic and partially analyze their impact on the state budget of the Slovak Republic.*

Key words: *social expenses, social policy, social system, transformation process*

JEL Classification: O520, P340, P35, Z130

ÚVOD

Na území Slovenska sa so sociálnym poistením stretávame v Rámci Rakúsko-Uhorska, kde ako uvádza Večeřa (1996), povinne poistený pracovný úraz bol už v roku 1887, povinne poistená nemoc od roku 1888. Tieto poistenia v Rakúsku rozšíril penzijný zákon z roku 1906. Daný zákon bol po vzniku Československa nahradený Zákonom č. 26 v roku 1929. Nositeľom penzijného poistenia podľa tohto zákona bol Všeobecný penzijný ústav. Vykonával penzijné poistenie, ktoré bolo jedným z odvetví sociálneho poistenia. Hlavnú správu invalidného, nemocenského a starobného poistenia za prvej Československej republiky vykonávala Ústredná sociálna poisťovňa v Prahe. Po vzniku Slovenskej republiky v marci 1939 zriadila vláda v Apríli 1939 Ústrednú sociálnu poisťovňu v Bratislave, ktorá bola verejnoprávna a zabezpečovala dôchodkové aj nemocenské poistenie. Vládnym nariadením z novembra 1940 sa Ústredná sociálna poisťovňa v Bratislave pretvorila na Robotnícku sociálnu poisťovňu, v rámci ktorej vznikli poisťovacie odbory podľa jednotlivých odvetví poistenia. Tieto však zabezpečovali poistenie len vybraného okruhu osôb. Po revolúcii v roku 1948 a upevnení moci Komunistickej strany, sa začal rozširovať počet aktivít sociálnej

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politiky. Od roku 1952 sa prostriedky na realizáciu sociálneho zabezpečenia sústredili v Slovenskom úrade dôchodkového zabezpečenia. Mnohé povinnosti v danej oblasti prešli z rodín na štát, ktorý zoštátnil prostriedky Národnej poisťovne a vytvoril štátnu sociálnu politiku za pomoci podsystémov, ako boli sociálne zabezpečenie, sociálna starostlivosť, sociálna činnosť štátnych podnikov a družstiev, ako aj sociálna činnosť Revolučného odborového hnutia (ROH) a záujmových organizácií. Od roku 1960 prevzala výkon dôchodkového zabezpečenia Správa dôchodkov v Bratislave. Od roku 1976 došlo k významnej zmene vo výkone sociálneho zabezpečenia a to zákonom č. 121/1975 Zb., ktorý odčlenil výkon dôchodkového zabezpečenia a výkon nemocenského poistenia. (Sociálna poisťovňa).

Koncom 80. a začiatkom 90. rokov 20. storočia sa územie dnešnej SR ako aj susedných východo európskych štátov stalo centrom sociálnych, ekonomických a hospodárskych zmien. Celková reštrukturalizácia hlavne v ekonomickom a hospodárskom smere, prechod z plánovanej ekonomiky na ekonomiku trhovú prináša so sebou obdobie stagnácie ekonomiky spojené s takými fenoménmi, akými boli nezamestnanosť, inflácia, pokles životnej úrovne, či chudoba a skokový nárast počtu bezdomovcov. Uvedené prvky mali za následok čoraz väčšie prehlbovanie sociálnych nerovností. Dané zmeny zasiahli aj systém sociálneho zabezpečenia spomínaných štátov.

Prvou zmenou v tomto smere v Československu bolo zlúčenie výkonu dôchodkového zabezpečenia a nemocenského poistenia, ktoré nadobudlo platnosť od 1. januára 1991. Slovenská správa nemocenského poistenia, odbory sociálnych vecí národných výborov a Úrad dôchodkového zabezpečenia sa zlúčili do Slovenskej správy sociálneho zabezpečenia, ktorá pôsobila do konca roku 1992. V rámci transformácie sociálnej sféry došlo v roku 1993 k vytvoreniu Národnej poisťovne, ktorá sa stala verejnoprávnou inštitúciou a zahrňovala zdravotné poistenie a fondy sociálneho zabezpečenia. Časom sa takéto spojenie ukázalo ako nefunkčné vzhľadom na principiálnu odlišnosť, čo vyvolávalo problémy v efektívnom organizačnom usporiadaní Národnej poisťovne. Daná skutočnosť vytvorila nový základ pre zriadenie pluralitného systému zdravotných poisťovní a Sociálnej poisťovni, ktorá začala svoju činnosť v roku 1995. Sociálna poisťovňa týmto krokom nadobudla potrebné kompetencie na výkon nemocenského poistenia a dôchodkového zabezpečenia a taktiež relatívnu nezávislosť od vlády a jednotlivých relevantných ministerstiev.

Ďalším medzníkom Sociálnej poisťovni bolo prijatie zákona o sociálnom poistení č. 461/2003 Z.z., ktorým umožnila Národná rada SR spustenie dôchodkovej reformy. Takýmto spôsobom sa začal reformovať systém sociálneho zabezpečenia, ktorý sa od 1. januára 2004 zmenil na sociálne poistenie, pričom vykonávateľom je dodnes Sociálna poisťovňa. Okrem zmien v nemocenskom poistení, dôchodkovom poistení, úrazovom poistení sa pôsobnosť Sociálnej poisťovne rozšírila o poistenie v nezamestnanosti a garančné poistenie, ktorých agendu poisťovňa prevzala od Národného úradu práce.

CIEĽ A METODOLÓGIA

Hlavným cieľom našej práce je analýza vývoja sociálneho systému v Slovenskej republike od jej vzniku v roku 1993 a identifikovanie jeho silných a slabých stránok.

Identifikácia a deskripcia jednotlivých etáp vývoja sociálneho systému v Slovenskej republike a ich východísk. Analýza súčasného systému sociálneho zabezpečenia, jeho silné a slabé stránky. Predikcia alternatív ďalšieho možného vývoja sociálneho systému.

RIEŠENIE PROBLÉMU, VÝSLEDKY, DISKUSIA

1. Sociálny systém po roku 1989

Radikálna zmena na začiatku 90. rokov 20. storočia sa výrazne premietla do všetkých oblastí spoločenského života vtedy ešte spoločnej Československej republiky. Obyvatelia si museli zvykať nielen na zmeny v ekonomickej a hospodárskej oblasti, ale zásadná zmena prišla aj prostredníctvom formovania novej sociálnej politiky.

V tomto období Slovenská národná rada prijala zákon 543 z novembra 1990 o štátnej správe sociálneho zabezpečenia. Týmto zákonom bolo zabezpečené zlúčenie výkonu dôchodkového zabezpečenia a nemocenského poistenia prostredníctvom orgánov štátnej správy sociálneho zabezpečenia, ktorými boli:

- Ministerstvo práce a sociálnych vecí Slovenskej republiky,
- Slovenská správa sociálneho zabezpečenia,
- okresné správy sociálneho zabezpečenia,
- krajské úrady a okresné úrady

Ministerstvo vnútra Slovenskej republiky a Ministerstvo spravodlivosti Slovenskej republiky vo veciach ustanovených zákonom o sociálnom zabezpečení a nemocenskej starostlivosti v ozbrojených silách prihliadnuc na súvisiace zákony, napr. zákon č.100/1988, z.č.110/1990, či z.č.32/1957. Podľa odseku 2, §1 zákona 543/1990, štátnu správu sociálneho zabezpečenia vykonávali v rozsahu ustanovenom týmto zákonom aj obce v rozmedzí zákona č. 369/1990. Podľa zákona o štátnej správe sociálneho zabezpečenia boli úlohy orgánov rozdelené nasledovne:

Ministerstvo práce a sociálnych vecí SR ako ústredný orgán štátnej správy SR pre sociálne zabezpečenie zodpovedalo za vypracovanie koncepcie sociálneho zabezpečenia, riadilo a kontrolovalo výkon štátnej správy v sociálnom zabezpečení, zúčastňovalo sa na uzatváraní medzinárodných zmlúv v sociálnom zabezpečení, zabezpečovalo úlohy z nich vyplývajúce a spolupracovalo s inými štátmi v sociálnom zabezpečení. Taktiež malo možnosť zriadiť posudkovú komisiu sociálneho zabezpečenia na posudzovanie zdravotného stavu a pracovnej schopnosti. Minister práce a sociálnych vecí Slovenskej republiky mohol na základe tohto zákona odstraňovať tvrdosti, ktoré sa vyskytnú pri vykonávaní sociálneho zabezpečenia.

Správy sociálneho zabezpečenia vykonávali sociálne zabezpečenie na úseku dôchodkového zabezpečenia, nemocenského poistenia, posudkovej činnosti sociálneho zabezpečenia, poskytovania štátnych sociálnych dávok a v rozsahu ustanovenom týmto zákonom aj na úseku sociálnej starostlivosti. Slovenská správa sociálneho zabezpečenia ako orgán štátnej správy vykonával sociálne zabezpečenie, riadil a kontroloval okresné správy sociálneho zabezpečenia v rozsahu ustanovenom daným zákonom. Bola podriadená ministerstvu a bola samostatnou právnickou osobou. Na jej čele bol riaditeľ, ktorého vymenúval a odvolával minister. Okresné správy sociálneho zabezpečenia mali na starosť usmerňovanie a kontrolu plnenia povinností v sociálnom zabezpečení organizácií, medzi ktoré podľa zákona č. 100/1988 patrili: štátne podniky, štátne hospodárske organizácie, rozpočtové a iné štátne organizácie, družstevné organizácie, spoločenské organizácie, ako aj iné organizácie. Taktiež okresné správy sociálneho zabezpečenia pri vykonávaní štátnej správy sociálneho zabezpečenia poskytovali občanom a organizáciám odbornú pomoc, ako aj zodpovedali v rozsahu svojej pôsobnosti za účelné vynakladanie prostriedkov na sociálne zabezpečenie, s ktorými hospodárili.

Posudkové komisie sociálneho zabezpečenia boli zriaďované na posudzovanie zdravotného stavu a pracovnej schopnosti občanov. Slovenská správa sociálneho zabezpečenia mohla

poveriť okresnú správu sociálneho zabezpečenia, aby jej posudková komisia posudzovala invaliditu, čiastočnú invaliditu, alebo iné zdravotné otázky súvisiace s vykonávaním sociálneho zabezpečenia na základe medzinárodných zmlúv, prípadne v ďalších odôvodnených prípadoch na území celej Slovenskej republiky alebo pre viaceré okresné správy sociálneho zabezpečenia.

Krajské a okresné úrady ako miestne orgány štátnej správy poverené výkonom štátnej správy v oblasti sociálnej starostlivosti a štátnych sociálnych dávok, napr. prídavkoch na deti, alebo príplatkoch k prídavkom na deti, či pestúnskej starostlivosti vrátane sociálnych služieb, mali za úlohu spolupracovať s obcami, združeniami obcí, štátnymi, družstevnými a neštátnymi organizáciami, občianskymi združeniami a odborovými organizáciami, poskytovať občanom, obciam a organizáciám odbornú pomoc a vykonávať sociálnu starostlivosť aj na základe ich návrhov a podnetov.

V roku 1993 došlo v rámci transformácie sociálnej sféry ku zmene inštitucionálneho usporiadania a vytvoreniu verejnoprávnej inštitúcie - Národnej poisťovne. Zmena vyjadrovala dve nové základné skutočnosti:

1. zlúčila výkon zdravotného poistenia, nemocenského poistenia a dôchodkového zabezpečenia v jednej inštitúcii, tvorenej tromi samostatnými fondmi.

2. v nadväznosti na novú daňovú sústavu odčlenila financovanie Národnej poisťovne od štátneho rozpočtu a vytvorila tri samostatné fondy, ktoré sa mali tvoriť z poistného a čiastočne z príspevkov štátu.

Spojenie zdravotného poistenia s fondmi sociálneho zabezpečenia sa časom ukázalo ako nefunkčné vzhľadom na ich principiálnu odlišnosť, čo vyvolávalo problémy v efektívnom organizačnom usporiadaní Národnej poisťovne. To bol dôvod ich rozdelenia a zriadenia pluralitného systému zdravotných poisťovní a Sociálnej poisťovne, ktorá začala svoju činnosť ako verejnoprávna inštitúcia v roku 1995 a to na základe zákona

2. Vývoj po roku 2004, transformácia systému zabezpečenia na systém poistenia

Prijatím zákona č. 461/2003 o sociálnom poistení nastali najvýznamnejšie zmeny v novodobej histórii Slovenska v sociálnej politike. Zmeny nastali nielen v nemocenskom poistení, ale aj v dôchodkovom poistení a úrazovom poistení. Pôsobnosť Sociálnej poisťovne sa rozšírila o poistenie v nezamestnanosti a garančné poistenie, ktorých agendu poisťovňa prevzala od Národného úradu práce. Zmeny nastali aj v oblasti výberu poistného a lekárskej posudkovej činnosti. Od 1. januára 2005 pribudli Sociálnej poisťovni aj nové povinnosti spojené s realizáciou starobného dôchodkového sporenia, t.j. druhým pilierom dôchodkovej reformy. V rámci starobného dôchodkového sporenia poisťovňa predovšetkým vyberá príspevky, postupuje ich dôchodkovým správcovským spoločnostiam a registruje zmluvy o starobnom dôchodkovom sporení.

Najväčšie a zásadné zmeny sa udiali v oblasti dôchodkového zabezpečenia, čo potvrdzujú aj Sika a Španková (2015), keď konštatujú, že desaťročia trvajúci zabezpečovací charakter dôchodkového systému vyznačujúci sa pomerne vysokou mierou redistribúcie sa zmenil na zásluhový systém s dôrazom na oveľa vyššiu mieru zásluhovosti a transparentnosti v spôsobe určovania výšky dôchodkov. Od januára 2005 pozostáva dôchodkový systém z troch pilierov. Základný, prvý pilier spočíva v priebežnom financovaní dôchodkového poistenia, zabezpečujúci poistencom spĺňajúcim zákonné podmienky, ich dôchodkové nároky. Prvý pilier je doplnený pilierom druhým, ktorý bol zavedený na základe zákona č. 43/2004. Tento zákon zavádza do dôchodkového systému pojem starobné dôchodkové sporenie, ktoré sa vytvára na osobných účtoch spravovaných dôchodcovskou správcovskou spoločnosťou. Jedná sa o tzv. kapitalizačný druhý pilier, ktorý spolu s prvým pilierom predstavujú základný systém dôchodkového poistenia. Dané dva piliere sú doplnené tretím pilierom založeným na

dobrovoľnosti. Tento pilier vznikol na základe zákona č. 650/2004, ktorý nahradzuje zákon č. 123/1996 o doplnkovom dôchodkovom poistení zamestnancov a podobne ako druhý pilier je pilierom kapitalizačným. Obidva dané piliere zohľadňujú individuálny výkon účastníkov sporenia. Spojením všetkých troch pilierov sa na Slovensku po roku 2005 vytvoril tzv. zmiešaný systém dôchodkového zabezpečenia, ktorý s menšími úpravami, doplneniami a novelizáciami funguje do súčasnej doby.

3. Systém soc. zabezpečenia v EÚ

Základné východiská sociálnej legislatívy EÚ podľa Masárovej a kol., (2015) sú Rímske zmluvy z roku 1957. Aj keď Rímske zmluvy sú zamerané hlavne na politické ciele a hospodársky rozvoj Únie, sú v nich zakotvené aj elementárne ciele Európskeho spoločenstva zamerané na sociálny pokrok, zamestnanosť a sociálnu ochranu. Ďalší, postupný vývoj európskej legislatívy v sociálnej oblasti je uvedený v tabuľke č.1.

Tabuľka 1: Prehľad najvýznamnejších dokumentov a rozhodnutí Rady Európy so zameraním na sociálny obsah

1.	Rímska zmluva o založení EHS r. 1957	zamestnanosť, sociálna ochrana, kvalita života
2.	ESCH r. 1965 a jej dodatkový protokol r. 1988	19 základných článkov + 4 dodatkové, ktoré tvoria chartu ochrany sociálnych práv občanov
3.	Revidovaná ESCH	nový impulz ESCH, zohľadňuje základné sociálne zmeny, má 31 článkov
4.	Jednotný európsky akt	voľný pohyb PS vyžadoval vyššiu mieru harmonizácie zákonodarstva
5.	Koncepcia európskeho sociálneho priestoru r. 1988 (J. Delars)	charta základných práv pracujúcich, sociálny dialóg, poňatie "európskej firmy"
6.	Maastrichtská zmluva r. 1993 (Zmluva o EÚ)	nové znenie Rímskej zmluvy venovanej kapitolám o sociálnej politike, zmluva o spolupráci
7.	Zelená kniha európskej sociálnej politiky r. 1993	rozvoj európskych tradícií vzdelávania, príležitostí pre všetkých, občianskeho európskeho vedomia, spoločné hodnoty (solidarita, demokracia, spravodlivosť, rovnosť príležitostí)
8.	Biela kniha rastu, konkurencieschopnosti a zamestnanosti r. 1993	pracovné príležitosti, investície do pracovnej sily, vysoký štandard práce, európsky trh práce, rovnaké príležitosti mužov a žien, ochrana verejného zdravia, spolupráca v sociálnej politike
9.	Biela kniha, európska sociálna politika, cesta vpred EÚ r. 1995	nový vzťah medzi hospodárskou a sociálnou politikou, nové pracovné príležitosti, minimálne štandardy ochrany pracovných síl, pružné formy zamestnania, kooperácia v sociálnej starostlivosti, nová kvalita sociálneho dialógu, spolupráca s dobrovoľnými a nevládnymi inštitúciami
10.	Amsterdamská zmluva r. 1997	potrebná miera harmonizácie v sociálnej sfére, rozvoj politiky zamestnanosti, koordinácia, deklarácia sociálnej kvality Európy
11.	Európska stratégia zamestnanosti Luxemburg 1997	statégia boja proti nezamestnanosti (rozvoj zamestnateľnosti, podnikania, prispôsobivosť podnikov a zamestnancov, nové príležitosti)
12.	Lisabonská stratégia r. 2000 Lisabon	vízia Európy pre nové milénium, dlhodobá stratégia založená na inováciách, vedomostiach, nové kvalitnejšie pracovné príležitosti, model sociálnej súdržnosti, cieľ: návrat k plnej zamestnanosti, mobilita, globalizácia so sociálnou dimenziou, Lisabonská sociálna agenda
13.	Zasadnutie ER v Nice r. 2000	prijatý európsky sociálny program, kroky k európskej sociálnej politike, vyhlásenie Charty základných práv občanov EÚ, prijatá Európska sociálna agenda
14.	Zasadnutie ER v Štokholme r. 2001	zvýšiť zamestnanosť, spoločné kritériá na porovnávanie starostlivosti o deti a starších občanov, podpora kvality práce, odstraňovanie platových rozdielov mužov a žien, dlhodobo udržateľný dôchodkový systém
15.	Zasadnutie ER v Barcelone	cesta k bohatšej a integrovanejšej Európe, flexibilneší trh práce, investície do výskumu a vzdelávania, zvýšenie dôchodkového veku, zavedenie európskej zdravotnej karty
16.	Sevillské zasadnutie r. 2002	imigrácia, azylová politika, konvent o budúcnosti EÚ, program Európa
17.	Bruselský summit r. 2004	plnenie zámerov Lisabonskej stratégie, obnovené rokovania o ústave EÚ, boj proti terorizmu
18.	Bruselský summit r. 2006	do roku 2010 vyčlenenie 3% HDP na vedu, každoročné vytvorenie 2 mil. prac. miest, vytvorenie podmienok pre zamestnanie alebo preškolenie nezamestnaných v dobe do 100 dní od straty zamestnania, vytvorenie globalizačného fondu na rekvalifikáciu nezamestnaných
19.	Lisabonský summit r. 2007	prijatie zmluvy o EÚ
20.	Bruselský summit r. 2010	prijatie otvoreného dokumentu stratégie do r. 2020 - Európa 2020

Zdroj: Stanek (2011)

Každá z európskych krajín má svoj vlastný sociálny systém, ktorý závisí od typu sociálneho štátu prevládajúceho v danej krajine. Toto je aj jeden z hlavných dôvodov prečo do dnešného dňa v EÚ ešte nie je zavedený, spoločný, jednotný sociálny systém. V tejto danosti však spočíva unikátnosť, ktorá je jednou z hlavných zložiek európskej identity, vyplývajúcej z rozdielnych štandardov sociálnej politiky v jednotlivých krajinách, spôsobených rozdielnymi podmienkami na pracovných trhoch, či rozdielnymi sociálnymi a politickými tradíciami (Stanek 2011). Spoločným znakom väčšiny európskych štátov je však solidarita, čo potvrdzuje aj Martinovic (2015), keď uvádza, že sociálna solidarita, transformovaná do právneho princípu, je základom všetkých európskych systémov sociálneho zabezpečenia.

Nejednotný systém sociálneho zabezpečenia v EÚ má však aj svoje nevýhody. Nejedná sa len o diferenciáciu výšky sociálnej podpory, či pomoci, ale hlavne o koordináciu nárokov plynúcich z práva zamestnancov migrujúcich za prácou v rámci EÚ. Jedným z prvých príkladov takéhoto prístupu je nariadenie Rady (EHS) 1408/71 zo 14. júna 1971 o uplatňovaní systémov sociálneho zabezpečenia na zamestnancov, samostatne zárobkovo činné osoby a na ich rodinných príslušníkov, ktorí sa pohybujú v rámci spoločenstva. Dané nariadenie bolo viackrát menené, doplňované a aktualizované, aby sa zohľadnil nielen vývoj na úrovni spoločenstva vrátane rozsudkov Súdneho dvora, ale tiež aby sa zohľadnili zmeny právnych predpisov na vnútroštátnej úrovni. Významnou zmenou spomínaného dokumentu je Nariadenie Európskeho parlamentu a Rady Európy č.883/2004 o koordinácii systémov sociálneho zabezpečenia. Jedná sa o nariadenie, ktoré sa vzťahuje na všetky právne predpisy týkajúce sa týchto častí sociálneho zabezpečenia:

a) nemocenské dávky;
b) dávky v materstve a rovnocenné dávky v otcovstve;
c) dávky v invalidite;
d) dávky v starobe;
e) pozostalostné dávky;
f) dávky v súvislosti s pracovnými úrazmi a chorobami z povolania;
g) podpora pri úmrtí;
h) dávky v nezamestnanosti;
i) preddôchodkové dávky;
j) rodinné dávky

Uvedený dokument sa vzťahuje na štátnych príslušníkov členského štátu, osoby bez štátnej príslušnosti a utečencov, ktorí majú bydlisko v členskom štáte a podliehajú alebo podliehali právnym predpisom jedného alebo viacerých členských štátov, ako aj na ich rodinných príslušníkov a ich pozostalých. Okrem toho sa toto nariadenie vzťahuje aj na pozostalých po osobách, na ktoré sa vzťahovali právne predpisy jedného alebo viacerých členských štátov, bez ohľadu na štátnu príslušnosť takýchto osôb, keď sú ich pozostalí sú štátnymi príslušníkmi členského štátu, alebo osobami bez štátnej príslušnosti alebo utečencami s bydliskom v jednom z členských štátov.

Postupným rozširovaním Európskej únie a začleňovaním nových členských štátov primárne z východnej Európy sa začína meniť pracovno – životný priestor občanov z týchto krajín. Integrácia do EÚ a cezhraničná koordinácia sociálneho zabezpečenia sú nevyhnutné, aby dané osoby neboli pri sťahovaní znevýhodnené, pokiaľ ide o nároky na sociálne zabezpečenie. Proces integrácie do regulácie cezhraničného sociálneho zabezpečenia je ovplyvnený potrebou vyvážiť práva všetkých občanov EÚ. Za týmto účelom predložila Európska komisia 13. decembra 2016 svoj návrh na zmenu a doplnenie nariadenia (ES) č. 883/2004 o koordinácii systémov sociálneho zabezpečenia. Ako uvádza Golynker, (2020), súčasná integračná etapa v koordinácii sociálneho zabezpečenia je zložitým fenoménom, ktorý vykazuje prvky intergovernmentalizmu, neo-funkcionalizmu a post-funkcionalizmu. Pri rokovaní o návrhu Komisie na reformu nariadení o sociálnej koordinácii prevládali znaky medzivládneho prístupu. Tento záver vyplýva z nezhôd medzi kľúčovými aktérmi (Komisia,

Rada a Európsky parlament). Zapojenie sociálnych partnerov, mimovládnych organizácií, EHSV a občanov EÚ do diskusie o návrhu v neo-funkcionalistickom rámci nemalo veľký vplyv na výsledok rokovaní ani na dominanciu medzivládneho prístupu. Mocenský boj medzi inštitúciami ešte viac podkopal priebeh reformy. Dané okolnosti majú nezanedbateľný vplyv nielen na samotné fungovanie EÚ, ale môžu byť zodpovedné za oddialenie synchronizácie podmienok sociálneho zabezpečenia v rámci Európy.

4. Reforma systému sociálneho zabezpečenia v SR

Podľa Programového vyhlásenia vlády Slovenskej republiky na obdobie rokov 2021 – 2024 sa vláda na dané obdobie v oblasti dôchodkov a sociálneho zabezpečenia bude zasadzovať o dlhodobú udržateľnosť dôchodkového systému, aby mali ľudia v starobe primeranú úroveň dôchodkov, a navrhne zjednodušenie doterajšieho odvodového a poistného systému v oblasti dôchodkového zabezpečenia.

V uvedenom programovom vyhlásení plánuje vláda SR v oblasti dôchodkového zabezpečenia reformou všetkých pilierov dôchodkového systému zlepšiť finančnú udržateľnosť dôchodkového systému a zvýšiť dôchodky pre občanov. V prvom pilieri sa zaväzuje zvýšiť dlhodobú udržateľnosť vzhľadom na demografický vývoj a posilnenie spravodlivosti a transparentnosti systému, udržateľnosť posilní väzbou dôchodkových výdavkov na demografický vývoj. V druhom pilieri chce vláda zaviesť dobre nastavenú, výnosnejšiu investičnú politiku na základe rozhodnutí profesionálnych investorov a zavedie opatrenia za účelom realizácie výnosov z rozsahu v sporiacej aj výplatnej fáze. Ďalej si vláda SR na dané obdobie naplánovala zmenu v oblasti alokácie aktív a poplatkovú politiku s pomocou medzinárodných benchmarkov. Taktiež zavedie automatického vstupu do druhého piliera pre poistencov do 35 rokov s možnosťou participácie len v prvom pilieri, ak sa tak poistenec aktívne rozhodne je ďalším plánovaným krokom vlády na obdobie rokov 2021 až 2024. Ďalšou plánovanou podstatnou zmenou by mala byť ústavná zmena legislatívy, ktorá umožní pracujúcim prispievať k dôchodku svojich rodičov určitým percentom z vymeriavacieho základu (napr. asignáciou odvodov).

Na základe programového vyhlásenia vlády dňa 11.04.2022 Ministerstvo práce, sociálnych vecí a rodiny predložilo na rokovanie vlády novelu zákona o sociálnom poistení. Jedná sa o zákon č. 125/2022. Táto novela prináša zásadne reformy v nasledujúcich oblastiach:

1. Zmena pri odchode do dôchodku. Rezort práce navrhol zmenu dôchodkového veku ako súbor opatrení, kde je jednou z možností odísť do dôchodku po 40 odpracovaných rokoch. Táto zmena je určená hlavne pre ľudí, ktorí nedokážu vykonávať svoju prácu do vysokého veku, ale naopak začali pracovať pomerne skoro. Podľa tohto návrhu, dôjde k naviazaniu dôchodkového veku na strednú dĺžku života. Táto zmena stabilizuje výplatnú fázu dôchodkov, pretože ľudia strávia na dôchodku v priemere rovnaké obdobie, čo bude mať pozitívny vplyv na dlhodobú udržateľnosť dôchodkového systému.

2. Zmena aktuálnej dôchodkovej hodnoty (ADH). Novopriznané dôchodky sa vypočítavajú podľa aktuálnej dôchodkovej hodnoty, ktorá dnes rastie o sto percent priemerného príjmu. Pre udržateľnosti celého systému, dôjde k spomaleniu rastu na 95 percent. Dôchodkovú hodnotu určuje každý rok Sociálna poisťovňa. Pre rok 2022 ADH predstavuje podiel priemernej mzdy zistenej za tretí štvrťrok v roku 2021 a priemernej mzdy zistenej za tretí štvrťrok 2020.

3. Rodičovský bonus. Rodičovský bonus bude ďalší dôchodok, ktorý môžu seniori poberať popri starobnom dôchodku. Vyplácať ho bude Sociálna poisťovňa automaticky a to podľa údajov v registri fyzických osôb pre biologického rodiča a osvojiteľa. Každý pracujúci bude môcť presunúť v prospech svojich rodičov 1,5 % + 1,5 % zo svojich zaplatených odvodov. Rodičovský bonus nezvýši samotnú výšku odvodov a zároveň nebude mať vplyv ani na výšku budúceho dôchodku detí. Návrh rezortu práce bol schválený s podmienkou k obmedzeniu

maximálnej výšky hrubých zárobkov dieťaťa, z ktorých bude môcť prispievať svojím rodičom. Schválený návrh ráta maximálne z 1,2 násobkom mesačnej hrubej mzdy dieťaťa (MPSVaR).

ZÁVER

Sociálna politika na Slovensku prešla od roku 1989 dlhou cestou transformácie. Transformačný proces neprebiehal na základe meniacej sa situácie v krajine, Európe a celom svete, ale existujú výrazné pozitívne efekty procesu. Stále však existujú výzvy, ktoré treba reflektovať a riešiť (Botek, 2014). Tieto výzvy sa okrem nemocenského poistenia týkajú najmä dôchodkového zabezpečenia občanov, čo súvisí hlavne s dobrou kondíciou sociálneho štátu. Ako uvádza Keller (2006), ďalší osud sociálneho štátu závisí na tom, nakoľko (a či vôbec) táto inštitúcia má šancu prežiť. Situácia ohľadne použiteľnosti sociálneho štátu sa dostáva do štádia expanzie nízko platených pracovných miest a stagnácie rodiny. Popri ekonomickej, politickej a demografickej krízy sociálneho štátu sa v súvislosti s existenciou rozvinutých sociálnych štátov prejavila a naďalej prejavuje rada ďalších javov, ktoré prispievajú k nesplneniu očakávasní spojených so sociálnym štátom (neklesá úroveň sociálnej nerovnosti, nepodarilo sa obmedziť chudobu, atď) Večeřa (1996). Ukazovatele demografického vývoja iba potvrdzujú negatívny obraz sociálneho zabezpečenia občanov SR. Spolu s klesajúcou pôrodnosťou klesá aj počet detí. Zároveň sa predlžuje dĺžka života. Tieto fakty budú mať na najbližšie desaťročia vážne dôsledky na fungovanie spoločnosti, ktoré sa prejavia ako v oblasti zdravotnej starostlivosti, tak aj v oblasti dôchodkov. V súčasnom dôchodkovom systéme s prevahou priebežného systému financovania je potrebné oslabiť jeho väzbu na nepriaznivý demografický vývoj. Zavedenie automatických stabilizátorov do priebežného piliera spôsobí zníženie miery kompenzácie s negatívnym vplyvom na životnú úroveň slovenských dôchodcov. Prvý pilier však bude naďalej zohrávať významnú úlohu životnej úrovne občanov, keďže dôchodok z I. piliera bude v budúcnosti dosahovať až približne dve tretiny a II. piliera bude tvoriť približne jednu tretinu dôchodku. Aj druhý pilier bude musieť prejsť niekoľkými zmenami, keďže nesplnil potenciál očakávaný od viac pilierového systému počas jeho existencie. Existuje niekoľko skutočných dôvodov, no za najdôležitejší sa považuje neodborná legislatívna činnosť, ktorá sa časom ukázala ako kontraproduktívna (Sika, Vidová 2021).

Na základe uvedeného je dôležité sa zamyslieť nad tým, ako pomôcť sociálnemu štátu. Navrhovaných a zavádzaných je viac riešení, od prechodu sociálnej legislatívy z rúk štátu do rúk nadnárodných poisťovacích spoločností, či úpravy a novelizácie zákonov v sociálnej sfére. Taktiež zavádzanie programov v podobe negatívnej dani, alebo nepodmieneného základného príjmu už priniesli prvé výsledky a dokonca sú už v niektorých štátoch bežnými pomocnými prostriedkami v prospech sociálnej politiky. Veľký skok v danej oblasti priniesli opatrenia štátov na elimináciu negatívnych dopadov opatrení spojených s pandémiou Covid – 19. Syntéza poznatkov z tohoto obdobia a dopad danej pomoci v rámci jednotlivých krajín, by mohli napomôcť k riešeniu krízy v oblasti sociálneho zabezpečenia.

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PRACOVNÁ MOTIVÁCIA AKO DÔLEŽITÝ ASPEKT ROZVOJA PRACOVNEJ SILY

WORK MOTIVATION AS AN IMPORTANT ASPECT OF WORKFORCE DEVELOPMENT

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Abstrakt: *Pracovná motivácia je dôležitým aspektom, ktorý ovplyvňuje kvalitu práce a má priamy vplyv na pracovný výkon. Hodnotenie užitočnosti vlastnej práce je významným motivačným prvkom. Cieľom vedeckej štúdie je určiť špecifiká hodnotenia užitočnosti vlastnej práce vo vekovej skupine zamestnanej mladej pracovnej sily a špecifiká hodnotenia užitočnosti vlastnej práce staršej pracovnej sily na národných úrovniach v rámci EÚ28. Vo vedeckej štúdii je použitá metóda beta konvergencie a korelačný diagram. Hodnotenie užitočnosti vlastnej práce zamestnanej staršej pracovnej sily vo veku 55-64 rokov je pozitívnejšie ako hodnotenie zamestnanej mladej pracovnej sily vo veku 15-24 rokov. Konvergenčné tendencie v hodnotení vlastnej práce v oboch vekových skupinách považujeme za málo preukazné. Poľsko a Rumunsko sú krajiny, ktoré zaostávajú za ostatnými v oboch vekových skupinách. Tieto krajiny by sa mali najviac zamerať na personálne politiky, ktoré by prispeli k pozitívnemu hodnoteniu užitočnosti vlastnej práce. Slovensko zaostáva za ostatnými krajinami v hodnotení vlastnej práce zamestnanej pracovenj sily vo veku 55-64 rokov.*

Kľúčové slová: *pracovná motivácia, zamestnaní, beta konvergencia*

Abstract: *Work motivation is an important aspect that affects the quality of work and has a direct impact on work performance. Evaluation of the usefulness of one's own work is an important motivational element. The aim of the scientific study is to identify the specifics of the evaluation of the usefulness of one's own work in the age group of the employed young workforce and the specifics of the evaluation of the usefulness of one's own work of the older workforce at national levels within the EU28. The beta convergence method and correlation diagram are used in the scientific study. The assessment of the usefulness of one's own work by the employed older workforce aged 55-64 is more positive than the assessment of the employed young workforce aged 15-24. It is considered to be of little evidence the convergence tendencies in the evaluation of one's own work in both age groups. Poland and Romania are countries that lag behind others in both age groups. These countries should mostly focus on personnel policies that would contribute to a positive evaluation of the usefulness of one's own work. Slovakia lags behind other countries in the evaluation of the own work of the employed workforce aged 55-64.*

Key words: *work motivation, employed, Beta-convergence*

JEL Classification: *I250, J20, O47*

1. ÚVOD

Výskum motivácie, transformovaný v teórii a praxi ľudských zdrojov a personálneho manažmentu na pracovnú motiváciu, je azda jednou s najrozsiahlejšie skúmaných tém od antiky (Armstrong & Taylor, 2014), s renesanciou v industrializácii až po súčasnosť, kedy sa hľadajú aktuálnejšie teórie, ktoré by lepšie vystihli stav a pohyb pracovnej sily vzhľadom na rôznorodosť jej charakteristík. Kedže motivovaná pracovná sila dostáva nálepku kľúčovej konkurenčnej výhody (Steers et al., 2004) firiem i národných ekonomík, zamestnávatelia a

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štáty investujú do programov rozvoja pracovnej sily. Pracovná motivácia je dôležitý aspekt pre rozvoj pracovnej sily a pre kontinuálnu multiplikáciu kvality ľudského kapitálu.

Jedným z činiteľov pracovnej motivácie je pohľad zamestnancov na hodnotenie užitočnosti vlastnej práce. Akú úlohu zohráva vo vnímaní užitočnosti vlastnej práce vek alebo krajina? Na zopovedanie tejto dilemy porovnávame skupinu zamestnanej mladej pracovnej sily vo veku 15-24 rokov a staršej pracovnej sily vo veku 55-64 rokov na základe dát o hodnotení užitočnosti vlastnej práce z databázy Eurostatu s použitím metód beta konvergencie a korelačného diagramu.

1.1 Prehľad literatúry

Výskumom motivácie sa v minulosti venovali viaceré vedné disciplíny s masívnym prínosom pre teóriu a prax. Všeobecným zosumarizovaním súčasných teórií motivácií a spôsobom ich optimálneho merania dospel Barbuto (2006) k nasledovnému členeniu na: obsahové teórie, procesné teórie, teórie rozhodovania sa a teórie trvalého úsilia. Motivácia zohráva, podľa Kasaeva (2013), výslednú funkciu vo vzťahoch medzi subsystémami - vzdelávacou, zdravotnou, sociálno-kultúrnou a informačnou zložkou, ktoré tvoria systém ľudského kapitálu s vlastnosťami inovatívnosti, kreativity a dynamiky. Z pohľadu ľudských zdrojov, podľa Deadrick & Gibson (2009), oblasť výskumu a praxe motivácie patrí medzi stabilnú tému.

Na definíciu pracovnej motivácie sú rôznorodé pohľady, snažiace sa o čo najlepšie vyjadrenie jej charakteristických rysov a nuáns. Avalos et al. (2014) pracovnú motiváciu chápu ako *„proces, ktorý aktivuje, orientuje, uvádza do činnosti a podporuje správanie pracovníkov k dosiahnutiu cieľa*", zatiaľ čo Pinder (2008, citované v Chehab et al., 2022, s. 2) ako *„súbor energetických síl, ktoré vznikajú vo vnútri aj mimo bytosti jednotlivca a sú zodpovedné za začatie činnosti súvisiacej s prácou a určenie jej typu, smeru, sily a rozsahu"*. Pracovná motivácia podľa Tremblay et al. (2009, citované v Fernandes et al., 2020), vychádzajúc zo škály pracovnej motivácie a teórie sebaurčenia, sa člení na: intrinzickú motiváciu (vnútorná); extrinzickú motiváciu (vonkajšia), ktorá obsahuje štyri typy regulácií - externé, introjekované, identifikované, integrované (Legault, 2016) a amotiváciu. Toto definovanie a členenie je často používané s minimálnymi obmenami ako východisko pre výskumy pracovnej motivácie (Ryan & Deci, 2000; Becchetti et al., 2013; NurDalila et al., 2014; Chehab et al., 2022).

Signifikantným faktorom pracovnej motivácie zamestnancov v závislosti od pozície a náplne práce je rozvoj. Rozvoj pracovnej sily má byť nápomocný pri rozvíjaní pracovnej kariéry (Armstrong & Taylor, 2014), ktorý je vnímaný ako mnohostranný prístup a nielen ako tréning (Johnston & Burton, 2017). Roche (2009, citované v Johnston & Burton, 2017, s. 458) kladie pri rozvoji pracovnej sily dôraz aj na „*organizačné zásady a postupy, nápomocných kolegov/nadriadených, možnosti školenia/profesionálneho rozvoja, pracovné zaťaženie a financovanie*", keďže na pracovnú silu sa nazerá ako na „*vysoko rozmanitú a s odlišnými potrebami a požiadavkami*" (Steers et al., 2004, s. 383).

Štúdie potvrdzujú dôlezitosť rozvoja pracovnej sily ako jedného z faktorov pracovnej motivácie (Kollárik, 2011, citované v Budzakova, 2015; Ngai, Cheung, & Yuan, 2016; Dolganov, 2018; Yang & Chen, 2019; Hitka et al., 2019; Bazarov & Karpov, 2020; Bohorquez et al., 2020). Skúmanie hodnotenia užitočnosti vlastnej práce, ktorú považujeme za zložku pracovnej motivácie ako aspektu previazaného s rozvojom pracovnej sily, je prepojené s rozličnými oblasťami spoločenského a pracovného života. Výskum pro-sociálnej motivácie a pracovnej spokojnosti potvrdil, že tento vzťah je moderovaný hodnotením vnímanej užitočnosti práce pre spoločnosť (Kjeldsen & Andersen, 2013) a významne vyššie vnímanie užitočnosti vlastnej práce je u zamestnancov vo firmách s implementovanými environmentálnymi štandardami (Lanfranchi & Pekovic, 2014). Hitka & Blašková (2011) zistili, že predstava užitočnosti je jedným z nástrojov sebamotivovania v pracovnom správaní

a Bašistová (2007), že spoločenský význam a užitočnosť práce je najsilnejším motivačným činiteľom práce a výkonnosti.

2. CIEĽ A METODOLÓGIA

Táto kapitola je rozdelená na dve časti. V prvej časti sa zameriavame na výskumný cieľ a údaje. V druhej časti popisujeme použité metódy výskumu.

2.1. Cieľ práce a údaje

Naša vedecká štúdia sa orientuje na zamestnanú pracovnú silu. V rámci motivácie sa zameriava na "hodnotenie užitočnosti vlastnej práce" staršími zamestnanými a porovnáva ho s "hodnotením užitočnosti vlastnej práce" mladými zamestnancami. Hodnotenie vlastnej práce považujeme za dôležitý aspekt pracovnej motivácie, ktorý ovplyvňuje pracovný potenciál zamestnaných. Pozitívne hodnotenie vlastnej práce je prepojené s hlbokým záujmom o prácu.

Objektom skúmania je 28 krajín EÚ (ďalej EÚ28). Vedecká stať jednak porovnáva rozdiely medzi mladými zamestnanými a staršími zamestnanými v produktívnom veku v rámci "hodnotenia užitočnosti vlastnej práce" a jednak porovnáva rozdiely medzi jednotlivými krajinami EÚ28. Zároveň sa zameriava sa na určenie špecifík v rámci oboch vekových skupín a v rámci krajín EÚ28.

Môžeme zhrnúť, že cieľom vedeckej štúdie je určiť špecifiká hodnotenia užitočnosti vlastnej práce vo vekovej skupine zamestnanej mladej pracovnej sily a vo vekovej skupine staršej pracovnej sily na národných úrovniach v rámci EÚ28.

Skupina starších zamestnaných je vymedzená vekovou kategóriou 55-64 rokov. Skupina mladých zamestnaných je vymedzená vekovou skupinou 15-24 rokov. Hodnoty ukazovateľa sú vyjadrené v percentách z počtu zamestnaných. Údaje sme čerpali z databázy Eurostatu (2022) [qoe_ewcs_7b3], ktorá uvádza hodnoty ukazovateľa v päťročných intervaloch. Prvé zverejnené údaje sú za rok 2005. Posledné zverejnené údaje sú za rok 2015. V našej analýze sa zameriame na sledovanie konvergenčných tendencií od prvého po posledný rok zverejnených údajov analyzovaného ukazovateľa. Teda budeme sledovať konvergenčné tendencie vývoja ukazovateľa v období rokov 2005 až 2015.

V rámci naplnenia cieľa sa zameriame na nasledujúce úlohy:

- Vyjadriť popisné štatistiky a určiť rozdiely v hodnotení užitočnosti vlastnej práce medzi skupinami mladých zamestnaných 15- 24 ročných a starších zamestnaných 55- 64 ročných v krajinách EÚ28.
- Zistiť konvergenčné tendencie krajín EÚ28 v rámci ukazovateľa hodnotenia užitočnosti vlastnej práce v krajinách EÚ v oboch vekových skupinách.
- Pomocou korelačného diagramu určiť krajiny EÚ28, ktoré v rámci analyzovaného ukazovateľa zaostávajú za ostatnými a určiť krajiny EÚ28, ktoré sa vzďaľujú od ostatných v rámci ukazovateľa hodnotenia užitočnosti vlastnej práce v krajinách EÚ v oboch skupinách.
- Diskutovať zistenia a sformulovať závery.

Na analýzu sme použili Microsoft Excel a štatistický program Statistica.

2.2. Metódy

Vo vedeckej štúdii v empirickej časti použijeme metódu analýzy a komparácie. Na úvod empirickej časti vyjadríme popisné štatistiky. Zameriame sa na štatistiky úrovne a štatistiky

variability (vyjadríme smerodajnú odchýlku). Na hodnotenie konvergenčných tendencií využijeme metódu beta konvergencie a korelačný diagram. Súčasťou metódy beta konvergencie bude aj využitie regresnej analýzy.

Beta konvergencia a korelačný diagram

V súlade s vytýčeným cieľom a stanovenými úlohami sa vo vedeckej štúdii zameriame na absolútnu konvergenciu a použijeme metódu beta konvergencie a korelačného diagramu. „*Absolútna beta konvergencia nastáva, keď všetky regióny konvergujú k rovnakému ustálenému stavu*" (Kováč et al., 2011, s. 398).

Podľa Mazureka (2013, s. 1) sa vzťah pre beta konvergenciu vyjadrí v tvare

$$\frac{1}{T}\log\left(\frac{Y_{i,T}}{Y_{i,0}}\right) = \propto + \beta\, log Y_{i,0} + \gamma Z_i + \varepsilon_i. \quad (1)$$

(z Barro & Sala-i-Marti, 1992).

Pričom

$Y_{i,0}$ je hodnota ukazovateľa v i-tej krajine v počiatočnom období,

$Y_{i,T}$ je hodnota ukazovateľa v i-tej krajine na konci analyzovaného obdobia,

$\mathcal{E}_i$ je náhodná zložka v i-tej krajine,

Z_i je množina endogénnych faktorov,

a je konštanta,

$T+1$ je počet období,

β, γ je regresný koeficient.

Parametre lineárnej regresie sa vyjadria metódou najmenších štvorcov. V prípade, že regresná funkcia je klesajúca, tak hovoríme o prevažujúcej tendencii ku konvergencii. V prípade, že regresná funkcia je rastúca, tak hovoríme o prevažujúcej tendencii ku divergencii. V rámci analýzy je dôležité vyjadriť aj koeficient determinácie, ktorý má hodnoty z intervalu od 0 % po 100 %. Vyjadruje koľko percent z celkovej variability je vysvetlenej modelom. Ak má koeficient determinácie nízke hodnoty, tak považujeme konvergenciu, resp. divergenciu za málo preukaznú. V tom prípade je vhodné doplniť analýzu o korelačný diagram (Minařík et al., 2013).

Korelačný diagram je grafické zobrazenie, kde na osi x sú logaritmované hodnoty počiatočných hodnôt (hodnoty na začiatku analyzovaného obdobia). Na osi y sú logaritmované hodnoty priemerného koeficienta rastu. Priemerný koeficient rastu sa vyjadrí

$$\bar{k}_i = \sqrt[T]{\frac{Y_{i,T}}{Y_{i,0}}} \quad (2)$$

Po rozdelení korelačného diagramu dvoma kolmými osami, ktoré prechádzajú aritmetickými priemermi sa graf rozdelí na 4 kvadranty a zároveň sa všetky analyzované objekty rozdelia na 4 skupiny. Kvadrant s nadpriemernými počiatočnými hodnotami a s nadpriemernými priemernými koeficientami rastu je prvý. Sú v ňom krajiny, ktoré sa vzďaľujú od ostatných. Kvadrant s podpriemernými počiatočnými hodnotami a s nadpriemernými priemernými koeficientami rastu je druhý. Sú v ňom krajiny, ktoré majú tendenciu sa presunúť do prvého kvadrantu. Kvadrant s podpriemernými počiatočnými hodnotami a s podpriemernými priemernými koeficientami rastu je tretí. Sú v ňom krajiny, ktoré zaostávajú za ostatnými. Kvadrant s nadpriemernými počiatočnými hodnotami a s podpriemernými priemernými koeficientami rastu je štvrtý. Sú v ňom krajiny, ktoré majú tendenciu sa presunúť do tretieho kvadrantu (Minařík et al., 2013).

3. VÝSLEDKY A DISKUSIA

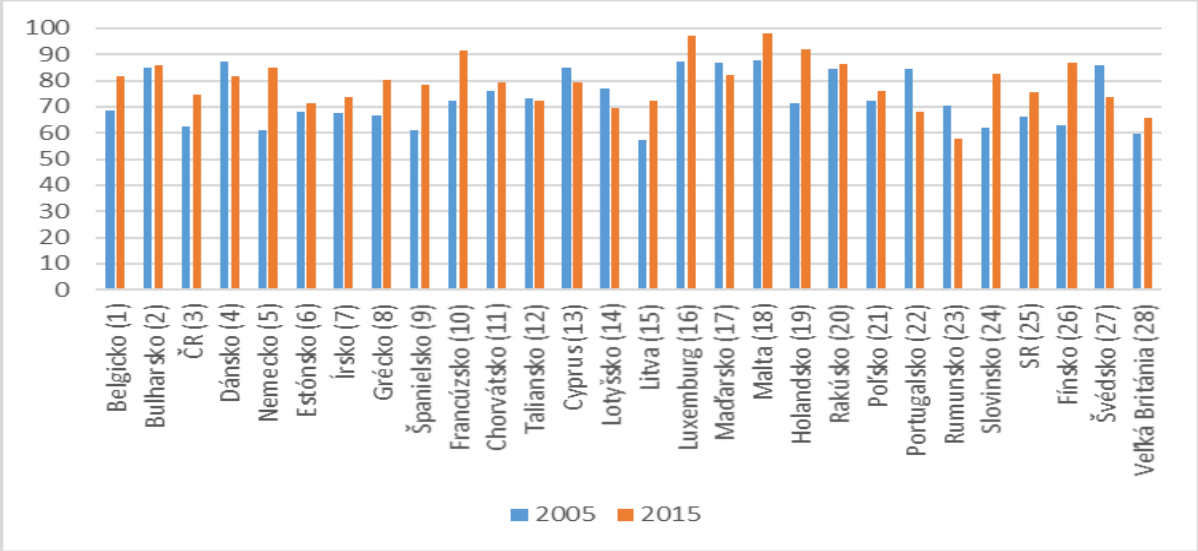
V hodnotení užitočnosti vlastnej práce zamestnaných vo veku 15-24 rokov môžeme pozorovať národnostné rozdiely (obrázok 1). Na začiatku analyzovaného obdobia dosiahla najnižšiu hodnotu ukazovateľa Litva (57,1 %). Na konci analyzovaného obdobia dosiahlo najnižšiu hodnotu Rumunsko (57,6 %). Naopak najvyššie hodnoty na začiatku a na konci analyzovaného obdobia dosiahla Malta (87,7 % a 97,9 %). Z popisných štatistík v tabuľke 1 je zrejmé, že medzi krajinami sa v analyzovanom období znížila variabilita vyjadrená smerodajnou odchýlkou, čo môžeme hodnotiť pozitívne. Väčšina krajín zaznamenala v analyzovanom období nárast ukazovateľa. Najvyšší nárast (až o 23,9 %) bol vo Fínsku. Túto zmenu hodnotíme výrazne pozitívne. Veľký nárast ukazovateľa zaznamenalo aj Nemecko (nárast o 23,7 %), Slovinsko (nárast o 20,4 %) a Holandsko (nárast o 20,3 %). Aj tieto krajiny môžeme zaradiť do skupiny krajín s pozitívnymi zmenami v motivácii mladých zamestnancov. Naopak výrazný pokles v hodnotách ukazovateľa bol v Portugalsku (pokles o 16,5 %) a vo Švédsku (pokles o 12,5 %). Tieto krajiny môžeme zaradiť do skupiny s negatívnymi zmenami v motivácii mladých zamestnancov.

Tabuľka 1: Popisné štatistiky hodnotenia užitočnosti vlastnej práce zamestnaných vo veku 15-24 rokov

	Počet	Aritmetický Priemer (%)	Medián (%)	Minimum (%)	Maximum(%)	Dolný kvartil (%)	Horný kvartil (%)	Sm.odch. (%)
2005	28	73,2071	71,8500	57,1000	87,7000	64,5000	84,7500	10,1105
2015	28	79,1964	79,4500	57,6000	97,9000	72,8500	85,3500	9,2788

Zdroj: spracované na základe údajov Eurostatu (2022)

Obrázok 1: Hodnotenie užitočnosti vlastnej práce zamestnanými vo veku 15-24 rokov v % v krajinách EÚ28



Zdroj: spracované na základe údajov Eurostatu (2022)

V hodnotení užitočnosti vlastnej práce zamestnaných vo veku 55-64 rokov sú značné národnostné rozdiely (obrázok 2). Popisné štatistiky ukazovateľa sú uvedené v tabuľke 2. Minimálnu hodnotu ukazovateľa dosiahla na začiatku analyzovaného obdobia Veľká Británia (74,7 %). Na konci analyzovaného obdobia dosiahlo najnižšie hodnoty Poľsko (75,2 %). Naopak najvyššie hodnoty na začiatku analyzovaného obdobia dosiahlo Slovinsko (100 %) a na konci analyzovaného obdobia Holandsko (97,8 %). Medzi krajinami sa priemerná

úroveň ukazovateľa v analyzovanom období zvýšila. Z popisných štatistík je zároveň zrejmé, že priemerná úroveň ukazovateľa pre skupinu zamestnancov vo veku 55-64 rokov je výrazne vyššia ako pre skupinu zamestnancov vo veku 15- 24 rokov. Hodnotenie zamestnanej staršej pracovnej sily vo veku 55-64 rokov je teda pozitívnejšie ako hodnotenie zamestnanej mladej pracovnej sily vo veku 15-24 rokov. Medzi rôznymi vekovými skupinami sú teda rozdiely v hodnotení užitočnosti vlastnej práce. Je dôležité ich poznať a na základe špecifík voliť vhodné prístupy k pracovnej motivácii.

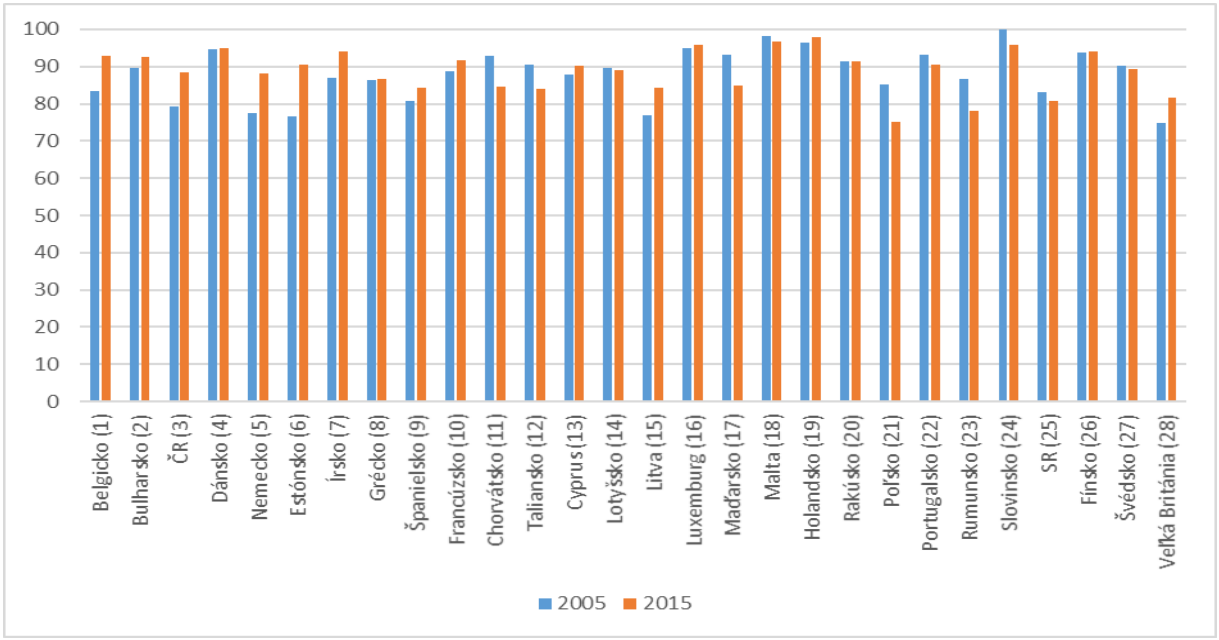
Tabuľka 2: Popisné štatistiky hodnotenia užitočnosti vlastnej práce zamestnaných vo veku 55-64 rokov

	Počet	Aritmetický Priemer (%)	Medián (%)	Minimum (%)	Maximum (%)	Dolný kvartil (%)	Horný kvartil (%)	Sm.odch.
2005	28	87,9607	89,0500	74,7000	100,0000	83,3500	93,1500	6,8720
2015	28	88,8714	89,6500	75,2000	97,8000	84,5500	93,4000	5,7950

Zdroj: spracované na základe údajov Eurostatu (2022)

Väčšina krajín zaznamenala v analyzovanom období nárast ukazovateľa. Najvyšší nárast (až o 14,1 %) bol v Estónsku. Táto skutočnosť svedčí o pozitívnych zmenách v motivácii starších zamestnancov v Estónsku. Veľký nárast zaznamenalo aj Nemecko (nárast o 10,6 %), Belgicko (nárast o 9,3 %) a Česká republika (nárast o 9,2 %). Aj tieto krajiny môžeme zaradiť do skupiny krajín s pozitívnymi zmenami v motivácii starších zamestnancov. Naopak výrazný pokles v hodnotách ukazovateľa bol v Poľsku (pokles o 10,1 %), v Rumunsku (pokles o 8,7 %), v Chorvátsku (pokles o 8,2 %) a v Maďarsku (pokles o 8,1 %). Tieto krajiny môžeme zaradiť do skupiny krajín s negatívnymi zmenami v motivácii starších zamestnancov. Pokles v hodnotách ukazovateľa nastal aj v SR, avšak bol len mierny.

Obrázok 2: Hodnotenie užitočnosti vlastnej práce zamestnanými vo veku 55-64 v % v krajinách EÚ28



Zdroj: spracované na základe údajov Eurostatu (2022)

Variabilita ukazovateľa pre zamestnaných vo veku 55- 64 rokov vyjadrená smerodajnou odchýlkou v analyzovanom období klesla, čo môžeme hodnotiť pozitívne. Pri porovnaní oboch skupín je zrejmé, že variabilita ukazovateľa pre zamestnaných vo veku 55-64 rokov je

výrazne menšia ako variabilita ukazovateľa pre zamestnaných vo veku 15-24 rokov. Teda variabilita ukazovateľa medzi krajinami je oveľa menšia u zamestnanej staršej pracovnej sily.

V nasledujúcom kroku sme analyzovali konvergenčné tendencie a zobrazili sme korelačné diagramy.

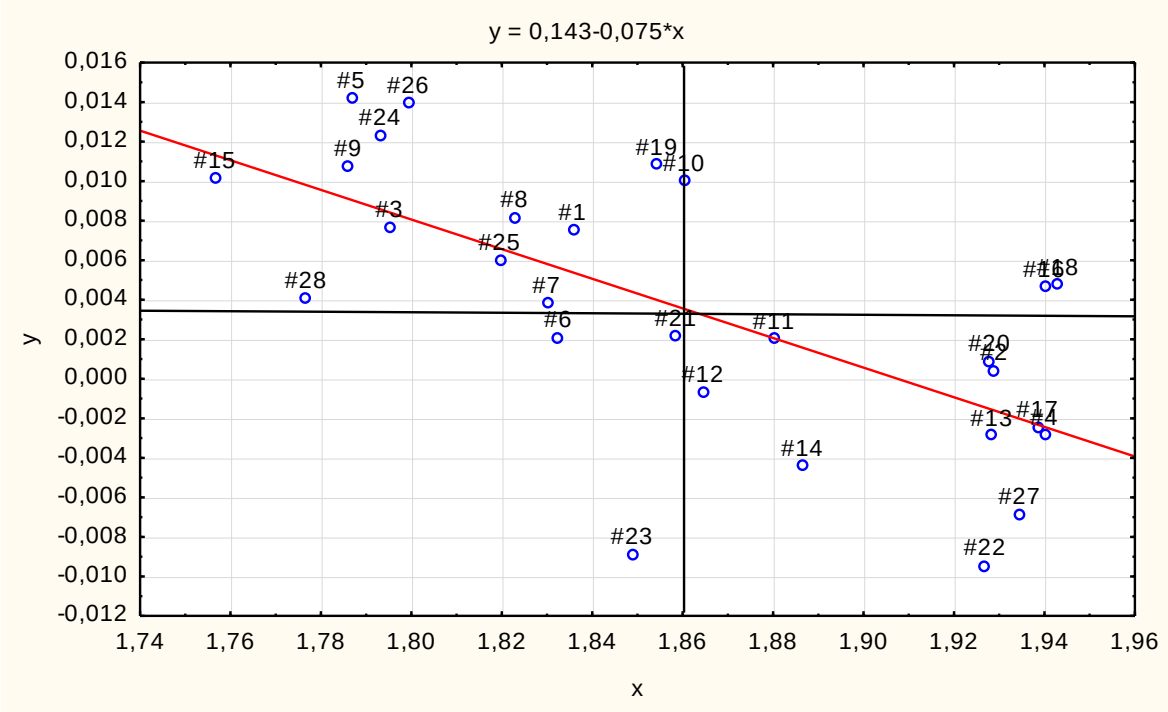
Tabuľka 3: Parametre regresnej analýzy ako súčasť beta konvergencie pre skupinu 15-24 ročných

	b	Sm.chyba z b	t(26)	p-hodn.
Abs. člen	0,1430	0,0300	4,7591	0,00006
x	-0,0750	0,0161	-4,6442	0,00009

Zdroj: spracované na základe údajov Eurostatu (2022) v programe Statistica

V tabuľke 3 sú parameter regresnej analýzy pre skupinu 15-24 ročných. Regresný koeficient je záporné číslo. Funkcia je klesajúca. Koeficient determinácie mal hodnotu 45,34 %. Konvergenciu považujeme za málo preukaznú. Analýzu sme doplnili o korelačný diagram (obrázok 3).

Obrázok 3: Korelačný diagram pre skupinu 15-24 ročných



Zdroj: spracované na základe údajov Eurostatu (2022)

Pozn.: označenie krajín je číslami ako v obrázkoch 1 a 2.

Z korelačnému diagramu (obrázok 3) vyplýva, že v treťom kvadrante sa nachádzajú krajiny – Estónsko, Poľsko a Rumunsko. Tieto krajiny zaostávajú za ostatnými. Naopak Malta a Luxembursko sa vzďaľujú od ostatných. Možno ich brať za krajiny, z ktorých si treba brať príklad.

V tabuľke 4 sú parameter regresnej analýzy pre skupinu zamestnancov vo veku 55-64 rokov. Regresný koeficient je záporné číslo. Funkcia je klesajúca. Koeficient determinácie mal však hodnotu 38,9 %. Teda 38,9 % z celkovej variability je vysvetlenej modelom. Konvergenciu z

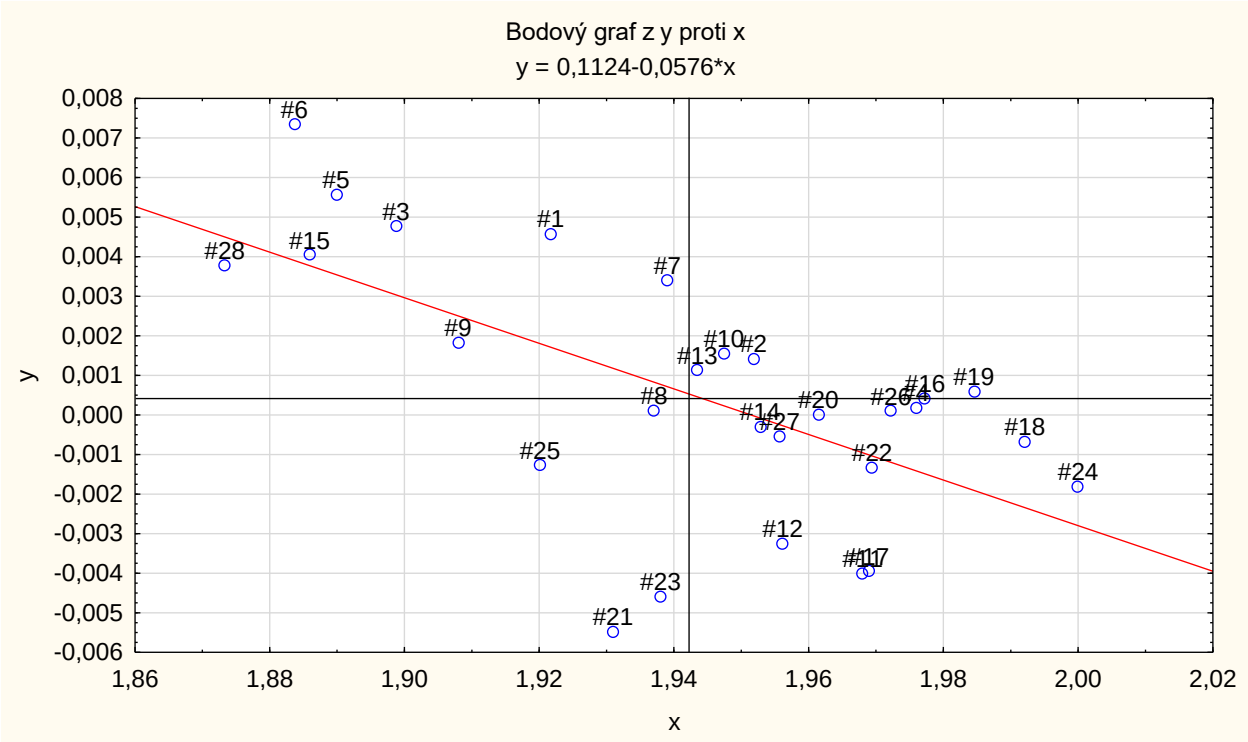
toho dôvodu považujeme za málo preukaznú. Analýzu sme doplnili o korelačný diagram (obrázok 4).

Tabuľka 4: Parametre regresnej analýzy ako súčasť beta konvergencie pre skupinu 55-64 ročných

	b	Sm.chyba z b	t(26)	p-hodn.
Abs. člen	0,1124	0,0275	4,0849	0,00038
x	-0,0576	0,0142	-4,0678	0,00039

Zdroj: spracované na základe údajov Eurostatu (2022) v programe Statistica

Obrázok 4: Korelačný diagram pre skupinu 55-64 ročných



Zdroj: spracované na základe údajov Eurostatu (2022)
Pozn.: označenie krajín je číslami ako v obrázkoch 1 a 2.

Z korelačnému diagramu (obrázok 4) vyplýva, že v treťom kvadrante sa nachádzajú štyri krajiny – Grécko, Poľsko, Rumunsko a SR. Tieto krajiny zaostávajú za ostatnými. Mali by sa zamerať na politiky, ktoré by zlepšili hodnotenie vlastnej práce zamestnanými vo veku 55-64 rokov. Zlepšenie hodnôt ukazovateľa by mohlo prispeť aj k rozhodnutiu zamestnancov predĺžiť ich pracovný život. Bulharsko, Francúzsko, Cyprus a Holandsko sa vzďaľujú od ostatných. Možno ich považovať za štáty, z ktorých si treba brať príklad.

Poľsko a Rumunsko sú krajiny, ktoré zaostávajú za ostatnými v oboch vekových skupinách. Tieto krajiny by sa mali najviac zamerať na personálne politiky, ktoré by prispeli k pozitívnemu hodnoteniu užitočnosti ich vlastnej práce.

Výskum ukázal, že vnímanie hodnoty užitočnosti vlastnej práce je vyššie pre staršiu generáciu než pre mladšiu. Hoci nevieme, aké sú dôvody respondentov, pre ktoré mladší ľudia vnímajú užitočnosť vlastnej práce horšie než starší ľudia, vzhľadom na problematiku starnutia populácie, postupného predlžovania pracovného života, či nedostatku kvalifikovanej pracovnej sily, je to pozitívny fakt vo vzťahu k pracovnej motivácii, na ktorom základe je možné koncipovať a implementovať stratégie rozvoja pracovnej sily a tak dlhodobejšie a

primerane využívať pracovný potenciál starších ľudí na trhu práce. Na druhej strane, postoje mladšej generácie sú výzvou pre zamestnávateľov, vzdelávacie inštitúcie, politiky štátov v oblasti ľudských zdrojov, aby pracovali s mladými na pozitívnejšom vnímaní hodnotenia vlastnej práce a jej významu, ktoré je z dlhodobého hľadiska podstatné pre rast ľudského kapitálu. Za vzor môžu poslúžiť politiky krajín, ktoré vo výskume obsadili popredné miesta ako Malta, Luxembursko, Fínsko, Nemecko, Slovinsko a Holandsko.

4. ZÁVER

Hodnotenie užitočnosti vlastnej práce zamestnanej staršej pracovnej sily vo veku 55-64 rokov je pozitívnejšie ako hodnotenie užitočnosti vlastnej práce zamestnanej mladej pracovnej sily vo veku 15-24 rokov. Staršia pracovná sila hodnotila vo väčšine krajín EÚ28 vlastnú prácu pozitívnejšie ako mladá pracovná sila. Pre analyzované obdobie je charakteristické, že väčšina krajín EÚ28 zaznamenala v skupine 15-24 ročných a aj v skupine 55-64 ročných nárast podielu zamestnaných, ktorí hodnotili svoju prácu ako užitočnú. V skupine 15-24 ročných bol najvyšší nárast vo Fínsku. Veľký nárast ukazovateľa zaznamenalo aj Nemecko, Slovinsko a Holandsko. Tieto krajiny mali pozitívne zmeny v motivácii mladých zamestnancov. Pokles ukazovateľa v analyzovanom období bol v Portugalsku a vo Švédsku. V skupine 55-64 ročných bol najvyšší nárast ukazovateľa v Estónsku. Nárast zaznamenalo aj Nemecko, Belgicko a Česká republika. Pokles v hodnotení užitočnosti vlastnej práce bol v Poľsku, v Rumunsku, v Chorvátsku a v Maďarsku. Tieto krajiny môžeme zaradiť do skupiny krajín s negatívnymi zmenami v motivácii starších zamestnancov. Pokles v hodnotách ukazovateľa nastal aj v SR, avšak bol len mierny.

Z korelačnému diagramu hodnotenia užitočnosti vlastnej práce pre skupinu 15-24 ročných vyplýva, že v treťom kvadrante sa nachádzajú krajiny – Estónsko, Poľsko a Rumunsko. Tieto krajiny zaostávajú za ostatnými. Naopak, Malta a Luxembursko sa vzďaľujú od ostatných. Sú to krajiny, z ktorých si treba brať príklad. Z korelačnému diagramu hodnotenia užitočnosti vlastnej práce pre skupinu 55-64 rokov vyplýva, že v treťom kvadrante sa nachádzajú štyri krajiny – Grécko, Poľsko, Rumunsko a SR. Tieto krajiny zaostávajú za ostatnými. Mali by sa zamerať na politiky, ktoré by zlepšili hodnotenie vlastnej práce zamestnanými vo veku 55-64 rokov. Zlepšenie hodnôt ukazovateľa by mohlo prispeť aj k rozhodnutiu zamestnancov predĺžiť svoj pracovný život. Bulharsko, Francúzsko, Cyprus a Holandsko sa vzďaľujú od ostatných. Sú to krajiny, z ktorých si treba brať príklad.

Dodatok

Tento príspevok bol vytvorený v rámci projektu VEGA reg. č. 1/0357/21 Multiplikačné efekty kvality ľudského kapitálu na ekonomickú výkonnosť a konkurencieschopnosť ekonomiky SR.

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HUMAN RESOURCES AS A RISK FACTOR OF THE SMALL AND MEDIUM- SIZED ENTERPRISES ACTIVITIES

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Abstract: *Human resources in small and medium-sized enterprises (SMEs) present a significant research area of scholarship. Researchers have stressed the importance of human resources in SMEs to enhance these enterprises' competitiveness and economic performance. Human resources also play an inevitable role in strategic management as well. The main aim of the paper is to evaluate the perception of the selected aspects of human resources as risk factors that could affect the activities of 172 Slovak agricultural SMEs. The results of this research showed, that the most important risk factor for SME entrepreneurs, is the qualification of employees. The differences in the perception of selected aspects of human resources according to the size category of SMEs, the region in which they operate, and the educational level of entrepreneurs were not confirmed.*

Key words: *human resources, risk, small and medium-sized enterprises, qualification, education, and mistakes of employees.*

JEL Classification: *O15, Q19, L26, G32*

1. INTRODUCTION

SMEs are considered to be the backbone of the economic activities in most European countries. SMEs perform activities in various sectors and they can vary in shape and size. SMEs significantly contribute to economic growth, contribute to job creation and ensure social stability, and they operate mainly at the national level. SMEs are increasingly sensitive to changes in business conditions, also due to this fact, various action programs have been adopted to increase the competitiveness of SMEs through research and innovation and to improve SMEs' access to finance. The current dynamic situation not only in Slovakia or the European Union but within the global space had affected the behavior of SMEs in an entrepreneurial environment (see also Poór et al, 2021; Sochuľáková and Kráľová, 2020). The entrepreneurial environment is characterized by strong competition, unstable customer preferences, and unstable economic and political situations. Important topics in business are corporate social responsibility, industrialization and technological changes, and green and circular economy. Situations in which SMEs carry out their activities create not only opportunities for development and market success but also generate significant risks. According to Kramarova (2016) the risk is perceived rather negatively, although it can occur even in a positive way not only from the theoretical (statistical) point of view, but also in the real economic world. The role of corporate risk-taking is an important element in firm performance (Sipa and Smolarek 2015) and has by strategic management researchers highlighted the importance of idiosyncratic risk as a source of competitive advantages (Gorzen-Mitka, 2018).

SMEs are established primarily to accomplish predetermined set goals and objectives. In achieving these goals and objectives, the work of human resources (employees) plays a significant role. Nowadays human resource is s gaining a position as ‘the soul of business” (Amrutha and Geetha, 2020). Humans or men are the most important assets for SMEs rather than money, materials, or machines because without skilled and competent workers no activity can be performed efficiently and cost-effectively (Shafeek, 2016). This is simply because organizations, irrespective of other resources (financial, land, technological) at their

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disposal, cannot achieve anything meaningful in terms of attaining their set goals, without human resources galvanizing all other resources (Abasilim et al., 2019).

Human resources can also be considered as a positive element of SMEs, but as well as a risky element in this constantly changing environment, and from a negative perspective, they represent a great risk for the SMEs' ability to achieve strategic goals and objectives. Human errors including management failures, insufficient abilities, personal characteristics, or the failures of individual employees in work attitudes can occur in any area of an enterprise's activity and can thus significantly influence a company´s ability to reach its goals (Urban, 2018). Nowadays, the importance of human resource risk in organizations has greatly increased, and some thinkers refer to it as a core competency and a key responsibility for any human resource professional (Kermani et al., 2021). According to Diao & Ghorbani (2018), human factors are a potential source of risk regardless of the level of process and production automation in the industry. Human resources risk is an inherent part of company operations, whereas the social sub-system is an indispensable key factor for the smooth running of business entities. Therefore, human resources risk should be managed, as any other risk type (Bombiak, 2017). Human resources as a risk factor can become a substantial part of the business activities of SMEs.

The bearer of the basic production factor of work is represented by a man. In general, people, their knowledge, and their skills are considered to be the most valuable resource a company has. For implementing sustainable management in business life, there is a need to create a commitment to the sustainability of every human being (Okreglicka, 2018). Focusing on human resources is considered a priority that the management of companies has an obligation to enshrine in the strategy of the organization. This segment is a key element of business development, due to the fact that human resources change the competitiveness of businesses (Hajduová and Sebestyén, 2021). This also applies to the agricultural sector. The growth and development of the agricultural sector are conventionally seen to lead to the growth and development of other sectors so if the agricultural sector is not developed, the supply of factors and inputs will be impaired for the activities of other economic sectors (Ataei, 2020). Agriculture can create jobs and has the ability to offer activities with a positive impact on society. It is a useful tool for rural development. Agriculture has a huge potential towards addressing the issue of poverty alleviation mainly in countries with poor economic systems (Jhariya et al. 2019). The role of human resources management in the agricultural sector is selecting, recruiting, managing, and maintaining the workforce. The workforce in the agricultural sector is diverse from specialized experts, skilled workers, semi-skilled workers, and even the unskilled. The recruitment and selection process of the company should be based on its long-term goals (Javed and Cheema, 2017).

Agriculture is one of the oldest production branches of the national economy in Slovakia Despite the urbanization trend, a rural character prevails in Slovakia in the area of population settlement. Small rural communities, where most of the population lives, form a natural reproductive base of labor forces for primary agricultural production. Due to these facts, our study is focused on aspects of human resources in agricultural SMEs, because research that contributes to the development of the agro-industrial system can help solve problems related to the development of SMEs in this sector. In 2021, there were registered 23 875 agricultural SMEs and only 1 large agricultural enterprise in the database of the Statistical Office of the Slovak Republic. The agricultural SMEs operate in an environment significantly different from other sectors of the national economy, they belong to the least competitive firms and their regional location plays an important role in the determination of firm competitiveness (Dvouletý and Blažková, 2020). Succeeding in the competition requires business practices of SMEs and the development and management of human resources from entrepreneurs.

SMEs differ from each other in various areas. They provide activities within different economic branches, and they differ in their size classification, and in the region in which they

provide their activities, the differences are also created by the people who manage them. In the literature, we find a number of studies on SMEs that evaluate the impact of these differences on various areas such as performance, competitiveness, internationalization, innovativeness, issues of human resource management, and other contexts. This paper fills a gap in research focused on SMEs, considering that it examines human resources as a risk aspect of the work of SMEs by answering the research question: How risky do agricultural entrepreneurs perceive human resources in the context of educational level, qualification, and human mistakes in their activities?

2. PROBLEM FORMULATION AND METHODOLOGY

The major purpose and principle of human resources management, more so in SMEs, is to make proficient utilization of existing human resources and the desire to have skilled and competent workers to make their firm more effective than their competitors (Shafeek, 2016). The capacity to generate knowledge and disseminate it in a firm is considered a primary strategic competence for attaining competitiveness. Knowledge literature reveals how relevant it is to increase interest in recognizing and managing knowledge inherent in workforces and other firms' dynamic capabilities that allow them to benefit from available knowledge within the milieu (Medase, 2021). How Lemanska-Majdzik (2022) stated, the knowledge is considered as the most important source allowing for gaining a competitive advantage, and knowledge management is becoming a vital component of the entire management process of organizations.Tools to improve access to knowledge should be based on the support of in-house research activities, technical start-ups and spin-off companies, enhancing partnerships and networking for collaboration on innovation activities, building clusters, and knowledge hubs, or many other tools (Hrivnák and Moritz, 2021).

In general, for every occupation, the required level of education and practical skills for the achievement of optimal job performance is needed. Individuals whose education level is higher than this required level are classified as over-educated, and those whose education level is lower than this required level are classified as under-educated (Quang and Tran-Nam, 2019).

The education level of employees is a topic often discussed in the literature. Educated employees can be a significant benefit for SMEs in several areas, such as innovation and faster adaptation to changing customer requirements. On the one hand, educated employees contribute significantly to the activities and market success of the company, on the other hand, educated employees are more likely to leave the company if they get a more interesting job offer (Demirkan et al., 2022). There is no need to increase only aimlessly artificially the number of people with a university degree, the crucial issue is which sectors are promising and soon there will be an increased demand for them on the labor market (Ivanová et al., 2021). Unlike large enterprises, where employee learning is organizationally formalized, in SMEs, it is more about learning from interactions with stakeholders such as customers or suppliers. It is due to the aspects in which SMEs differ from large-sized and professional-run organizations, in their learning mechanisms because of differences in their management, operations, internal structures, and resources (Querbach et al., 2021). SMEs use learning practices differently due to their resource constraints, different workplace conditions, and varied business nature (Tam and Grey, 2016).

Education and qualification relate to another area that is important to observe. If unskilled or technically incapable employees are doing tasks, they probably will make more mistakes, than qualified employees. The practice also showed, that a lot of owners or managers in SMEs often direct and control every move/task performed by their employees (Ndidi et al., 2022). Both situations bring a higher level of risk that their employees will do a mistake or will fail.

Agriculture plays an important role in many economies in the world. However, poor farming methods and natural resource exploitation have taken us to an extent where the survival of human beings is threatened by factors such as global warming and climate change (Javer and Chema, 2017). However, the literature on the use of human resources in agriculture by SMEs lacks frameworks that can help academics and practitioners understand how sustainable functioning of SMEs in the agricultural sector can be achieved based on the use of human resources, which on the one hand are of significant benefit to the enterprise, but on the other hand, they can pose a significant threat. The above creates space for us to determine the research hypotheses:

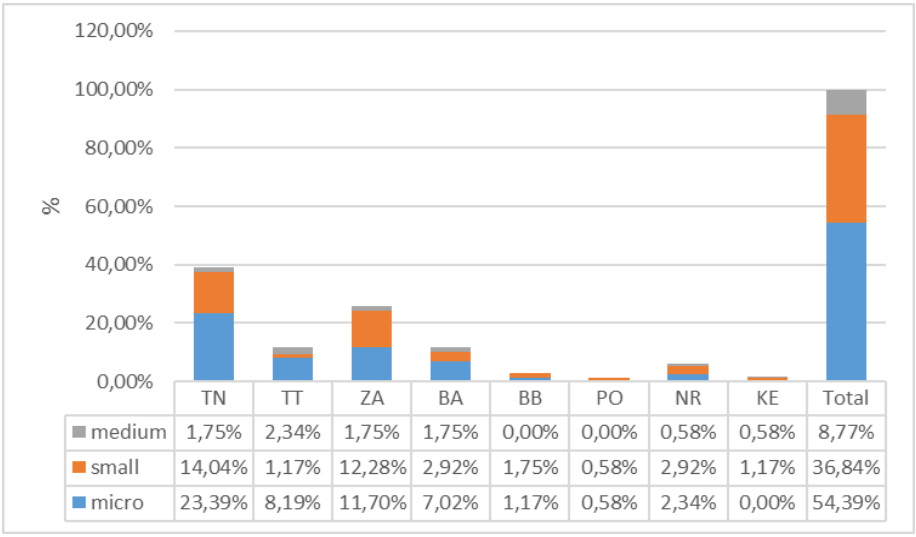
H1 The perception of the education level of employees as a risk depends on the size category of SMEs.

H2 The perception of the qualification of employees as a risk depends on the size category of the SME and the region in which the SMEs carry out their activities.

H3 The perception of mistakes of employees as a risk depends on the size category of SMEs and the level of education of the owner/manager of SMEs.

Within the frame of the project VEGA reg. n. 1/0718/22 pilot study among SMEs with a focus on human resources aspects in agriculture was realized. The pilot study took part in 171 SMEs represented by an owner/manager (a responsible person in SME) from eight self-governing regions (BA – Bratislava, TT – Trnava, TN– Trenčín, ZA – Žilina, NR – Nitra, BB – Banská Bystrica, PO – Prešov, KE – Košice). According to European Commission's 2015 recommendations, for determination of the size category of the enterprise, the number of employees (SMEs employing less than 250 persons – micro: 0-9, small: 10–49, medium: 50-249) is the primary criterion and the other two criteria, annual turnover, and annual balance sheet are merely supplementary criteria. Figure 1 presents the main characteristics of respondents according to size category and region, where they belong. Most respondents (67SMEs) carry out their activities in the Trenčín region and the least (2 SMEs) in the Prešov region.

Figure 1: Region of SMEs' operation and size category of respondents



	TN	TT	ZA	BA	BB	PO	NR	KE	Total
medium	1,75%	2,34%	1,75%	1,75%	0,00%	0,00%	0,58%	0,58%	8,77%
small	14,04%	1,17%	12,28%	2,92%	1,75%	0,58%	2,92%	1,17%	36,84%
micro	23,39%	8,19%	11,70%	7,02%	1,17%	0,58%	2,34%	0,00%	54,39%

Source: author's research

Most respondents in our research had secondary school education (79 people), 9 people had secondary professional education, 26 people had bachelor's degrees and 57 had master's degrees. The structure of respondents according to the size category of SME and type of education is presented in Table 1.

Table 1: Education level and size category of respondents

Education		secondary	professional	Bc.	MA	Total
micro	**number**	47	5	15	26	93
	%	27,49	2,92	8,77	15,20	54,39
small	**number**	26	4	11	22	63
	%	15,20	2,34	6,43	12,87	36,84
medium	**number**	6	0	0	9	15
	%	3,51	0,00	0,00	5,26	8,77
Total	**number**	79	9	26	57	171
	%	46,20	5,26	15,20	33,33	-

Source: author's research

The respondents could express their perception of three observed areas related to education, qualification, and mistakes of their employees as a risk factor by using 6 points scale (from 0 – no risk to 5 catastrophic risk). They also express the probability, that these three factors could occur in their activities by using 6 point scale (from 0 - no probability of occurrence, to 5 with very strong probability). The value of risk was calculated by using the formula:

$$R=RPxP \tag{1}$$

Where: R – the value of risk, RP – risk perception, P – probability, that risk factor will occur in the SME's activity.

For evaluation, we used statistical methods (descriptive statistics and the Kruskal-Wallis test), and the calculations were realized in the statistical software STATISTICA.

3. RESULTS

The evaluation of results by analysis of variance in the case of H1 is shown in Table 2. In this case, the size category of SMEs was the grouping variable. The null hypothesis was tested by using the Kruskal-Wallis test (KW): The difference in mean values of perception of the educational level of employees among the size categories of SMEs is not statistically significant. The calculated p-value of variance intensity analysis of rated perceptions is higher than 0.05. The null hypothesis is not rejected. It means, that there is no difference in the perception of the educational level of employees among the three size categories of SMEs as a risk factor.

Table 2: The statistical characteristics of respondents' answers and the results of the Kruskal-Wallis test for WH1

Educational level of employees	**μ**	**σ**
perception as risk	2.40	1.30
value of risk (perception x probability)	6.14	5.89
KW test	H (2, N= 171) =2.657 p =0.26	

Source: author's calculations

The evaluation of results by analysis of variance in the case of H2 is shown in Table 3. In this case, the size category of SMEs and the region in which SMEs operate were the grouping

variable. The calculated p-value of the Kruskal-Wallis test confirms the null hypothesis. It means, that there is no difference in the perception of the qualification level of employees among the three size categories of SMEs as a risk factor. The same is from the point of view of the eight self-governing regions.

Table 3: The statistical characteristics of respondents' answers and the results of the Kruskal-Wallis test for WH2

Qualification of employees	μ	σ
perception as risk	2.56	1.32
value of risk (perception x probability)	7.01	6.13
KW test (size category)	H (2, N= 171) =2.504 p =0.29	
KW test (region)	H (7, N= 171) =13.737 p =0.06	

Source: author's calculations

The evaluation of results by analysis of variance in the case of H3 is shown in Table 4. The grouping variables were the size category of SMEs and the educational level of SME's owner/manager. The research study of Emmanuel (2017) showed, that there is a significant positive influence of entrepreneurship education on the performance of SMEs. As well Ključnikov et al. (2019) stated that more educated executives perform better in innovativeness, proactiveness, and autonomy, while less educated executives have higher propensities in risk-taking and competitive aggressiveness. In our research, the null hypothesis was confirmed for both grouping variables also in this case. It means that the perception of employees' mistakes doesn't depend on the size category or the educational level of the SME's owner/manager.

Table 4: The statistical characteristics of espondents' answers and the results of the Kruskal-Wallis test for WH3

Mistakes of employees	μ	σ
perception as risk	2.54	1.36
value of risk (perception x probability)	6.91	6.01
KW test (size category)	H (2, N= 171) =0.920 p =0.63	
KW test (education level)	H (3, N= 171) =0.787 p =0.85	

Source: author's calculations

4. CONCLUSION AND DISCUSSION

The results of this study showed, that there are no differences in the perception of the educational level of employees, their qualification, and their work mistakes from the point of view of entrepreneurs of SMEs within the three observed categories: size category of SME, region in which SMEs operate and the education level of the person responsible of managing the SME. From the point of view of the answer to the research question stated in the part of Introduction, we can conclude, that the perception of the three aspects of human resources as risks is relatively on the same and middle level. The mean values of the perceptions ranged around 2.5. The highest value of risk achieved the factor of the qualification of employees. The qualification of employees is the focus of various researchers, who executed research studies from various points of view. Mura et al. (2017) in their research found, that the size category of SMEs affected the decisions of businesses that are motivated to hire qualified employees. They stated, that more attention should be paid to mentoring employees who can become highly qualified and trained, and loyal. It is important due to the fact, that highly qualified employees are more in demand in the labor market, which makes them risky for SMEs. SME employees perceive the importance of learning practices differently in the

workplace. Their choices are strongly linked to how effective the practice will be for work or how convenient it is for them to practice at work. Likewise, SMEs opt to use learning practices differently due to their resource constraints, different workplace conditions, and varied business nature (Tam and Grey, 2016). Undoubtedly, the prospect of improving one's qualifications at work is a significant motivating factor for employees themselves, whereas for the employer the actions taken in this field constitute an element of the human-resources policy by motivating the employees and strengthening their attachment to the company, hence creating the company's image. (Medrala, 2019). The results of Kozubikova et al. (2020) showed, that as the most important source of human reseources risk, the respondents in Czech and Slovak Republic consider "insufficient employee qualification". All these aspects and the results of our study provide areas for the next in-depth research focus on the element of employees' qualification as a risk factor of human resources.

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CAUSES AND CONSEQUENCES OF THE CAPACITY CRISIS IN HEALTH CARE ORGANIZATIONS

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Abstract: *The presented paper deals with the lack of employees. This situation is called the capacity crisis. The capacity crisis in the Czech Republic is plaguing companies and organizations in the private and public sectors. The paper aimed to map the situation in all hospitals in the Czech Republic using a questionnaire survey and to find out what consequences this capacity crisis has. The situation is even worse now that the Covid-19 pandemic is straining medical facilities like never before. A weighted average for each category was used to evaluate the questionnaire survey and individual preferences. The results of the analysis confirmed the assumption of the author's team. All hospitals face an acute shortage of doctors and nurses, regardless of the size of the organization. A clear consequence of the capacity crisis is the overloading of staff, which is often in conflict with the Labor Code. The paper concludes with a summary and discussion of how to improve the readiness of hospitals in the future. Only a system solution can improve the situation.*

Key words: *capacity crisis, health care organizations, Covid-19, human resource management.*

JEL Classification: *M54, M12, O15.*

1. INTRODUCTION

The risk management process is in a constant development, as organizations have to always be prepared for the unexpected and aware of the stages in the risk management process, since a successful practice contributes to meeting the objectives (Mihai, Vladut, Dutu, Dutu, 2020). Risk management involves structured management control activities and internal controls, that is, it is a process of identification, measurement, monitoring, controlling, and mitigating a company's risks (Eyerkaufer, Bonfante, Dallabona, Fabre, 2019). The main objective of risk assessment is to help to comprehend the factors which lead to the occurrence of a specific risk, by giving information about its impact, to avoid it or reduce its effects (Bentes, Nobrega, Teixera, et al., 2020). The business of the healthcare organizations generates a large impact on the society by three dimensions: economical, environmental, and social (Machado, Scavarda, Kipper, et al., 2015). Risk management in healthcare facilities focuses on processes whose performance is specifically defined in standards and guidelines that the organization creates according to its needs. Similar to other high-risk systems, the complexity of healthcare systems generates errors and adverse events if not controlled properly (Kubek, 2018; Ortiz-Barrios, Herrera-Fontalvo, Rua-Munoz, 2018). Risk management in healthcare is associated primarily with patient safety, which is a global issue. Despite significant advances, patient safety remains a critical public health concern (Franklin, Gandhi, Bates, et al., 2020). Demand for healthcare is significantly higher than the human capacity and resources available in healthcare departments (Alhassan, Nketiah-Amponsah, Spieker et al., 2015). In the wake of the Covid-19 pandemic, the shortage of doctors and medical staff has become one of the most significant operational risks in medical facilities. The relative shortage of hospital resources is a growing issue that can influence the practices of physicians and the subsequent care provided to their patients (Sen-Crowe, Sutherland, McKenney, Elkbuli, 2021). Over the past

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few months, Covid-19 has ravaged health systems and economies in countries across the world. While many would argue that a pandemic of respiratory disease was predictable, the systematic failures of the response came as a surprise. From the shortage of hospital beds and medical equipment to the gross insufficiencies in national surveillance systems, supply chains and laboratory capacity, Covid-19 has laid bare the health care limitations (Jensen, Kelly, Avendano, 2021). Hospitals play a critical role in providing primary health care to people, especially in natural or human-made disasters. Pandemics can lead to an increasing spread of disease, with irregular and suddenly increasing patient demands that can affect hospitals' capacity and the overall functioning of the health system. To cope with the difficulty of such an epidemic disaster, hospitals must have completed their preparations before these events occur. Nowadays, an overwhelming majority of the world is fighting against an epidemic called Covid-19. The world faces the demand for infected patients who arrive at the hospitals heavily and irregularly (Gul, Yucesan, 2021).

As the Covid-19 pandemic spread across the globe, its novelty and highly infectious nature have resulted in an unprecedented demand for health care services (Maben, Bridges, 2020). This fact is also confirmed by studies from abroad, which are conducting research to determine the capacity crisis. Participating services have prepared to respond to Covid-19, but their capacity to respond may be limited by lack of staff support and resources [Boufkhed, Hardinh, Kutluk, et al., 2021; Desalegn, Deyessa, Teka, B., et al., 2021; Maben, Bridges, 2020). Together with the expansion in care facilities, the demand for health care workers rose on the already insufficient workforce (Maben, Bridges, 2020). In a bid to raise the manpower to serve these patients, the Ministry of Health (MOH) called for medical professionals from the private sector, those who had retired and those who were medically trained but no longer practising to sign up as volunteers to fight the pandemic. MOH also redeployed manpower from other industries that were affected by COVID-19 to the health care sector (Cheow, 2020). This fact shows how the pandemic has expanded labor capacity requirements. Under the International Health Regulations (IHR), countries are required to prepare response plans for public health emergencies of international concern (World Health Organization, 2018). For Europe, the World Health Organization Regional Office has published a checklist entitled "Hospital Readiness Checklist for Covid-19" to take in the context of a continuous hospital emergency preparedness process (World Health Organization, 2020). In this document, they have advised hospitals to manage the preparatory process under ten critical components as follows: surge capacity, infection prevention and control, case management, human resources, continuity of essential health services and patient care, surveillance: early warning and monitoring, communication, logistics and supply chain management including pharmaceuticals, laboratory services, and vital support services. Hospitals are facilities with complex processes, mostly connected to external support and supply lines (Haghani, Bliemer, Goerlandt, 2020). Fighting against the pandemic is carried out with the proper management of human resources, equipment, materials, and information. One of the essential parameters in combating pandemics is planning resources in environments where resources and time are limited. Hospital preparedness is a vital component of an emergency plan that can significantly reduce the impact of large-scale epidemics (Gul, Yucesan, 2021).

2. METHODOLOGY

A research question has been identified regarding to the capacity crisis of hospital facilities in the Czech Republic. In particular, it was examined whether the capacity crisis (staff shortages) is facing all types of hospitals in the Czech Republic in the same way. At the same time, the consequences of staff shortages in individual types of hospital facilities were investigated. The aim of the study was to find out whether there are noticeable differences between the individual types of medical facilities. Equally interesting could be the results in individual solutions to the capacity crisis.

A questionnaire survey was conducted in May and June 2022. All facilities providing medical care and which fell into the category of hospital facilities in the Czech Republic were addressed. The return rate of the questionnaires for individual categories of hospital facilities exceeded 40% in the monitored categories, see Table 1, where is also given the structure of respondents.

Table 1: Structure of respondents to the questionnaire survey

	Number of facilities – in the Czech Republic	Number of respondents	Share of respondents in the total number
University Hospitals	10	5	50 %
Regional Hospitals	14	6	43 %
District Hospitals	156	65	42 %
Total	180	76	42 %

Source: Research survey

The questionnaire consisted of closed and open questions related to the capacity crisis in hospital-type medical facilities. The closed questions were dichotomous. Respondents supplemented their observations, commented on closed-ended questions or commented on their evaluations in open-ended questions. The two questions of the questionnaire were designed so that the respondents rank the pre-prepared statements (facts) according to their importance. In this way, preferences in the consequences and possibilities of solving the capacity crisis in individual types of hospital facilities were monitored.

A weighted average for each category was used to evaluate preferences. The weights were determined according to the number of possible answers with a maximum of 6 (the most important) and a minimum of 1 (the less preferred) for the six answers to the question on the consequences of the capacity crisis. Similarly for five answers on the question of possible solutions to the capacity crisis, where the maximum was equal to 5 and the minimum was 1. After evaluating the responses in the individual monitored categories of hospital facilities, the values were averaged according to the number of facilities in the corresponding categories. The answers in the questionnaire, which the respondents had the opportunity to rank according to their preferences, were determined based on pre-research conducted at five selected hospital facilities before the survey.

3. RESULTS

A null hypothesis was established from the research question:

There is no difference in the capacity crisis between individual types of hospital facilities.

The results of the survey are presented in Table 2.

Table 2: Results of a survey of the capacity crisis in hospital facilities

	Lack of doctors?		Lack of nurses?		Lack of unhealthy staff?	
University Hospitals	80 %	YES	100 %	YES	100 %	NO
Regional Hospitals	83 %	YES	83 %	YES	67 %	NO
District Hospitals	100 %	YES	91 %	YES	100 %	NO
Total	97 %	YES	91 %	YES	97 %	NO

Source: Research survey

Table 2 shows the capacity crisis have to be addressed by all types of hospital facilities and there is no difference among them. The null hypothesis, the same trends of capacity crisis in

all types of hospital facilities, was also confirmed. There are no differences between different types of hospital facilities.

The answers of the respondents declare the lack of medical staff. The shortage of doctors is evident in all addressed district hospitals. On the contrary, the serious shortage of nurses is evident especially in the university hospitals. The lack of non-medical staff is more significant in regional hospital facilities (only 33% of the addressed facilities), but in general the lack of non-medical staff cannot be assessed from the respondents' answers as fatal for the preservation of health care. Although the return on the questionnaires was only about 40%. The consequences of staff shortages in hospital facilities are presented in Table 3 and for better visual interpretation also in the form of radar chart, see Graph 1. Respondents ranked the six consequences of the capacity crisis according to preferences. The set indicators were sorted by representatives of hospital facilities according to the preferences. These preferences were scored and averaged in the individual types of hospitals examined. The results are also shown in Table 3.

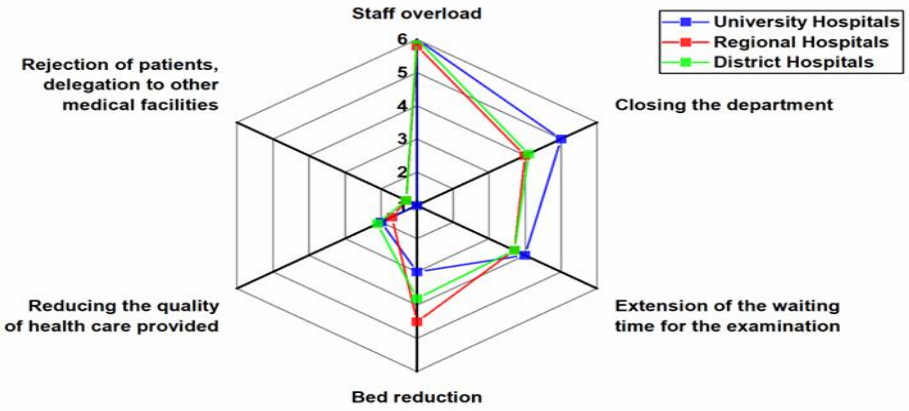
Table 3: Weighted averages of indicators of the consequences of staff shortages in hospital facilities

	University Hospitals	Regional Hospitals	District Hospitals
Staff overload	6,0	5,8	6,0
Closing the department	5,0	4,0	4,1
Extension of the waiting time for the examination	4,0	3,7	3,7
Bed reduction	3,0	4,5	3,8
Reducing the quality of health care provided	2,0	1,7	2,1
Rejection of patients, delegation to other medical facilities	1,0	1,3	1,3

Maximum = 6, minimum = 1
Source: Research survey

The main consequence of the capacity crisis is the overload of staff across all types of hospital facilities. Closing the department was preferred in the second place in university and district hospitals, in the regional ones it was only in the third place. The extension of the waiting time was the third in the order only for university hospitals, for regional and district only in the fourth place. The reduction of beds occupied the second place in regional, the third place in district and the fourth place in university hospitals. There are noticeable differences in this factor. The order of the remaining factors is already the same for all monitored categories of hospitals and they occupied the last two places. All monitored types of hospital facilities try to avoid reducing the quality of care provided or refusing patients. The differences in the values of the individual categories are better apparent from Figure 1 which shows that university and district hospitals have roughly the same evaluation of indicators (except for the reduction of beds). In the case of regional hospitals, they also prefer to overload existing staff first, but unlike university and district hospitals, they prioritize the reduction of beds, then closing departments and only then extend the waiting times for examinations.

Figure 1: Weighted averages of indicators of the consequences of staff shortages in hospital facilities



Source: Research survey

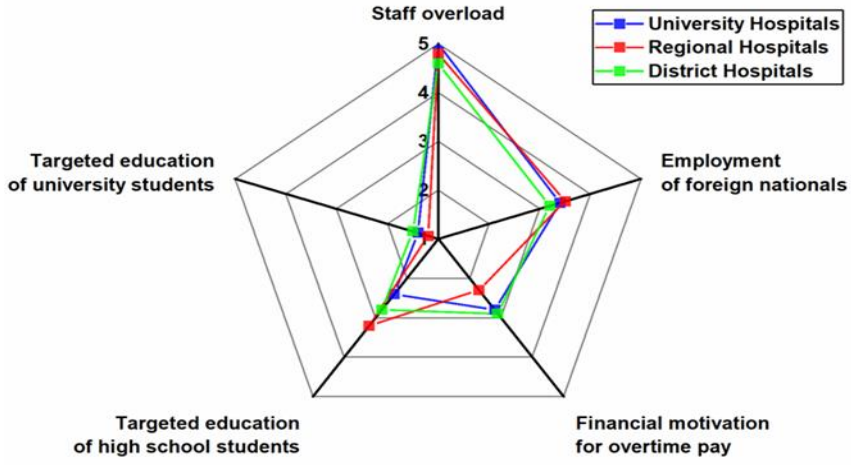
The consequences of the capacity crisis in hospital facilities are also associated with possible solutions. In the questionnaire, hospital representatives selected and ranked according to their preferences five ways of solving the staff shortage. The methodology and evaluation were similarly used in the search for the consequences of the capacity crisis. The only difference was the selection of a smaller number of factors, for this reason the maximum was equal to five and the minimum equal to one as previously. The results are evident in Table 4 and the differences according to the monitored categories of hospitals are also shown in Figure 2.

Table 4: Weighted averages of indicators for solving the capacity crisis in hospital facilities

	University Hospitals	Regional Hospitals	District Hospitals
Staff overload	5,0	4,8	4,6
Employment of foreign nationals	3,4	3,5	3,2
Financial motivation for overtime pay	2,8	2,3	2,9
Targeted education of high school students	2,4	3,2	2,8
Targeted education of university students	1,4	1,2	1,5

Maximum = 5, minimum = 1
Source: Research survey

Figure 2: Weighted averages of indicators for solving the capacity crisis in hospital facilities



Source: Research survey

All monitored types of hospital facilities prefer to overload existing staff and to employ foreign nationals when solving the capacity crisis. University and district hospitals have roughly the same evaluation in other selected aspects. Regional hospitals also prefer targeted education for high school students to financial motivation for overtime pay. For all monitored types of hospital facilities, targeted education of university students is took the last place for solving the capacity crisis.

Figure 2 shows the difference between individual types of hospital facilities in the financial motivation of overtime hours. It is similar in the case of the preference of regional hospital facilities in the targeted use of high school students as a solution to the capacity crisis, which is not so preferred in other monitored categories of hospitals.

4. DISCUSSION

The research results confirmed that the Czech healthcare system is facing an acute shortage of qualified staff. According to the President of the Czech Medical Chamber (Kubek, 2018), the Czech healthcare system has become dependent on foreigners, both doctors and nurses. Without staff from abroad, some medical disciplines and some workplaces would not exist. Another problem that complicates the situation is the unfavorable demographic development. The average age of doctors in some fields is rising alarmingly. Forecasts predict that the number of young doctors entering the Czech healthcare system does not cover the departure of the old ones. More than two-thirds of medical graduates are women, which puts particular surgical disciplines at risk, physically demanding. There are, therefore, several reasons for the capacity crisis. Other essential factors include long-term dissatisfaction with working conditions in healthcare. This dissatisfaction culminates in the fact that young doctors and nurses go abroad. This phenomenon is called brain drain. The current setting of the European labor market places minimal obstacles for the work of a Czech healthcare professional in another country. Mutual recognition of health education is a matter of course in the countries of the European Union. At a time of economic recovery, the number of job opportunities with higher remuneration and lower responsibility is increasing. It is also often the case that qualified nurses also leave the field of health care. Dissatisfaction is also related to the poor financial evaluation of medical staff. This is because healthcare is underfunded. With insufficient staffing, the burden on those medics who remain in medicine increases, creating a vicious circle. Dissatisfied health professionals are overwhelmed, and their conditions continue to deteriorate, thus further increasing the risk of leaving over time. This lack of staff logically results in overburdening people and persistent violations of laws and regulations. In a shortage of staff, continuous health care is provided only at the cost of violating the Labor Code, the Act on the Education of Physicians, and other legal regulations, endangering patient safety. Optimizing the current situation will be very challenging. It's a long-distance run. The whole approach requires a system solution. The Czech Medical Chamber proposes personnel audits in hospitals.

Human resources are a vital input in the provision of health care, which must be approached as systematically and carefully as the management of other areas of the health care facility's operation. Four data sources are available to evaluate the quality of medical and nursing care. This is information obtained from patients, external experts from audits, and quality indicators. The information obtained from audits and indicators is considered to be the most reliable. One of the tools for solving the local capacity crisis is the JAC (Joint Accreditation Commission) accreditation, which is accredited on a national basis. JAC's accreditation standards require the hospital management to plan its workplaces' staffing and present the numbers of staff, their education, and qualifications during the accreditation investigation. If this plan is not fully fulfilled for some reason, eg, due to a lack of staff, the hospital must document what measures it has taken to ensure that this does not affect the quality and safety of the services provided. One of the other requirements of this standard is to demonstrate the

possibility of continuous lifelong learning - based on the individual needs of each employee. It, therefore, means specifically developed plans for individual employees with records of their fulfillment. The achieved education and practice are essential conditions for health professionals to perform professional activities in providing health care. As an employer, JAC's accreditation standards oblige the hospital to determine each employee's specific scope of work activities, ie to determine the duties, relationships of superiority, subordination, and competence in detail. Insufficiently set competencies are listed as one of the dissatisfactions of medical and healthcare staff. At present, around 70 medical workplaces have accredited this standard.

5. CONCLUSIONS

Thanks to a questionnaire survey, the paper aimed to analyze whether the Czech healthcare system suffers from a shortage of medical staff, ie, a capacity crisis. These findings were assessed in various types of hospitals in the Czech Republic. The results confirmed an acute shortage of workers. The Covid-19 pandemic highlighted the seriousness of the situation. The main tasks for the future will be to stabilize medical staff and attract young people. Trade unions should play a significant role in negotiating not only working but also financial conditions with the government of the Czech Republic. It is necessary to support the system of public health protection, which has devastated financially and in terms of personnel over the past twenty years. The Covid-19 pandemic has shown the full extent of how irreplaceable hygienists and other professionals are. The concept of health care should be based on the rule that prevention should take precedence over treatment. The most challenging question for the future will be how to address increase the share of funding the Czech healthcare system adequately? The amount of money spent on protecting human health must approach the European average. At 7.5% of GDP, the Czech healthcare system is unsustainable if the main interest is accessible, high-quality, and modern healthcare. Health, its maintenance, treatment, help must be the number one priority!

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OHS MANAGER - AN IMPORTANT JOB POSITION NOWADAYS

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Abstract: *The aim of this paper is to present the competency framework of the OHS manager, respecting the legislative, normative and managerial requirements on this position, resulting from current practice in Slovakia and global trends. The essence of the framework are the created and described requirements for basic professional knowledge and skills in the field of OHS, managerial knowledge and skills, tasks and responsibilities for carrying out activities and the entire OHS management process. The position of OHS manager should be directed to strategic management and should bear responsibility for the OHS management system, i.e. design, manage, monitor processes associated with the OHS system. Also create and establish rules, directives, frameworks and assess risks arising from OHS in order to minimize negative impacts and increase prevention in the enterprise. The position of OHS manager should be a permanent job and should by performed in accordance with theoretical training and practice, which will bring to enterprise management increased probability of achieving goals, higher productivity, optimization of the work process, increased application of preventive measures and higher overall value and success of the enterprise.*

Key words: *OHS manager, job position, practice requirements, knowledge, skills*

JEL Classification: *L23, L52, M11*

1. INTRODUCTION

Increasing occupational health and safety (OHS) is important for enterprises, because it brings reduction of losses, higher productivity, efficiency and quality of work, which affects the overall performance and profitability of the enterprise and especially the safety of employees. The approach to OHS enforcement in the world is changing mainly by political, economic and social developments. The position of OHS manager in the Slovakia is usually included in the organizational structure only in large industrial enterprises. In small enterprises, this position is implemented in the form of outsourcing through security and technical services enterprises. Currently, the owners and top managers are aware of the importance of this job position and are inclined to create a permanent job position - OHS manager. In some enterprises, where the OHS manager has a decisive role, the "Safety first" approach is promoted. This results in the need to ensure for the labor market a professionally qualified person with relevant management skills in the field of occupational health and safety.

The safety and technical service provides the employer with consulting services in the field of professional, methodological, organizational, control, coordination, educational tasks and other tasks in ensuring health and safety, especially in terms of the adequacy of work spaces and structures, work processes and work procedures, work tools and other technical equipment, work environment and their technical, organizational and personnel security. In order to optimize working conditions, the safety and technical service influences the attitudes of the employer, managers and employees towards safety and health protection at work (Act no. 124/2006 Coll.). The tasks of the safety and technical service in Slovakia are currently performed by:

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- safety technician,
- authorized safety technician,
- expert in prevention and protection in the specific field of occupational health and safety.

According to the new legislation, which will come into effect on 1 January 2023, a safety technician is a natural person who has a valid certificate of professional competence as a safety technician issued by the National Labor Inspectorate. The position of authorized safety technician will be abolished. The legal requirements for obtaining a safety technician are written explicitly in the law. However, the practice is demanding in many ways and in certain cases there is also a cumulation of functions in the area of safety.

From the above, it follows that the *Occupational Health and Safety (OHS) Manager job position* should include the professional competence of a safety technician, but also other necessary competencies, i.e. knowledge, skills and personality assumptions to ensure the entire OHS management system in the company.

2. PROBLEM FORMULATION AND METHODOLOGY

The aim of the paper is to present the competency framework of the OHS manager, respecting the legislative, normative and managerial requirements imposed on this position, resulting from current practice in Slovakia and global trends.

The analysis and comparison of previous findings on the occupational health and safety manager position confirms the high topicality of the issue being addressed. Various scientific methods were used to fulfill the stated goal of the paper:

- The baseline analysis was used in the process of evaluating the competences of the OSH manager based on the processed results IOSH - The Institution of Occupational Safety and Health.
- The key methodological source is our own research aimed at determining the position of OHS managers in enterprises in Slovakia as part of the project APVV-20-0603 - Development of risk assessment tools for the purposes of selected enterprises and professions in the Slovak Republic in accordance with EU requirements.
- Generalization of current knowledge about the importance of the risk manager job position for enterprises in Slovakia resulting from global trends, e.g. EU-OSHA - the European Union information agency for occupational safety and health and others.
- Assessment of the acquired knowledge for the proposal of the competency framework for the creation of the job position - health and safety manager resulting from the innovation of the Crisis Management study program at Faculty of Security Engineering University of Zilina.
- Proposal of the competency framework of the OHS manager for Slovak conditions (knowledge, skills, personality assumptions, tasks and responsibilities) for the creation of a job position - OHS manager.

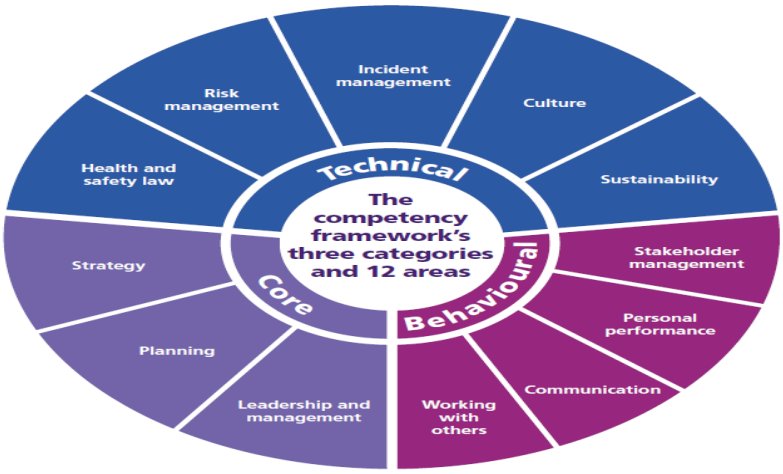
3. PROBLEM SOLVING / RESULTS / DISCUSSION

3.1 Evaluation of the competences of the OHS manager in the world

The Institution of Occupational Safety and Health (IOSH) is the world authorized organization for health and safety professionals. With more than 49,000 members in more than 130 countries, the institution is the largest professional organization for health and safety in the world (IOSH, 2022).

In accordance with the strategic goals i.e. improve, collaborate and influence, the institution of IOSH set the condition to pay more attention to building skills throughout the profession. In 2022, they released an *updated OHS manager competency framework* after extensive research and consultation with OHS experts, employers and other stakeholders. The updated framework reflects the significant changes that have occurred in the workplace over the past decade. *Today's health and safety managers need a wider range of skills, knowledge and behaviors to influence and manage changes.* This is more important than ever as economies recover from the global pandemic. The framework includes 69 competencies in three categories: *technical, basic and behavioral competencies of the OHS manager*. The range and level of competence required for each individual role will vary and will depend on factors such as the sector, the individual's seniority or career level and the size of the organization (IOSH, 2019, IOSH, 2022).

Fig.1 The IOSH competency framework Occupational Health and Safety (OHS) Manager



Source: Competency framework IOSH 2019, 2022

The IOSH Competency Framework reflects current best practice in occupational health and safety. It is designed to be an actionable set of standards to help employees and employers maximize performance and minimize risk.

The competency framework provides a set of *skills, knowledge and behaviors* that managers and employees can use to lead and take responsibility for their own learning and development. Each individual's development needs will vary by role, level and industry. Emphasis on specific core or behavioral competencies may vary from company to company due to size, structure or culture. The IOSH Competency Framework can improve performance by managing professional development and recruitment processes. *Technical and core competencies* focus on what the employee must do, while *behavioral competencies* provide clear guidance on how the employee should perform their role. Taken as a whole, the competency framework can inform about job description, recruitment processes and learning and development plans. It can also support performance management and help embed positive behavioral values that add value to employees' technical expertise (IOSH 2019, 2022):

A Technical competences of the OHS manager

This part of the framework includes a summary of OHS technical competencies that support the advisory capacity. They include an understanding of legislation, policy, risk management, incident management and the impact of health, safety and welfare on people. This section also includes new technical competencies such as sustainability, ethical practice, human capital and community impact:

1. Health and safety law

- Health and safety policy development
- Principles of health and safety and other legislative frameworks
- Health and safety governance
- OHS management systems
- Performance management
- Health and safety auditing
- Continuous improvement
- Quality management

2. Risk management

- Horizon scanning – respond to changes in time
- Risk identification and profiling
- Risk assessment and analysis
- Risk prioritization
- Risk control, mitigation and resilience
- Risk monitoring and reporting
- Integrating health and safety risk into business risk processes
- Occupational health and wellbeing
- Business continuity

3. Incident management

- Incident management
- Incident investigation
- Incident reporting
- Supporting a legal defense
- Proficiency with incident cost analysis

4. Culture

- Organizational culture
- Vulnerable workers
- Employee welfare
- Understanding of worker wellbeing
- Occupational health and safety competence
- External visitors, suppliers and contractors
- Responsiveness to changes in the modern workplace

5. Sustainability

- Sustainability
- Human capital
- Community impact
- Financial sustainability
- Ethical business practices

B OHS Manager core competencies

It is a set of skills needed to support and enable good decision-making in the workplace. They include competences related to strategy, planning, leadership and management. The development of these skills will significantly increase the general effectiveness of the OHS manager:

6. Strategy

- Strategy development

- Business context (internal and external)
- Diversity and inclusion
- Stakeholder management
- Influencing
- Knowledge management
- Learning organization

7. Planning

- Planning and implementation
- Financial management
- Data analysis
- Decision-making

8. Leadership and management

- Functional management
- Visible leadership
- Teamwork
- Project management
- Managing change
- Conflict management

C OHS Manager behavioral competencies

These competencies cover the way the OHS manager behaves in the workplace. They include working with stakeholders, ensuring good personal performance and professionalism, communicating and working effectively with others. These competencies are the basis for building successful working relationships:

9. Stakeholder management

- Collaboration
- Being the 'trusted advisor'
- Negotiating

10. Personal performance

- Personal responsibilities and accountabilities
- Self-motivation and discipline
- Prioritizing work
- Driven by results
- Problem-solving
- Innovation and creativity

11. Communication

- Communicating effectively
- Advocating for safety and inspiring people
- Providing constructive feedback
- Active listening

12. Working with others

- Self-awareness
- Commercial mind-set
- Empathy
- Professional integrity
- Coaching and mentoring

3.2 Competences evaluation of the OHS manager in Slovakia

In Slovakia, the OHS manager ensures compliance of enterprise´s processes with legislative requirements in the field of occupational health and safety at the workplace. He therefore ensures that the company meets the OHS requirements and are transferred to enterprise´s processes using guidelines, work procedures and other documents and that these processes are properly implemented. He is also in charge of managing risks arising from health protection and his responsibilities include compliance reporting, negotiations with the authorities (NIP, 2022; BOZPO, 2022).

The roles and responsibilities of the OHS manager (Act no. 124/2006 Coll.; NIP, 2022):

- is responsible for creating occupational health and safety policy and for managing environmental activities in accordance with applicable legislation,
- designs, manages and controls the processes associated with the implementation and development of the occupational health and safety management system,
- analyzes deficiencies found in the health and safety inspections and proposes corrective measures,
- analyzes work accidents, evaluates their causes, proposes measures to increase OHS,
- performs internal or external audits in the field of OHS management system and environmental management system,
- applies legislative requirements in the field of health and safety and the environment in the conditions of the enterprise,
- oversees the safe handling and storage of environmentally hazardous material,
- identifies hazards and assesses risks in the field of health and safety,
- identifies risks, environmental aspects and impacts,
- proposes changes to work procedures and production technologies with the aim of minimizing safety risks,
- acquaints the employer, statutory bodies and top management with the obligations of the enterprise according to regulations and standards in the field of health and safety,
- promptly solves problems and the organization of work in the event of breakdowns, accidents, floods and other emergency events,
- is familiar with legal regulations and technical standards in the field of health and safety and the environment (water, air, waste, chemicals, etc.),
- assesses and proposes changes to work procedures and production technologies with regard to safety and hygiene regulations,
- assesses and evaluates technical and organizational ecological measures, prepares the impact of the enterprise´s activities on the environment model systems,
- assesses the planned production process, technologies, materials, substances and investments from the environmental protection point of view,
- examines individual cases of violation of standards and legal regulations in the field of the environment,
- checks the state and level of safety measures in the work process when taking over new machines, equipment, buildings, etc.
- carries out a inspection of compliance with safety regulations, usage of protective equipment, aids and compliance with safety procedures,
- processes and submits complex reports in the areas of health and safety and the environment to the company management,
- proposes measures aimed at eliminating identified occupational health and safety and hygiene risks,
- creates and issues company regulations and standards for occupational health and safety and lists of risky workplaces,
- participates in negotiations with control and inspection bodies in the field of health and safety and the environment,

- issues binding instructions to ensure safe work for employees and workers of supplier organizations,
- ensures cooperation with the police force of the Slovak Republic and the state health and safety supervision authorities in the investigation of occupational accidents,
- provides training for employees and other persons, verifies the level of their knowledge in the field of health and safety,
- realizes the fulfillment of selected obligations in the field of fire protection in accordance with valid legal regulations.

3.3 Proposal of the Occupational Health and Safety Manager's Competency Framework for conditions of Slovakia

The proposal of the occupational health and safety manager's competence framework for conditions of Slovakia is created on the basis of the long-term experience of the authors from solving scientific and research projects at the Faculty of Security Engineering (FBI) UNIZA, as well as from the assessment of the competency framework by IOSH, which is a world organization dealing with the issue of occupational health and safety and other institutions e.g. EU-OSHA (2022). On the other hand, the proposed competency framework is the starting point for the modified study program Crisis Management at FBI UNIZA, which includes a trajectory towards the issue of health and safety.

The proposed competency framework of the OHS manager respects current global trends (IOSH, 2022; EU-OSHA, 2022; ILO, 2022; ILO 2021; ACCA, 2021; VUBP, 2022) practical as well as legislative requirements (Act No. 124/2006 Coll.) and normative requirements (ISO 45001) in the field of OHS in Slovakia. An important source is knowledge about the changing conditions in the external and internal environment, the expected sources of OHS risks and thus also the expected development of the content of the graduate's profile, previous experiences from the educational process and from the application of graduates in practice.

The proposed competency framework of the OHS manager for conditions of Slovakia consists of the following parts, Fig. 2.

Fig. 2 The Occupational Health and Safety Manager's Competency Framework for conditions of Slovakia

Source: own processing

1. Occupational health and safety professional knowledge:

- safety and health protection at work,
- work safety,
- legal regulations in the field of health and safety (e.g. Act No. 124/2006 Coll.)
- OHS management system according to ISO 45001,
- security of technical systems,
- principles of safe operation of technical equipment,

- environmental management (types of waste and their impact on the environment),
- environmental protection technology,
- environmental regulations,
- environmental management system ISO 14001,
- working environment and working conditions,
- work accidents and occupational diseases
- categorization of works,
- prevention of industrial accidents - causes and solutions of emergency situations
- fire protection.

2. Occupational health and safety skills:

- create, enforce and develop an OHS policy,
- apply legal and other regulations in the field of health and safety,
- implement and update the OHS management system in the enterprise,
- monitor changes in legislative and normative OHS requirements,
- identify dangers and threats in the enterprise,
- apply the principles of technical safety in the performance of the OHS manager,
- check, register and report work accidents and occupational diseases,
- communicate with control authorities,
- check the effectiveness of preventive health and safety inspections at workplaces,
- check the completeness and keeps OHS documentation up to date,
- evaluate the economic effectiveness of the OHS management system,
- implement training in the field of health and safety.

3. Expert knowledge of risk management:

- risk management,
- OHS risk management,
- identification, analysis and evaluation of OHS risks,
- proposing measures to reduce assessed health and safety risks,
- monitoring and reporting to top management,
- risk management methods and techniques,
- OHS audits,
- creating of OHS risk management documentation,
- creating a register of health and safety risks,
- integration of security risks into enterprise management processes (quality, finance, production, HR...).

4. Professional risk management skills:

- the ability to identify, analyze and evaluate health and safety risks in time,
- master risk management methods, techniques and tools,
- skills to monitor sources of OHS risks,
- propose measures to reduce OHS risks,
- the ability to enforce measures to reduce OHS risks,
- skills in applying the principles of risk management in the field of health and safety.
- assessment of suitability and effectiveness of proposed measures to minimize OHS risks.

5. Managerial knowledge:

- Management - planning, strategy development, organizing, leading people, control, decision-making, communication, motivation,
- Crisis management - accidents

- Quality management – audits, continual improvement,
- Production management – operational processes, technological procedures,
- Change management,
- Business continuity management,
- Project management,
- Personnel management - conflict management,
- Financial management,
- Information systems, data analysis.

6. Managerial skills:

- to forecast and recognize the effects of changes in the external and internal environment of the enterprise in time,
- decide on adjustments to procedures, processes and OHS resources in order to meet the set goals,
- objectively implement and evaluate health and safety audits,
- reveal deficiencies in the field of health and safety and propose measures to eliminate them,
- investigate and eliminate nonconformities in the field of health and safety,
- coordinate cooperation with other processes in the enterprise,
- propose solutions to adjust the OHS goals,
- propose measures to improve and innovate the OHS management system,
- create and enforce a culture of risks and safety in the enterprise,
- assess interpersonal relationships at the workplace,
- motivate (inspire) and effectively communicate with workers about health and safety issues.

7. Personality assumption and other skills:

- analyzing and solving problems,
- communication (dealing with people, ability to express, listen, negotiate),
- providing constructive feedback,
- handling stressful situations,
- teamwork,
- empathy,
- intuition for detecting possible risks,
- flexibility in thinking (adaptability, flexibility...),
- financial literacy,
- creativity,
- information literacy,
- professional integrity,
- ethical business practices,
- organizing and planning work,
- personal development.

8. Other qualification assumptions of OHS manager:

- higher education in the field,
- safety technician certificate according to act no. 124/2006 Coll. on health and safety (from 1 January 2023)
- intermediate English language etc.

4. CONCLUSION

The benefit of the paper is the competence evaluation of the OHS manager according to the world organization IOSH, which carried out extensive research, consultations with OHS experts, employers, stakeholders as well as with other sources. Part of the contribution is a proposal of the competency framework (knowledge, skills, personality assumptions, responsibility and tasks) of the OHS manager for conditions of Slovakia. The proposed competency framework is also the starting point for the modified study program Crisis Management at FBI UNIZA. It follows from the above that the FBI responded to global changes and new requirements of the OHS manager and incorporated them in a timely manner into the newly accredited study program, i.e. that the graduates of that program are ready to perform the job position of OHS manager, respecting current global trends, practice requirements as well as legislative and normative requirements in the field of OHS in Slovakia.

The profession of occupational health and safety manager should be a permanent job carried out in accordance with theoretical training and practice, which will bring in the management of the enterprise an increase in the probability of achieving goals, higher productivity, optimization of the processes, an increase in the application of preventive measures, an increase in the overall value and success of the enterprise. The proposed solutions are also beneficial for the management of FBI UNIZA to reach more potential students for the position of OHS manager.

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DIGITALIZÁCIA, TRH PRÁCE A SYSTÉM VZDELÁVANIA V SR

DIGITALISATION, THE LABOUR MARKET AND THE EDUCATION SYSTEM IN THE SLOVAK REPUBLIC

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Abstrakt: *Tak ako počas priemyselných revolúcii v minulosti, aj v súčasnosti pod vplyvom digitalizácie a automatizácie trhy práce v jednotlivých krajinách musia čeliť zmenám. To, čím sa líši súčasný stav od tých predchádzajúcich, je rýchlosť s akou sú nové technológie zavádzané. Mnohé pracovné miesta prechádzajú výraznými zmenami alebo úplne zanikajú, zároveň však vznikajú nové. Tie od potenciálnych pracovníkov vyžadujú, aby disponovali novými zručnosťami, prípadne úplne inou kvalifikáciou. Výzvou pre systémy vzdelávania sa preto stáva včas zareagovať na tieto požiadavky a predísť tým situácii, že by sa do budúcnosti zvýšil štruktúrny nesúlad medzi ponukou práce a dopytom po práci. Cieľom článku je teoreticky vymedziť k akým zmenám dochádza na trhoch práce pod vplyvom digitalizácie a automatizácie, ako sa to dotýka systémov vzdelávania a aké zručnosti sú vyžadované od pracovníkov. Okrem toho je našim cieľom zistiť, ako sa vyvíja miera nezamestnanosti v SR podľa dosiahnutého stupňa vzdelania, aký podiel absolventov VŠ podľa skupín študijných odborov sa eviduje na úrade práce, či aký podiel absolventov VŠ pracuje vo vyštudovanom odbore, a tým poukázať na možné riziká, s ktorými sa bude musieť SR vysporiadať.*

Kľúčové slová: *absolventi, digitalizácia, Slovenská republika, trh práce, vysokoškolské vzdelanie*

Abstract: *As in industrial revolutions in the past, labour markets in individual countries are facing changes under the impact of digitisation and automation. What makes the current situation different from those of the past is the speed with which new technologies are being introduced. Many jobs are undergoing major changes or disappearing altogether, while at the same time new jobs are being created. These require potential workers to have new skills or completely different qualifications. The challenge for education systems is therefore to respond to these demands in a timely manner, thereby avoiding a future situation where there is a structural mismatch between labour supply and labour demand. The aim of this paper is to theoretically define what changes are occurring in labour markets under the influence of digitisation and automation, how this affects education systems and what skills are required of workers. In addition, our aim is to find out how the unemployment rate in the Slovak Republic develops according to the level of education attained, what share of university graduates by groups of fields of study are registered at the labour office, or what share of university graduates work in the field they graduated from, and thus to point out the possible risks that the Slovak Republic will have to deal with.*

Key words: *digitalization, graduates, higher education, labour market, Slovak Republic*

JEL Classification: *I23, J64, O30*

1. ÚVOD

V dôsledku digitalizácie a automatizácie trhy práce vo všetkých krajinách prechádzajú v poslednom čase väčšími či menšími zmenami. To vyvoláva potrebu väčšiu pozornosť zameriavať na štruktúrny nesúlad medzi ponukou práce a dopytom po práci. Mnoho pracovných miest, ktoré ešte pred niekoľkými rokmi boli početné, postupne zanikajú a ľudskú prácu, ktorá na nich bola vykonávaná nahrádzajú technológie. V iných oblastiach sa pod

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vplyvom technológií práca stáva menej fyzicky náročnou, avšak prítomnosť zamestnancov na pracovisku je naďalej nevyhnutná, nakoľko činnosti vykonávané technológiami neraz vyžadujú doplnenie ľudskou prácou. V súvislosti s tým sa objavujú nové požiadavky kladené na potenciálnych zamestnancov, rozsah ich odbornej kvalifikácie ale aj osobnostných vlastností. Permanentné zmeny nútia jednotlivé organizácie vytvárať systémy celoživotného vzdelávania, a takisto vedú k tomu, že modifikovaný musí byť aj systém vzdelávania formálnych vzdelávacích inštitúcii. Nejde iba o to, vniesť do vzdelávania nové prvky, ale najmä o to odhadnúť budúcu potrebu pracovnej sily vo všetkých oblastiach a adekvátne tomu pripravovať ľudí v perspektívnych odboroch. V súčasnosti sme neraz svedkami situácie, kedy sa mnoho absolventov nezamestná adekvátne vyštudovanému odboru, čo možno z pohľadu štátu hodnotiť ako neefektívne vynaložené náklady. Zároveň to predstavuje aj akúsi kontrolku, že ak už teraz máme prebytok absolventov určitých odborov, a naopak, niektoré pracovné miesta je problematické obsadiť, niečo v systéme vzdelávania nie je nastavené správne.

2. VPLYV DIGITALIZÁCIE A AUTOMATIZÁCIE NA TRH PRÁCE

Rozširovanie digitalizácie a automatizácie ovplyvňuje zamestnanosť dvoma protichodnými účinkami. Na jednej strane nahrádzanie ľudskej práce strojmi vedie k zániku mnohých pracovných miest, zároveň však stimuluje tvorbu nových povolaní a odvetví, ktoré predtým neboli potrebné (Islam, 2018). Aj keď prioritne sa pozornosť zameriava na budúcnosť, nemožno sa zaoberať iba tou, nakoľko mnohé zmeny už prebehli alebo práve prebiehajú. Počítače nahradili veľa pracovných miest a funkcií, medzi inými napr. pokladníkov, účtovníkov, či telefónnych operátorov (Lee a kol., 2020). Hoci nemožno hovoriť o zániku týchto pracovných miest, ale skôr o výraznej redukcii ich počtu, pracovný trh bol výrazne ovplyvnený. To ako rýchlo budú procesy digitalizácie a automatizácie pokračovať a ako rýchlo bude trh práce nútený vysporiadať sa so zmenami, závisí predovšetkým od toho, akou rýchlosťou sa budú rozširovať technologické možnosti a ako budú klesať náklady na roboty, ktoré budú nahrádzať predovšetkým pracovníkov s nižšou kvalifikáciou v nízkopríjmových zamestnaniach (Autor, Dorn, 2013). Automatizáciou však nie sú ohrozené len pracovné úlohy, ktoré vykonávajú nízkokvalifikovaní zamestnanci. Pokles počtu pracovných miest v určitých oblastiach naznačuje, že sa to vzťahuje aj na pracovné úlohy, ktoré vykonávajú stredne kvalifikovaný zamestnanci. Na druhej strane väčšina nových úloh, ktoré vyplývajú z prijatia digitálnych technológií predpokladá doplnenie vysokokvalifikovanou prácou (Balsmeier, Woerter, 2019). Pre spoločnosť ako takú však zánik niektorých pracovných miest či povolaní a vznik iných nepredstavuje novú situáciu. Už v minulosti počas priemyselných revolúcii dochádzalo k rovnakým scenárom. Výhodou v tom období bola iba skutočnosť, že zmeny boli pomalšie.

Frey a Osborne (2013) vo svojej štúdii realizovanej v USA uvádzajú, že asi 47% zamestnaní je vysoko ohrozených procesmi digitalizácie a automatizácie. Ide o pracovné miesta, ktoré by mohli byť zautomatizované pomerne rýchlo, v priebehu nadchádzajúcich desaťročí ako napr. pracovné miesta v doprave a logistike, vo výrobe, ale i v administratíve. Zároveň upozorňujú, že ide iba o hrubé odhady nakoľko existuje niekoľko skutočností, ktoré limitujú prebiehajúce procesy. Ide najmä o politickú aktivitu a regulačné obmedzenia, ktoré väčšinou spomaľujú zavádzanie nových technológii, ale i o skutočnosť, že v spoločnosti je zaužívané spočiatku klásť odpor voči technologickým i akýmkoľvek iným zmenám. Kým pred niekoľkými rokmi ešte prevládalo presvedčenie, že pracovné miesta budú zanikať a mnoho ľudí sa stane nezamestnanými, teda hrozbou sa stane technologická nezamestnanosť, v súčasnosti sa už ukazuje, že hoci z krátkodobého hľadiska dôjde k poklesu počtu pracovných miest, v dlhodobom horizonte technologický pokrok vytvorí viac pracovných miest ako bolo zrušených (Trexima, 2021). Dôjde však k signifikantným zmenám požiadaviek kladených na pracovníkov. Práve z tohto dôvodu sa pozornosť čoraz viac upriamuje aj na vzdelávanie,

ktoré by malo byť schopné zabezpečiť pre trh práce pracovníkov disponujúcich potrebnými novými zručnosťami.

Netreba však zabúdať, že medzi jednotlivými krajinami existujú značné rozdiely v tom, ako sa stavajú k procesom digitalizácie a automatizácie a podpore tejto oblasti. Najvyspelejšie krajiny si uvedomujú nevyhnutnosť investovať do daných oblastí, ak si chcú udržať svoje pozície a zostať aj naďalej konkurencieschopné. Na vedu a výskum, ktoré sú predpokladom technologického pokroku, vynakladajú čoraz viac zdrojov. V mnohých menej vyspelých a rozvojových krajinách je však pozornosť venovaná tejto problematike značne menšia, či už v dôsledku nedostatku zdrojov, alebo v dôsledku toho, že mnohé krajiny si akoby ešte úplne neuvedomovali potenciál, ktorý moderné technológie prinášajú. Slovenská republika jednoznačne spadá do druhej skupiny krajín a zaostáva v mnohých oblastiach. Avšak postupný nárast záujmu o modernizáciu možno badať aj v nej, a čoraz viac organizácií sa zaoberá predikciami dopadov predpokladaných zmien na trh práce. Podľa internetovej domény www.trendyprace.sk (2022) najväčšiu perspektívu v budúcnosti po zohľadnení vplyvu robotizácie a automatizácie na jednotlivé zamestnania budú mať pracovné sily v povolaniach ako: stavbyvedúci, riaditeľ zariadenia sociálnych služieb pre starších ľudí, riadiaci pracovník v oblasti obchodu, finančný riaditeľ, IT konzultant, elektroinžinier projektant, revízny technik, chemický špecialista vo výskume a vývoji, riadiaci pracovník výskumnej inštitúcie, probačný a mediačný úradník, manažér kaviarne a baru a i. Najmenej perspektívne podľa tejto domény budú: kontrolór daní, tkáč, šička, baník, učiteľ základnej školy/gymnázia, pracovník pri priehradke v banke/poisťovni. V súčasnosti stále veľké množstvo voľných pracovných miest možno nájsť aj na pozíciách, s ktorými sa do budúcnosti nepočíta. Podľa portálu www.profesia.sk (2022) k 19.10.2022 najviac voľných pracovných miest je v oblastiach: obchod (3 876) – z toho 1 542 na pozícii predavač, výroba (3 265) – z toho 1 774 na pozícii operátor výroby, informačné technológie (2 812) – z toho 1 105 na pozícii programátor, doprava, špedícia, logistika (2 398). Hoci stále je k dispozícii veľa „tradičných“ pracovných miest, treba poznamenať, že práca na nich prechádza vplyvom technologického pokroku zmenami, a i tieto pracovné miesta vyžadujú od pracovníkov nové zručnosti.

2.1 Vzdelávanie v čase technologických zmien

Ako už bolo skôr naznačené, v prostredí permanentných technologických zmien sa veľká pozornosť upriamuje na vzdelávanie. Predmetom záujmu sa okrem prípravy vysokokvalifikovanej sily na univerzitách stáva aj celoživotné vzdelávanie a prístup jednotlivých organizácii k tejto skutočnosti.

Samozrejme rovnako tak ako existujú rozdiely medzi krajinami pri rozvoji a podpore procesov digitalizácie a automatizácie, existujú tieto rozdiely aj v rámci kvality systémov vzdelávania. Štúdia realizovaná v Indii ukazuje, že väčšina absolventov inžinierstva a technológii v rozvíjajúcich sa krajinách nemá rovnako kvalitné vzdelanie ako absolventi inžinierstva a technológii vo vyspelých krajinách (Borah a kol., 2019). Táto skutočnosť môže následne negatívne vplývať na fungovanie nadnárodných firiem, ktoré sú nútené vynakladať značné investície na doškolenie svojich zamestnancov v niektorých krajinách. Zosúladenie zručností absolventov s požiadavkami trhu práce tak nadobúda stále väčší význam. Problémom však nie je iba kvalita poskytovaného formálneho vzdelania, či nízky počet ľudí s adekvátnym stupňom vzdelania, ale skôr štrukturálny nesúlad medzi ponukou práce a kvalifikačnými požiadavkami na pracovníkov (Kuzmišová, 2010). Hoci je vzdelanie základom napredovania, neznamená to, že stačí jednoducho zvyšovať počet vzdelaných ľudí. Štatistiky síce môžu potom na prvý pohľad vyzerať povzbudivo, v praxi sa však efekt z takéhoto vzdelania nebude prejavovať. V mnohých krajinách, SR nevynímajúc, je potrebné pristúpiť k prehodnoteniu potreby množstva absolventov niektorých odborov a začať podnikať opatrenia, ktoré by prilákali študovať viac študentov do odborov, o ktoré bol nižší

záujem, avšak ktoré sú z hľadiska súčasnej situácie i jej predpokladaného vývoja potrebné. Z tohto hľadiska je vhodné sledovať napr. mieru nezamestnanosti absolventov jednotlivých odborov, ale aj aké % absolventov pracuje mimo odboru, ktorý vyštudovalo.

Samozrejme nejde iba o samotné skupiny študijných odborov, ale i o zmeny, ktorými jednotlivé študijné odbory a celkovo systémy vzdelávania musia prechádzať. Digitálne technológie vytvorili obrovský potenciál a umožnili vzdelávanie realizovať celkom novými spôsobmi, či do neho aspoň vniesli nové prvky. Veľakrát je však využitie digitálnych technológii limitované skutočnosťou, že úroveň digitálnych zručností populácie nie je dostatočná. Možno sa však stretnúť aj s názormi, že by sa to nemalo preháňať so snahou zavádzať digitálne prvky a digitalizovať jednotlivé procesy za každých okolností, aby zbytočne nedochádzalo k situáciám, že technológie budú zavedené tam, kde nebudú vôbec potrebné (Abduvakhidov a kol., 2020). Pandémia Covid-19 urýchlila tempo zavádzania digitálnych prvkov do vzdelávacích procesov. V krátkom čase sa však ukázalo, že technológie nebudú úplne schopné nahradiť sociálny kontakt a osobnú interakciu. Môžu však značne uľahčiť niektoré aktivity.

To aké kvalitné vysokoškolské inštitúcie v jednotlivých krajinách sú, je často predmetom hodnotenia rôznych renkingov. Jedným z najznámejších je Šanghajský rebríček vysokých škôl, v rámci ktorého bolo v roku 2022 hodnotených viac ako 2000 univerzít. Dostala sa doňho iba jedna slovenská univerzita: Univerzita Komenského v Bratislave, ktorej patrilo 801. – 900. miesto. Ostatné krajiny V4 mali zastúpenie univerzít v rebríčku vyššie. V ČR sa do neho dostalo 8 vysokých škôl (najlepšia na 301. – 400. mieste), v Maďarsku 4 (najlepšia na mieste 601. – 700.) a v Poľsku 11 (najlepšia na mieste 401. – 500).

Krajiny, ktoré sú technologickými lídrami, ako napr. Švajčiarsko, si uvedomujú, že práve nedostatok vysokokvalifikovanej pracovnej sily by mohol v budúcnosti obmedziť ich rast (Balsmeier, Woerter, 2019). To, aká potrebná je vysokokvalifikovaná pracovná sila na súčasnom trhu práce dokazujú aj ďalšie štúdie. Napr. bolo zistené, že rozdiel v mzdách absolventov vysokých škôl v porovnaní s absolventmi stredných škôl v priebehu posledných desaťročí rástol, napriek pomerne výraznému zvýšeniu vysokoškolsky vzdelaných osôb (Acemoglu, Autor, 2012). Z toho vyplýva, že zároveň s rastom ponuky zručností, došlo aj k zvýšeniu dopytu po týchto zručnostiach. To je spôsobené predovšetkým zvýšením náročnosti procesov, ktoré prebiehajú vo vedomostnej ekonomike.

Nejde však iba o to, ako sa vysokoškolské inštitúcie dokážu prispôsobiť požiadavkám trhu práce a absolventov akých odborov budú produkovať. Pracovníci so strednou a nižšou kvalifikáciou budú predstavovať problém, preto dôležitou úlohou bude vyvinúť a implementovať nástroje, ktoré minimalizujú potenciálne negatívne dopady na túto skupinu osôb a vytvoria pre ňu príležitosti (Balsmeier, Woerter, 2019). V tomto smere na význame naberú rôzne rekvalifikačné kurzy, školenia či programy odborného vzdelávania organizované v rámci jednotlivých organizácii. Väčšia pozornosť sa takisto bude sústreďovať na stredoškolské vzdelanie, pretože na trhu práce bude chýbať okrem vysokokvalifikovanej pracovnej sily aj čoraz viac remeselníkov.

2.2 Požiadavky kladené na pracovníkov

V súčasnosti svet ovplyvňujú mnohé zmeny, ktoré zasahujú do celkového chodu spoločnosti. Okrem rozvoja procesov digitalizácie a automatizácie ide napr. o globálne otepľovanie, zvyšovanie medzinárodnej migrácie, ale i aktuálne prebiehajúcu pandémiu ochorenia Covid-19. Súbeh týchto faktorov kladie nové nároky nielen na budúcich absolventov jednotlivých stupňov vzdelávania, ale i na kvalifikáciu súčasných pracovníkov. Cesco a kol. (2021) tieto nové požiadavky na aktuálnych i budúcich pracovníkov zhrnuli do 4 oblastí:

- technické zručnosti, ktoré zahŕňajú špecifické znalosti súvisiace s prácou s modernými technológiami,
- metodické zručnosti ako napr. kritické myslenie, ktoré prispieva k schopnosti rozhodovať sa a riešiť problémy,
- osobné zručnosti medzi ktorými je čoraz častejšie požadovaná napr. zvýšená odolnosť voči stresu,
- sociálne zručnosti, ktoré vyžaduje čoraz väčšia miera spolupráce.

Rôzni autori zdôrazňujú rôzne zručnosti, ktoré považujú za najdôležitejšie, napr. Hübelová (2013) uvádza, že v postindustriálnej spoločnosti je dôraz kladený na kreativitu a schopnosť adaptácie na zmeny a rozvíjanie týchto dvoch schopností. Kollár a kol. (2015) zase zdôrazňujú digitálne zručnosti, na základe ktorých dokážu jednotlivci v rôznych situáciách vyhodnocovať či a ako majú použiť IKT a zároveň zdôrazňujú, že dnes už nie je možné rozvíjať akékoľvek ďalšie kompetencie bez rozvíjania digitálnych zručností, nakoľko digitálne technológie zasahujú do všetkých oblastí nášho života. Všetky tieto názory však spája jedna skutočnosť - v budúcnosti nebude možné zotrvávať v nemennom stave bez neustáleho reflektovania a adaptácie na zmeny, ktoré prináša technologická revolúcia.

V súvislosti so zručnosťami je potrebné spomenúť Celosvetový index vzdelávania pre budúcnosť (Worldwide Educating for the Future Index), ktorý pripravuje časopis The Economist. Tento index sa zameriava na zručnosti budúcnosti (kritické myslenie, tvorivosť, komunikácia, podnikavosť, digitálne schopnosti) a hodnotí do akej miery sú schopné vzdelávacie systémy v jednotlivých krajinách pripravovať ľudí s takýmito zručnosťami. SR však v tomto hodnotení nie je zahrnutá.

3. CIEĽ A METODOLÓGIA

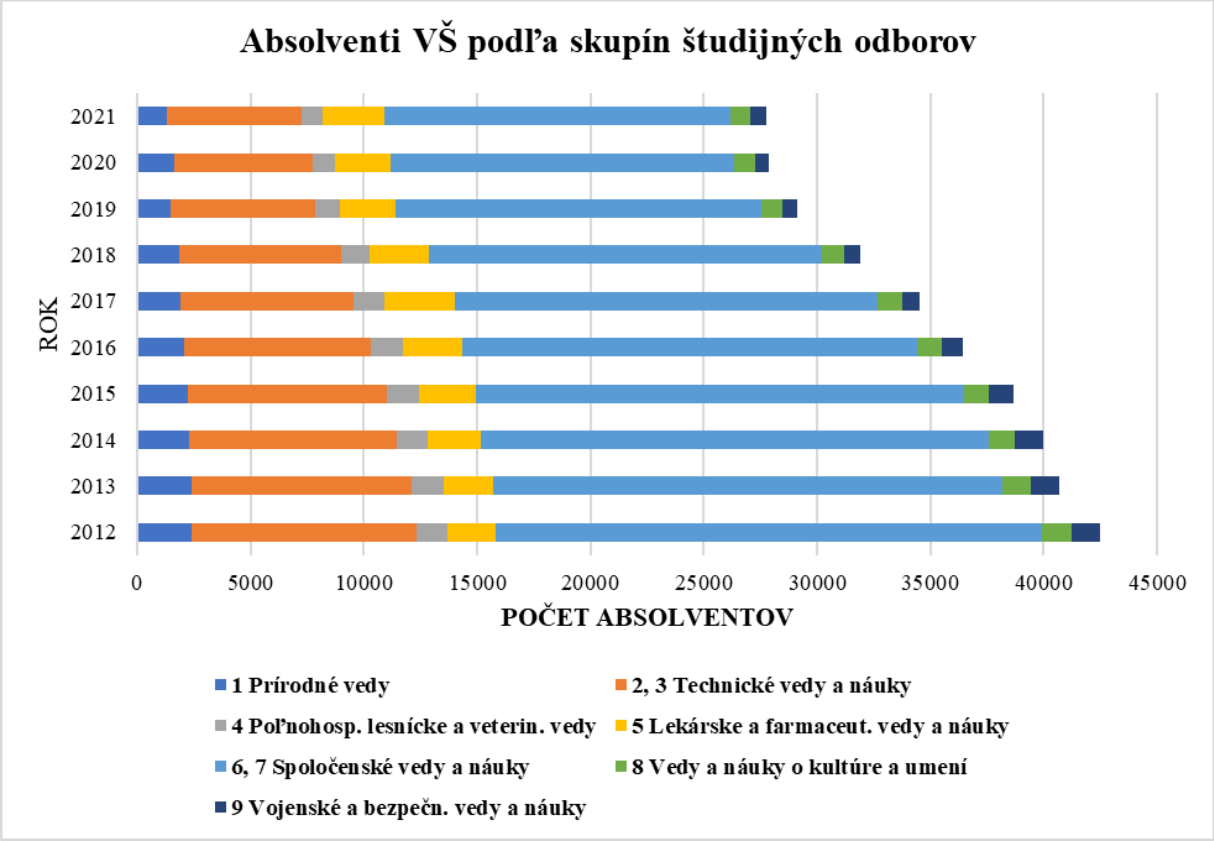
Pri spracovaní príspevku sme využili viaceré vedecké metódy. Pri práci s teoretickými zdrojmi boli použité všeobecné vedecké metódy ako analýza, indukcia, dedukcia či abstrakcia. Pri spracovaní štatistických údajov bola využitá metóda analýzy časových radov a metóda komparácie. Štatistické ukazovatele potrebné pre naplnenie cieľa sme čerpali z Eurostatu, Štatistického úradu SR, ÚPSVaR SR a zo stránky www.trendyprace.sk. Ukazovatele boli sledované do roku 2021, resp. 2020 tam, kde dostupnosť dát neumožnila zahrnúť rok 2021.

Hlavným cieľom príspevku bolo identifikovať uplatniteľnosť absolventov s vysokoškolským vzdelaním na trhu práce v SR prostredníctvom analyzovania ukazovateľov z tejto oblasti, ako je napr. miera nezamestnanosti podľa dosiahnutého stupňa vzdelania, podiel absolventov VŠ podľa skupín študijných odborov evidovaných na úrade práce, podiel absolventov pracujúcich vo vyštudovanom odbore a i.

4. VÝSLEDKY A DISKUSIA

Čo sa týka vysokoškolského vzdelania v SR, postupne sa zvyšuje podiel vysokoškolsky vzdelaných ľudí v populácii. Zároveň však silnejú hlasy, že slovenský vysokoškolský systém produkuje množstvo takých absolventov, ktorí sa nedokážu uplatniť adekvátne vyštudovanému odboru. V nasledujúcom grafe a tabuľke uvádzame absolventov vysokých škôl podľa skupín študijných odborov a zmeny, ku ktorým došlo v ich stave v posledných 10 rokoch.

Obrázok 1: Absolventi VŠ podľa skupín študijných odborov



Zdroj: ŠÚSR, vlastné spracovanie

Od roku 2012 do roku 2021 došlo k celkovému poklesu počtu absolventov vysokých škôl z 42 493 na 27 777 najmä v dôsledku demografického vývoja. Medzi jednotlivými skupinami študijných odborov však výraznejšie zmeny pomeru neboli zaznamenané.

Tabuľka 1: Absolventi VŠ podľa skupín študijných odborov - % absolventov daného odboru k celkovému počtu absolventov daného roka

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1 Prírodné vedy	5,68	5,85	5,68	5,82	5,68	5,61	5,81	5,07	5,94	4,64
2, 3 Technické vedy a náuky	23,32	23,86	22,98	22,70	22,69	22,01	22,44	21,83	21,94	21,58
4 Poľnohosp. lesnícke a veterin. vedy	3,21	3,56	3,40	3,68	3,79	4,05	3,90	3,84	3,42	3,32
5 Lekárske a farmaceut. vedy a náuky	5,01	5,33	5,90	6,53	7,27	8,96	8,20	8,40	8,88	9,66
6, 7 Spoločenské vedy a náuky	56,78	55,15	56,10	55,68	55,08	54,01	54,38	55,43	54,30	55,05
8 Vedy a náuky o kultúre a umení	3,04	3,14	2,85	2,77	2,96	3,16	3,12	3,09	3,25	3,14
9 Vojenské a bezpečn. vedy a náuky	2,95	3,10	3,10	2,83	2,53	2,19	2,16	2,34	2,28	2,62
SPOLU	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Zdroj: ŠÚSR, vlastné spracovanie

Medzi jednotlivými skupinami študijných odborov vykazovanými ŠÚSR, neboli v priebehu sledovaného obdobia (2012-2021) zaznamenané výraznejšie zmeny.

K najvýraznejšiemu pomernému nárastu počtu absolventov (o 4,65 percentuálneho bodu) došlo v skupine študijných odborov 5 Lekárske a farmaceutické vedy a náuky. Napriek tomu zostáva v SR naďalej nedostatok zdravotníckeho personálu. Príčiny daného stavu možno nájsť najmä v odchodoch slovenských absolventov do zahraničia, predovšetkým do krajín západnej Európy, kde ich lákajú nielen vyššie platy, ale i kvalitnejšie pracovné prostredie, či skutočnosť, že v SR sú najmä kompetencie všeobecných lekárov značne obmedzované. Výraznejší nárast podielu absolventov zdravotníckych odborov však môže byť aj signálom, že práve povolania v zdravotníctve sú tie, s ktorými sa počíta aj do budúcnosti a ktoré nedokáže nahradiť technologický pokrok. K miernemu poklesu absolventov došlo v skupinách študijných odborov 2, 3 Technické vedy a náuky (o 1,74 percentuálneho bodu) a 6, 7 Spoločenské vedy a náuky (o 1,73 percentuálneho bodu). Pokles počtu absolventov v niektorých odboroch môže súvisieť s rastúcim tlakom na znižovanie počtu absolventov prebytkových odborov, ale takisto aj s prestížou jednotlivých povolaní a ich platovým ohodnotením.

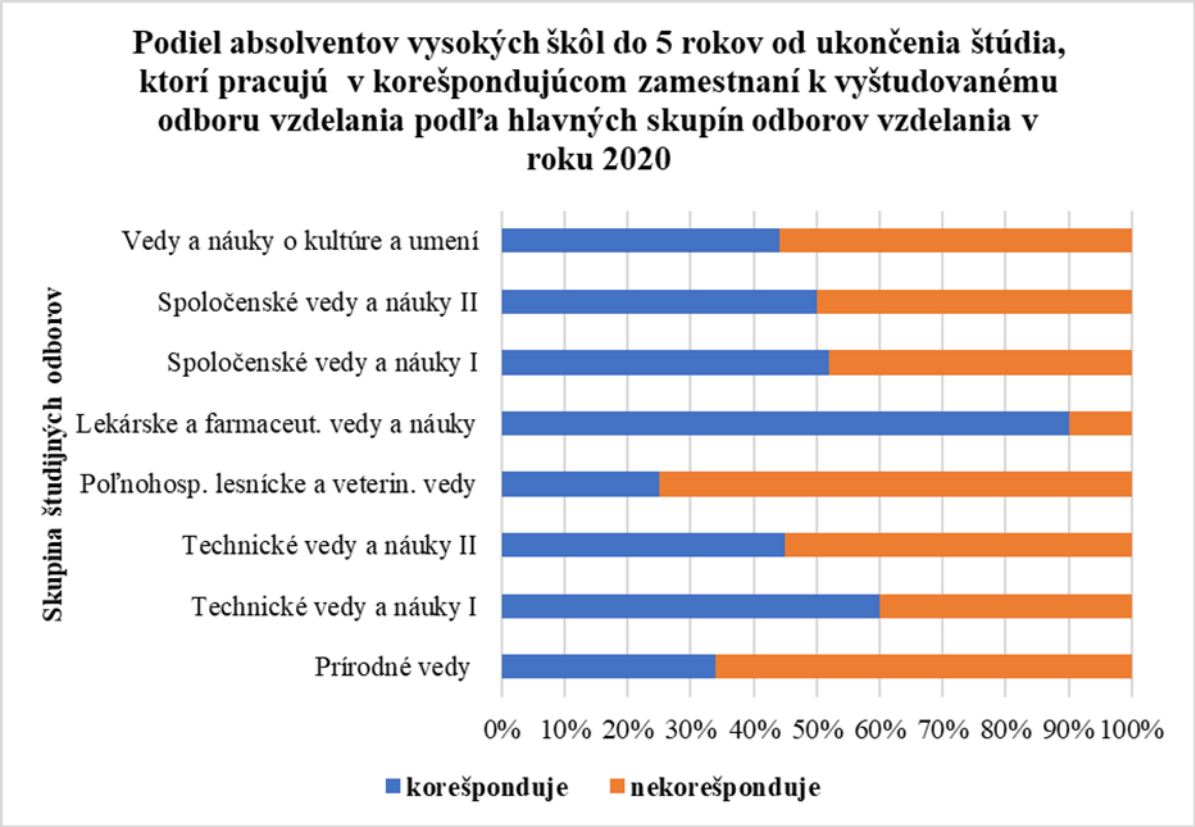
Tabuľka 2: Počet uchádzačov o zamestnanie - absolventov vysokých škôl/ % zaevidovaných na úrad práce z celkového počtu absolventov

	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
1 Prírodné vedy	371	324	236	139	116	106	152	116
	16,34%	*14,41%*	*11,40%*	*7,18%*	*6,26%*	*7,18%*	*9,17%*	*9,00%*
2, 3 Technické vedy a náuky	1101	812	639	399	320	317	414	275
	11,99%	*9,26%*	*7,73%*	*5,25%*	*4,47%*	*4,98%*	*6,76%*	*4,59%*
4 Poľnohosp. lesnícke a veterin. vedy	307	250	206	145	110	126	141	92
	22,62%	*17,58%*	*14,92%*	*10,39%*	*8,84%*	*11,27%*	*14,80%*	*9,98%*
5 Lekárske a farmaceut. vedy a náuky	233	200	176	137	117	93	108	98
	9,89%	*7,93%*	*6,65%*	*4,43%*	*4,47%*	*3,80%*	*4,36%*	*3,65%*
6, 7 Spoločenské vedy a náuky	3808	3173	2519	1670	1205	1052	1508	1064
	16,99%	*14,75%*	*12,55%*	*8,96%*	*6,95%*	*6,51%*	*9,96%*	*6,96%*
8 Vedy a náuky o kultúre a umení	193	134	127	81	70	65	112	94
	16,97%	*12,51%*	*11,79%*	*7,43%*	*7,03%*	*7,23%*	*12,36%*	*10,79%*
9 Vojenské a bezpečn. vedy a náuky	339	259	199	117	69	54	73	68
	27,38%	*23,67%*	*21,58%*	*15,46%*	*10,03%*	*7,92%*	*11,46%*	*3,35%*

Zdroj: ÚPSVaR, vlastné spracovanie

Z absolventov vysokých škôl boli v rokoch 2014-2021 v praxi najlepšie uplatniteľní absolventi lekárskych a farmaceutických vied a náuk a absolventi technických vied, kde % zaevidovaných na úrad práce z celkového počtu absolventov bolo každoročne jedno z najnižších (v roku 2021 3,65%, resp. 4,59%). Za absolventmi týchto dvoch skupín odborov nasledujú absolventi prírodných a spoločenských vied. Naopak, tendenciu najviac inklinovať k nezamestnanosti majú absolventi poľnohospodárskych, lesníckych a veterinárnych vied, v rokoch 2014 - 2018 bolo najvyššie % zaevidovaných nezamestnaných v skupine študijných odborov vojenské a bezpečnostné vedy a náuky. V tejto skupine však došlo k výraznému poklesu podielu absolventov zaevidovaných na úrad práce – z 27,38% v roku 2014 na 3,35% v roku 2021. Väčšina absolventov si prácu nájde do 6 mesiacov od zaevidovania, viac ako 90% zo zaevidovaných uchádzačov o zamestnanie si prácu nájde do 1 roka.

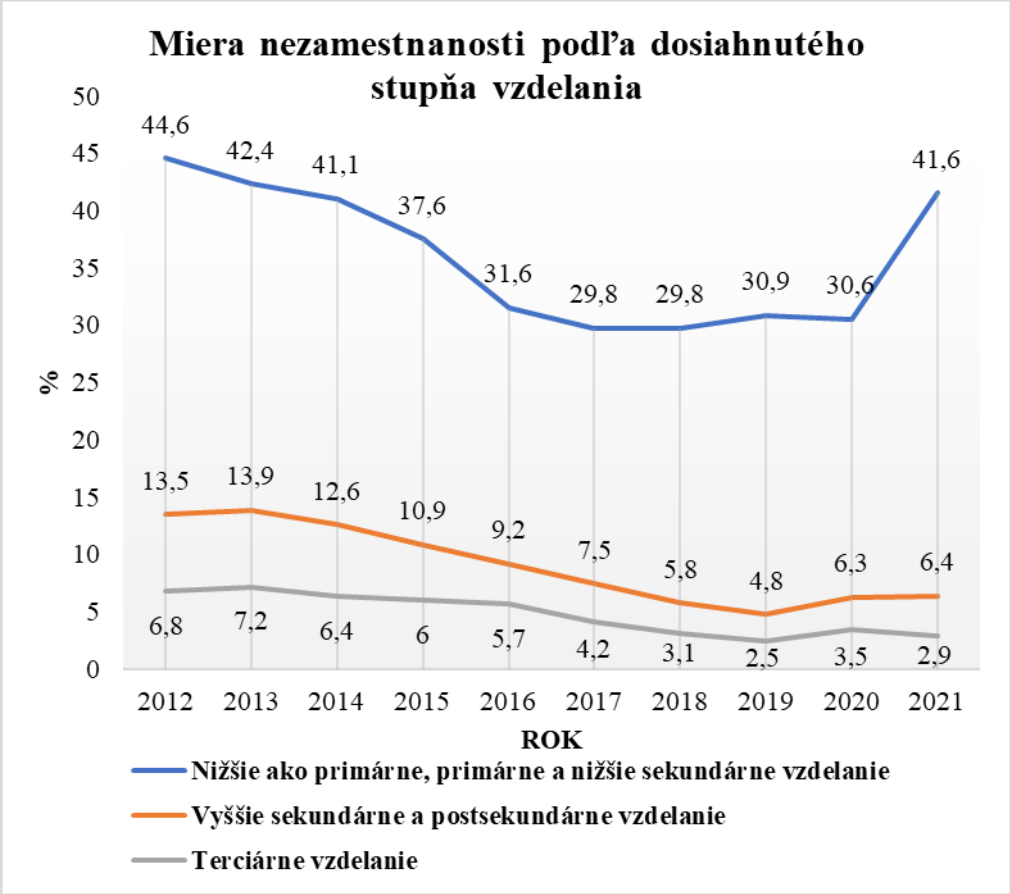
Obrázok 2: Podiel absolventov VŠ do 5 rokov od ukončenia štúdia, ktorí pracujú v korešpondujúcom zamestnaní k vyštudovanému odboru vzdelania v roku 2020



Zdroj: www.trendyprace.sk, vlastné spracovanie

Nie všetci absolventi vysokých škôl sa však uplatnia vo vyštudovanom odbore. Údaje z roku 2020 (novšie neboli k dispozícii) naznačujú, že mnohí absolventi vysokých škôl dokonca zastávajú pracovné miesta, na ktoré postačuje nižšia kvalifikácia. V najvyššej miere (90 %) sa uplatňujú v odbore absolventi lekárskych a farmaceutických vied a náuk, nasledujú absolventi technických vied a náuk I (60%). 50%-tný a vyšší podiel korešpondujúceho uplatnenia bol zaznamenaný ešte pri absolventoch spoločenských vied a náuk I (52%) a pri absolventoch spoločenských vied a náuk II (50%). V najnižšej miere sa uplatňujú vo vyštudovanom odbore absolventi z oblasti poľnohospodárskych, lesníckych a veterinárnych vied (25%) a z oblasti prírodných vied (34%). Pri absolventoch poľnohospodárskych, lesníckych a veterinárnych vied sme zároveň zaznamenali aj jedno z najvyšších % zaevidovaných absolventov na úrad práce z celkového počtu absolventov. Podľa portálu www.trendyprace.sk (2022) v najvyššej miere pracujú v odbore, ktorý vyštudovali absolventi odborov predškolská a elementárna pedagogika, urgentná zdravotná starostlivosť, zubné lekárstvo, všeobecné lekárstvo, laboratórne vyšetrovacie metódy, chirurgia, financie, bankovníctvo a investovanie. Naopak v najnižšej miere pracujú v zamestnaní korešpondujúcom s vyštudovaným odborom absolventi manažérstva zdrojov, geoturizmu, filozofie, sociológie, kulturológie, aplikovanej etiky, mediamatiky a kultúrneho dedičstva, krajinárstva a získavania a spracovania zemských zdrojov.

Obrázok 3: Miera nezamestnanosti v SR podľa dosiahnutého stupňa vzdelania



Zdroj: Eurostat, vlastné spracovanie

Vo vyššie uvedenom grafe púta pozornosť najmä vysoká miera nezamestnanosti nízkokvalifikovanej pracovnej sily - osôb s nižším ako primárnym, primárnym a nižším sekundárnym vzdelaním, ktorá zostávala vysoká aj napriek pozitívnemu vývoju celkovej miery nezamestnanosti v rokoch pred príchodom pandémie. Zatiaľ čo v roku 2020 sa miera nezamestnanosti nízkokvalifikovanej pracovnej sily takmer nezmenila, v roku 2021 výraznejšie vzrástla – až na 41,6%, nakoľko v dôsledku pandémie zaniklo mnoho pracovných miest pre ľudí s nižšou kvalifikáciou. Na základe vývoja miery nezamestnanosti v tejto vzdelanostnej kategórii možno konštatovať, že pracovnú silu bez akejkoľvek kvalifikácie je v podmienkach rýchleho zavádzania inovácií čoraz ťažšie zamestnať. Oveľa nižšia nezamestnanosť bola zaznamenaná u osôb s vyšším sekundárnym a postsekundárnym vzdelaním. Do roku 2019 sa znížila na 4,8%. V čase pandémie mierne vzrástla – na 6,4% v roku 2021, čo predstavovalo oveľa miernejší nárast ako u osôb s nižším ako primárnym, primárnym a nižším sekundárnym vzdelaním. Dlhodobo najnižšia miera nezamestnanosti je vykazovaná pri osobách s vysokoškolským vzdelaním. Takýchto absolventov je každoročne výrazne menej v porovnaní s absolventmi na iných úrovniach vzdelávacieho systému a zároveň sú na súčasnom trhu práce najlepšie uplatniteľní. Takisto treba poukázať na skutočnosť, že nezávisle od úrovne dosiahnutého vzdelania súvisela miera nezamestnanosti aj s hospodárskym vývojom. V pokrízových rokoch doznievali ekonomické problémy a miera nezamestnanosti sa zvyšovala nielen medzi nízkokvalifikovanou pracovnou silou, ale takisto medzi osobami s vysokoškolským vzdelaním. Výraznejší pokles miery nezamestnanosti začal až po roku 2014 a do roku 2019 sa hodnoty dostali na historické minimá. Pandémia Covid-19 však pozitívny vývoj zastavila a miera nezamestnanosti po niekoľkoročnom poklese v rokoch 2020-2021 opäť stúpla.

4. ZÁVER

V posledných desaťročiach je oprávnene čoraz väčšia pozornosť venovaná procesom digitalizácie a automatizácie prebiehajúcich v spoločnosti, ako aj novým požiadavkám na kvalifikáciu a schopnosti pracovníkov, ktoré sa v dôsledku nich objavujú. Napriek tomu, že v súčasnosti sa môže zdať, že hospodársky vývoj bez problémov napreduje a ani pandémia nespôsobila také výrazné problémy ako sa na začiatku očakávalo, čoraz viac pozornosť pútajú „hrozby“, ktoré môže priniesť budúcnosť. Jednou z nich bude štruktúrny nesúlad medzi ponukou práce a dopytom po práci, ktorý vzniká ako dôsledok toho, že vzdelávacie systémy dostatočne nereflektujú na zmeny, ku ktorým dochádza na trhoch práce. V SR sa síce zvyšuje podiel vysokoškolsky vzdelaných osôb v populácii, ich štruktúra však vzhľadom na budúce potreby nie je adekvátna. Vypovedá o tom nielen rozdiel v podiele zaevidovaných absolventov na úrad práce z celkového počtu absolventov medzi jednotlivými skupinami študijných odborov, ale i vysoké percento vysokoškolsky vzdelaných osôb, ktoré pracuje mimo odboru, ktorý vyštudovali. Aby sa tento nesúlad postupne znižoval, je potrebné zameriavať sa na to, ktoré pozície je v súčasnosti problematické obsadiť, ktoré bude problém obsadiť v blízkej budúcnosti, a primerane tomuto stavu modifikovať nastavenie vzdelávacieho systému tak, aby v budúcnosti nevznikol výraznejší deficit ponuky práce v niektorých oblastiach.

Dodatok

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INDUSTRY 4.0 AKO DETERMINANT REGIONÁLNEHO ROZVOJA A VÝZVA PRE TRH PRÁCE

INDUSTRY 4.0 AS A DETERMINANT OF REGIONAL DEVELOPMENT AND A CHALLENGE FOR THE LABOUR MARKET

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Abstrakt: *Globálna výzva 21. storočia, ktorú reprezentuje Industry 4.0, je zmenou paradigmy nie len priemyslu, ale celej spoločnosti. Inovatívne technológie, umelá inteligencia či internet vecí, sú prvky mega transformácie hospodárstva a ekonomiky, ktoré menia zaužívaný spôsob myslenia a správania sa. Exponenciálne rastúca aplikácia technológií a technologických riešení v synergii s (eko)inovačnými platformami ovplyvňujú trh práce, t. j. štruktúru pracovných miest, nezamestnanosť, požiadavky na pracovnú silu a pod. Cieľom príspevku je zhodnotiť vývojové zmeny a dopad Industry 4.0 na rozvoj regiónov. V predkladanej štúdii sa zameriavame na zmeny na trhu práce, reflexiu regionálnej politiky na koncept Industry 4.0 a výzvy, ktoré tento priestor ponúka a na ktoré je potrebné adekvátne reagovať.*

Kľúčové slová: *Industry 4.0, región, trh práce*

Abstract: *The global challenge of the 21st century, represented by Industry 4.0, is a paradigm shift not only for industry, but for society as a whole. Innovative technologies, artificial intelligence or the Internet of Things are elements of the mega transformation of the economy and the economy that are changing the established way of thinking and behaving. The exponentially growing application of technologies and technological solutions in synergy with (eco)innovation platforms are influencing the labour market, i.e. the structure of jobs, unemployment, labour requirements, etc. The aim of this paper is to assess the developmental changes and the impact of Industry 4.0 on the development of regions. In the present study we focus on the changes in the labour market, the reflection of regional policy on the concept of Industry 4.0 and the challenges that this space offers and to which tis necessary to respond adequately.*

Key words: *Industry 4.0, region, labour market*

JEL Classification: *E24,L60, R11*

1. ÚVOD

Koncept Industry 4.0 je príkladom zásadných zmien týkajúcich sa automatizácie a robotizácie výroby, ktorého celospoločenský dosah je predmetom diskusií odbornej a laickej verejnosti. Odklon od desiatok rokov fungujúcich systémov je základom udržateľného a inkluzívneho hospodárskeho a sociálneho rozvoja štátov a materiálno-duševného bohatstva spoločnosti. Preto aktuálne dochádza k nadstavbe myšlienok spojených s Industry 4.0, ktorú reprezentuje (eko)inovačná politika. Vďaka nej sme svedkami posunu od „tvrdej“ priemyselnej produkcie k produkcii rešpektujúcej environmentálne a net zero aspekty. Tento prechod, rovnako ako i prechod na Industry 4.0, sa môže zdať pre mnohé výrobné organizácie náročný. Príležitosť, ktorú ponúka spojenie (eko)inovačnej a digitálnej výroby je výzva, ktorou má možnosť spoločnosť ukázať silu a múdrosť. Netreba však v tomto smere zabúdať na potrebu zmien étosu a paradigmy systému ako celku, teda vzdelávania, výskumu, trhu práce a pod. Iba Vďaka pokročilej vzájomnej spolupráci, podpore, rastu, napredovaniu, vedeniu a rozvoju

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nových zručností, predovšetkým digitálnych zručností, je možné naplnenie vízie inteligentnej produkcie, hospodárstva a spoločenstva, ako i rozvoja regionálnej a miestnej samosprávy.

2. TRANSFORMÁCIA PRIEMYSLU BUDÚCNOSTI

Digitálna transformácia priemyslu, známa ako Industry 4.0, pretvára a prepája výrobu, spoločnosť, svet, čo vedie k vyššej produktivite, automatizácii procesov a transformácii trhu. Kľúčovými piliermi tejto transformácie, teda transformácie archaického modelu priemyslu na inteligentný priemysel budúcnosti, sú digitalizácia, automatizácia a (eko)inovácia produktov, procesov a systémov. Ako vo svojej práci uvádza Schwab (2016, s. 12): „*Štvrtá priemyselná revolúcia vytvára svet, v ktorom virtuálne a fyzické výrobné systémy navzájom spolupracujú globálne flexibilným spôsobom*“, čo je predpoklad budovania inteligentného priemyslu. Priemysel budúcnosti, ktorý aktuálne naberá na intenzite je označovaný tiež ako kyberpriemysel (Emans, 2019; Saniuk, 2019; Carvalho, Carvalho, Carvalho, 2020; Grabowska, 2020). Synergiu automatizácie a digitalizácie výrobkov, podnikových procesov, a služieb je základný pilier priemyslu budúcnosti (Záležáková, 2020), pričom vďaka (eko)inovatívnemu prístupu, ktorý je pridanou hodnotou otvoreného inteligentného digitálneho interoperatívneho priemyslu 21. storočia, sa ešte viac optimalizuje a zefektívňuje tento priestor. Náročná transformácia výroby, procesov, systémov, dát a ľudských zdrojov je viacprvkovým konceptom (Jašková, 2019; Marinas a kol., 2021), ktorý nie len reflektuje na možnosti a potreby trhu (Olsen, Tomlin, 2020; Ortiz, Marroqiun, Cifuentes, 2020; Oztemel, Gursev, 2020; Ivanov a kol., 2021), ale i hnacím motorom tohto fenoménu.

V súvislosti s prvkami tvoriacimi základňu konceptu Industry 4.0 sa aktuálne najviac pozornosti sústredí na potrebu zabezpečenia kvalitnej rýchlej a dostupnej digitálnej, IT, technickej, vedeckej a výskumnej infraštruktúry a kvalifikovanej pracovnej sily, ktorá je nevyhnutná. Funkčné väzby riadenia a výroby sú na infraštruktúre závislé natoľko, že je potrebné dosahovať v tejto oblasti top parametre výkonnostných a kvalitatívnych štandardov (Castelo-Branco, Cruz-Jesus, Oliveira, 2019; DeVita, Bruneo, Das, 2020; Grant Thornton, 2020; Turmanidze, Dašič, Popkhadze, 2020; Mhlanga, 2021).

Okrem tvrdej infraštruktúry kladie „*technologický vývoj nekompromisné nároky aj na kvalifikáciu a odbornosť zamestnancov*“ (Masárová, Sokol, 2019, s. 277), pričom je predpoklad, že požiadavky spoločností na pracovníkov sa s týmto pokrokom budú meniť stále rýchlejšie a rýchlejšie. Od pracovnej sily budúcnosti sa už teraz vyžaduje špecifická kvalifikácia, preto inteligentná prax redukuje počet zamestnancov s nízkou kvalifikáciou a nízkymi digitálnymi zručnosťami (Vidová, 2019). K tomuto kroku ju vedie skutočnosť, že bez adekvátnej úrovne rozvoja ľudského kapitálu je nemožné implementovať a dosahovať ciele Industry 4.0, ako napr. zefektívňovanie a zvyšovanie produktivity, dosahovanie hospodárskeho rastu a pod. (Žárská, Holomek, 2020).

Priemysel 4.0 a jeho mutácie majú základ v otvorenom, adaptívnom, komplexnom sociálno-ekonomickom (eko)inovačnom systéme, ktorý sa vyznačuje nelineárnymi spätnými väzbami. (Kovacs, 2018). Rekonfigurácia, úprava alebo nahradenie hlavných aplikácií môže byť pre mnohé podniky náročné a nákladné. Výsledkom takéhoto správania sa môže byť narušenie stability ekonomicko-hospodárskeho rastu podniku (Alvarez a Marsal, 2022), ktorého dopad sa prejaví nie len v rámci príslušného podniku, ale i regiónu a štátu ako celku. Druhou, niee menej závažnou problematikou tohto priemyslu je rozvoj ľudských zdrojov. Dystopický názor, že ľudí nahradí robotika, pričom v továrni budúcnosti bude oveľa menej zamestnancov ako dnes, sa nepotvrdil (Wu, 2021).

Štúdia ATP Journal (2021) to vysvetľuje nasledovne: „*potreba ľudskej práce sa nestratí, priam naopak. Síce skutočne dôjde k zániku profesií, avšak zväčša rutinného charakteru, teda profesií vykazujúcich algoritmizovateľnosť činností a opakovateľnosť. Vznikne však kvantum nových, ktorých sofistikovanosť nie je (nateraz) možné robotizovať, ako napr. sociálne,*

organizačné, fyzické, kreatívne či intelektuálne profesie, ktoré nebude v dohľadnej možné nahradiť automatizáciou ani digitalizáciou". Ľudské zdroje budú preto naďalej zohrávať najdôležitejšiu úlohu v rámci úspešného napredovania Industry 4.0, resp. priemyslu budúcnosti, a naďalej budú prezentovať zásobáreň ľudského potenciálu, ktorý je nenahraditeľným. Reflektovať na tieto výrazné zmeny týkajúce sa profesionálneho profilu zamestnancov a kompetenčných modelov je nevyhnutné už teraz. Štúdia futuristov Diamandisa a Kotlera (2020) potvrdzuje vyššie uvedené, pričom zároveň upozorňujú na potrebu úpravy obsahu pracovných miest na trhu práce.

Nové zručností zamestnancov ako kritické a inovačné myslenie, aktívne učenie sa, self management a kreativita, pokročilé digitálne, informačné a komunikačné zručnosti je potrebné urgentne riešiť i vzhľadom na to, že tieto zručnosti budú do roku 2025 nevyhnutné na pokrytie dopytu po pracovných miestach v oblasti ekologickej ekonomiky, umelej inteligencie, cloud computing, vývoja a predaja produktov, marketingu a pod. (Svetové ekonomické fórum, 2020). Obdobným spôsobom sa k otázke zručností a vedomostí vyjadrujú združenia a podnikateľské agentúry (ASME, VDI, SBA a pod.), ktoré zároveň vyzývajú na riešene otázky pripravenosti pracovnej sily a potreby určenia „*miery zapojenia krajiny do procesu inovácií*" (Berkovič, Krajčo, 2020. s. 70).

2. CIEĽ A METODOLÓGIA

Cieľom predloženého príspevku je poukázať na nevyhnutnosť reflexie, ktoré so sebou štvrtá priemyselná revolúcia prináša, a to vzhľadom na jej zmeny a dopad na rozvoj regiónov. V danom kontexte sa zameriavame na zmeny na trhu práce, reflexiu regionálnej politiky a výzvy, ktoré reprezentuje koncept Industry 4.0.

Príspevok bol spracovaný pomocou všeobecných metód vedeckého poznania, predovšetkým metód analýzy sekundárnych zdrojov, ako vedecké štúdie, odborné články a databázy renomovaných inštitúcií, syntézy poznatkov, vedeckej abstrakcie výsledkov, indukcie, dedukcie a komparácie dostupných zdrojov.

Pre realizáciu uvedeného cieľa boli vymedzené nasledovné úlohy: zistiť úroveň sieťovej pripravenosti a úroveň ekonomiky a spoločnosti, vyčísliť mieru nezamestnanosti a zhodnotiť vplyv konceptu na regionálnu politiku a regionálny rozvoj.

3. VÝSLEDKY A DISKUSIA

Automatizácia procesov spôsobila úbytok voľných pracovných miest manuálneho rutinného a ľahko nahraditeľného charakteru, avšak bolo vytvorených viacero nových pracovných miest, ktoré doteraz trh práce nepoznal (Tabuľka 1).

Tieto nové, resp. inovované pracovné pozície sú závislé na ľudských zdrojoch a ľudskom potenciály, pričom si však treba uvedomiť diametrálnu odlišnosť požiadaviek a kritérií kladených na túto pracovnú silu. Nedostatok pracovnej sily so špecifickými zručnosťami a schopnosťami potrebnými pre dané pozície a zmena charakteru mnohých pracovných miest, je kameňom úrazu plnej implementácie a prechodu podnikov na model Industry 4.0. Mnohé spoločnosti bijú na poplach a žiadajú vlády (vrátane SR) o razantné kroky pomoci.

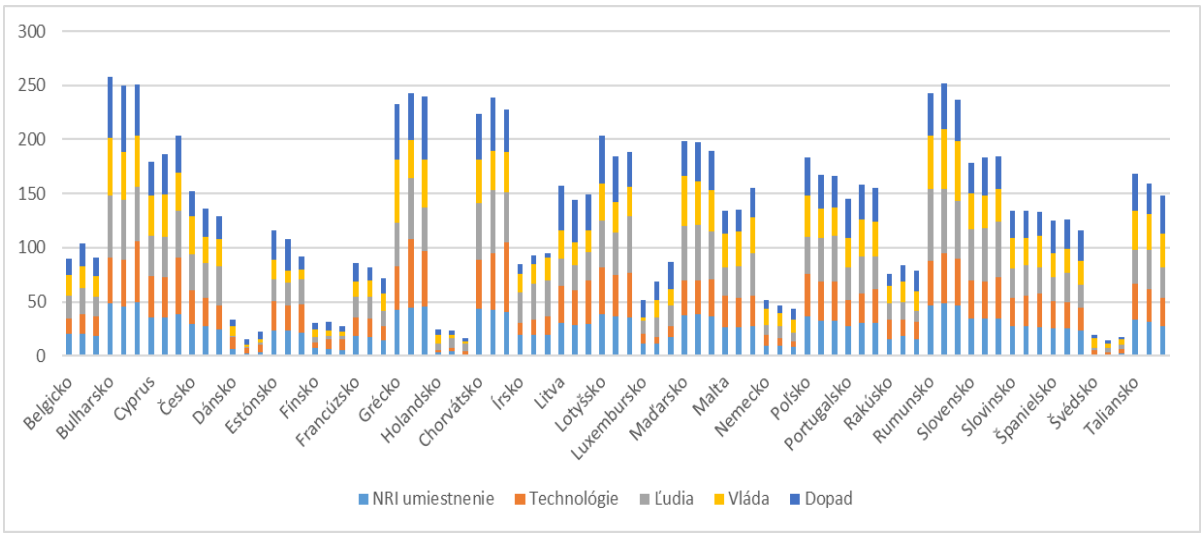
Tabuľka 1: Dopyt po pracovných pozíciách

Ohrozené pracovné pozície	Chýbajúce pracovné sily	Nové pracovné pozície
pomocné sily vo výrobe, sklade	lekári, lek. personál	špecialisti IT
sprostredkovatelia finančných služieb /finanční analytici	remeselníci a kvalifikovaní pracovníci	špecialisti SMART mobility
prevádzkovatelia predajní, predavačky, recepční	montážni robotníci výrobkov a zariadení	špecialisti optimalizácie, riadenia a kvality práce
kaderníctvo, kozmetika	obsluha pojazdných zariadení	technológovia - Priemysel 4.0
špecialisti v oblasti práva a príbuzných oblastiach	kuchári, pomocné sily, gastro obsluha	špecialisti pre virtuálne prototypy a nanotechnológie
zlievači, zvárači a príbuzní pracovníci	IT programátori - vývoj softvéru a aplikácií	špecialisti užívateľskej skúsenosti
upratovacie služby	mechanici, opravári	inžinieri pre digitálnu výrobu
obsluha strojov, mechanici a opravári elektrických zariadení	riaditelia, riadiaci pracovníci, vedúci spoločností	odborníci na prediktívne údržbové systémy
účtovníci, fakturanti, úradníci - spracovanie číselných údajov	manažéri - ľudské zdroje, obchod, marketing	odborníci na digitálnu biomimetickú výrobu
operátori call centra, telemarketingu	elektromechanici	(eko)inovátori výroby a výr. procesov

Zdroj: Bendová, 2022, Forbes, 2022, Trend, 2022b, Žákovič, 2019

Kým v krajinách ako Dánsko, Fínsko, Nemecko je vysoká pripravenosť na takúto prácu, v krajinách ako Grécko, Bulharsko, Lotyšsko je táto pripravenosť nízka (Graf 1). Slovenská republika je spomedzi hodnotenia zaradená do kategórie B, teda medzi krajiny EÚ s nízkou mierou pripravenosti (20. miesto).

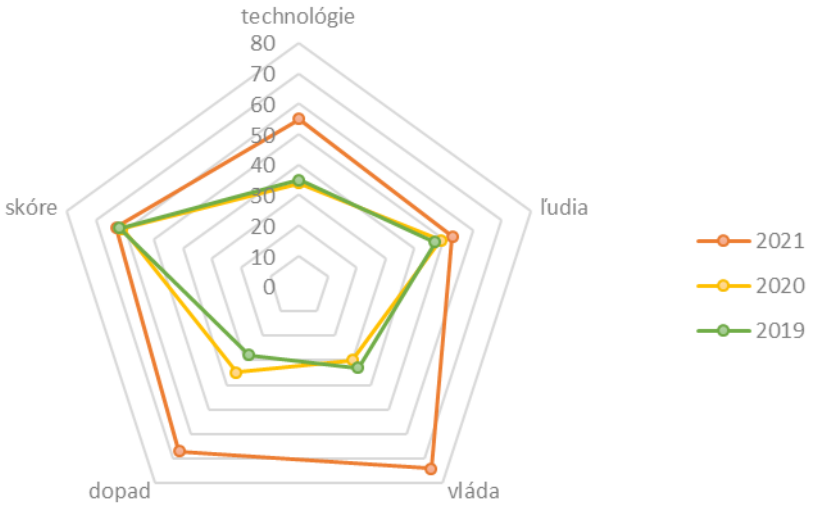
Obrázok 1: Pripravenosť štátov na základe indexu NRI



Zdroj: spracované na základe údajov NRI (2019-2021)

Nelichotivé 20. miesto v rámci „The Networked Readiness Index - NRI" (index porovnávania pripravenosti), vypovedá o nízkej miere pripravenosti technologickej základne, ľudských zdrojov i štátu (Graf 2), čo vyžaduje zvýšenie inklúzie, podpory mechanizmov a celkového prístupu jednotlivcov i skupín k technológiám a digitálnemu prostrediu.

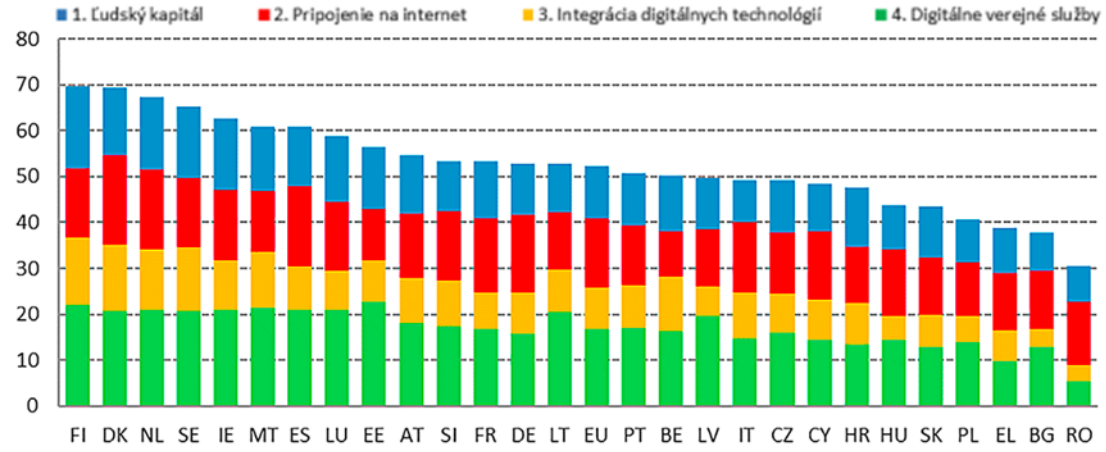
Obrázok 2: Slovensko podľa NRI



Zdroj: spracované na základe údajov NRI (2019-2021)

Obdobne nelichotivý výsledok dosahuje Slovensko v rámci monitorovania digitálneho pokroku, ktorý je vyčíslený vďaka indexu digitálnej ekonomiky a spoločnosti - DESI. Na základe výsledkov DESI, možno konštatovať, že úroveň digitalizácie a refleci na potreby spoločnosti sú extrémne slabé (Graf 3).

Obrázok 3: Štáty EÚ podľa DESI - 2022

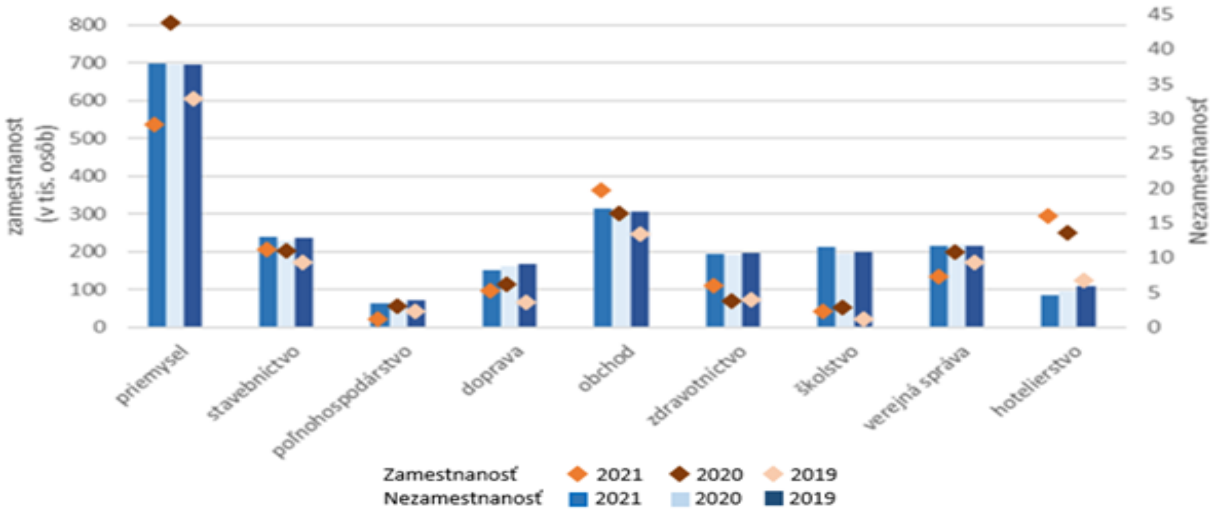


Zdroj: Európska komisia, 2022

Slabé výsledky Slovenskej republiky v spojení s výnimočne silným zastúpením automobilového priemyslu radia krajinu medzi najohrozenejšie krajiny EÚ. Enormný stupeň robotizácie a digitalizácie je hrozbou predovšetkým pre tradičné povolania (40%), ktoré vyžadujú nízku kvalifikáciu, resp. vykazujú monotónny a rutinný charakter práce, a ktorých nahraditeľnosť umelou inteligenciou nebude škodlivá (SBA, 2022). Kľúčom k úspechu je podpora vzdelávania (51,7% osobností slovenskej ekonomiky), bez ktorej, ako uvádza Mališek (2022), sa veľké zmeny na trhu práce nedajú zvládnuť (Trend, 2022a).

Reálne zmeny na trhu práce SR odzrkadľujúce prerod priemyslu nateraz nie sú viditeľné, napriek tomu, že dochádza k implementácii modelov a konceptov Industry 4.0 do tohto odvetvia hospodárstva. Môžeme však predpokladať, že v horizonte najbližších 5 rokov budú natoľko citeľné, že rapídne zasiahnu celé hospodárstvo SR. Dôvodom tohto tvrdenia je skutočnosť, že priemysel a priemyselná výroba je najväčším odvetvím z pohľadu zamestnanosti v SR (698 500 zamestnancov), čo v spojení s jednoliatym charakterom priemyslu, t. j. extrémnou koncentráciou automobilového priemyslu v rámci SR (47,7% z celkovej priemyselnej výroby) predikuje významnú zraniteľnosť slovenskej ekonomiky. Opomenúť nemožno ani rýchle ekonomicko-technologické zmeny, ktoré toto riziko ešte viac zvyšujú, či nepredvídateľné skutočnosti, ako napr. pandémia Covid-19. Práve táto nepredvídateľná okolnosť môže byť varovným signálom pre priemysel, ako i regióny (najväčší pokles zamestnanosti a počtu voľných pracovných miest v sledovanom období, Graf 4).

Obrázok 4: Vývoj zamestnanosti vo vybraných odvetviach hospodárstva 2019-2021

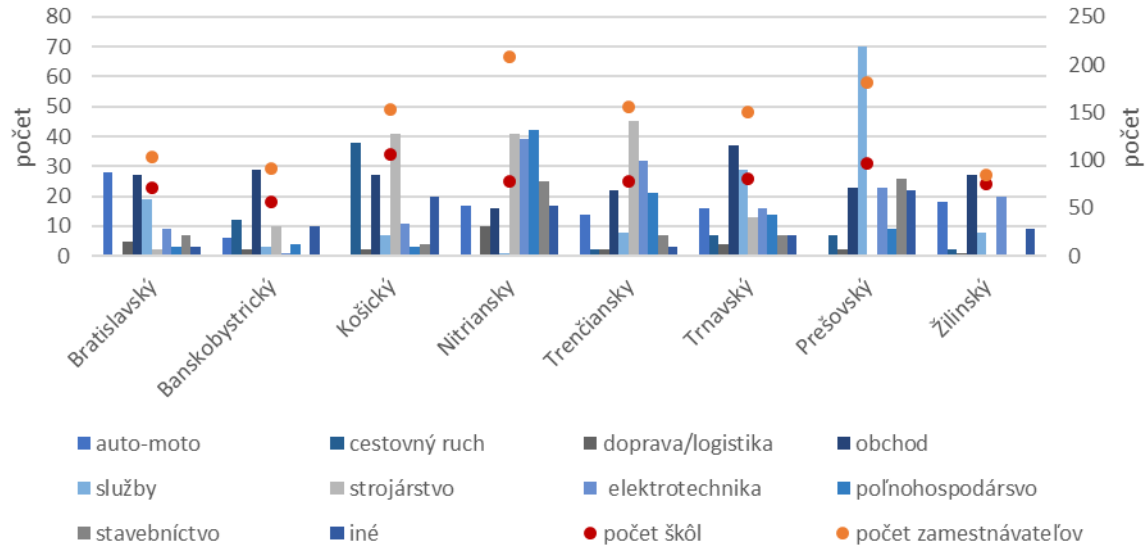


Zdroj: vlastné spracovanie podľa ŠÚ SR (2019-2021)

Industry 4.0 ako determinant rozvoja regiónov je pozitívny trend pre zvyšovanie kvality života obyvateľov a hodnoty samosprávy. Vďaka tomuto trendu dochádza k posilňovania vzťahov a inklúzie partnerov, čo je želaný fenomén v rámci problematiky novej generácie regionálnej politiky – SMART politiky, ktorá vedie k podpore inteligentného sociálno-ekonomického rozvoja, konkurencieschopnosti, hospodárskeho rastu, výkonnosti regiónov, (eko)inovácií, zamestnanosti a pod.

Pozitívnym príkladom sú zmeny v oblasti vzdelávania, konkrétne duálny systém vzdelávania, ktorý od roku 2015 naberá na intenzite (aktuálne je do projektu duálne vzdelávanie zapojených vyše 200 stredných škôl a vyše 1100 zamestnávateľov, Graf 5). Tento model prináša benefity zamestnávateľom, školám a hlavne žiakom, a to z hľadiska praktických skúseností a zručností, ktoré umožňujú plynulý prechod a uplatnenie sa na trhu práce.

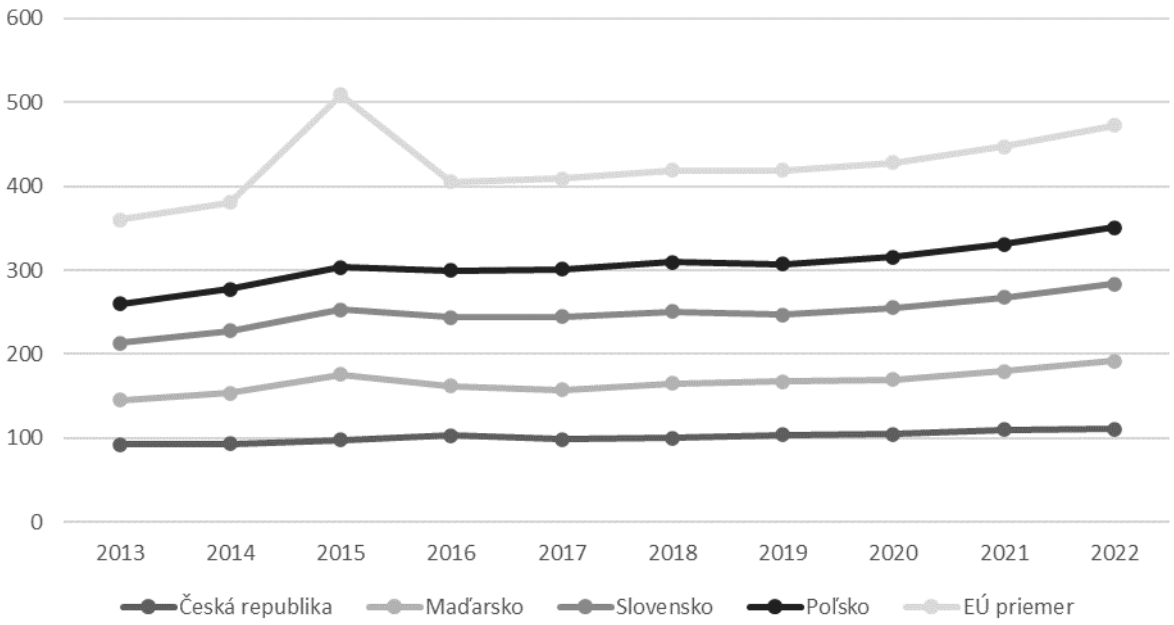
Obrázok 5: Počet zapojených subjektov do duálneho vzdelávania k roku 2020



Zdroj: vlastné spracovanie podľa portalu dualnevzdelavanie.sk, 2020

Okrem toho dochádza k partnerstvu, učeniu sa, rešpektu hodnôt, vzájomnému porozumeniu a podpore dosahovania ekonomických, environmentálnych a sociálnych výsledkov, ktoré sa odzrkadľujú v rámci SMART riešení a (eko)inovačnom rozmere (Graf 6). Ekoinovácie navyše vytvárajú nové hodnoty, ktoré sú odpoveďou na mnohé výzvy spoločnosti a modifikácie Industry 4.0.

Graf 6: Vývoj eko-inovačného indexu SR



Zdroj: Európska komisia, 2021

4. ZÁVER

Priemyslená revolúcia – Industry 4.0, mení pohľad, identitu, správanie a vzťahy, ktoré sa budovali desaťročia. Zmeny odzrkadľujú možnosti, potreby a očakávania, ktoré v nadväznosti na výdobytky novej doby majú zjednodušiť, zefektívniť a sofistikovať výrobu a služby, ako i

rozvíjať spoločnosť ako celok. Pravdou však ostáva, že rozhodnutie a tempo prechodu uplatnenia konceptu Industry 4.0 je individuálne od štátu k štátu. Reálne kontúry Industry 4.0 v podmienkach Slovenskej republiky, a prvé výsledky tejto snahy, sú za priemerom EÚ, avšak chuť a odhodlanie napredovať, vďaka uvedomelosti spoločnosti, je veľké. Slovenská republika sa snaží komplexne reflektovať na požiadavky „nového" priemyslu, priblížiť sa konkurencii a rozvíjať sa, pričom za evidentne najvýznamnejší posun v tejto oblasti možno zaradiť budovanie partnerstiev. Partnerstvá medzi podnikateľskými subjektmi a samosprávnymi subjektmi naberajú na kvalitatívno-kvantitatívnej intenzite. Dôvodom sú výsledky, skúsenosti a dobrá prax, ktoré sa premietajú do hospodárskych i spoločenských výsledkov. Najviac citeľné to je v oblasti prípravy budúcej pracovnej sily, teda reflexii na požiadavky trhu práce.

Okrem plnenia prvotných plánov a zámerov, dochádza i k nadstavbám tohto systému, a to (eko)inováciám. Okrem podnikateľského sektora i samosprávy prechádzajú na inteligentnú smart správu, ktorej paralelu s priemyslom vnímať v čoraz väčšom napĺňaní požiadaviek digitalizácie, ako i prechode na (eko)inovatívný charakter produkcie, ktorú rovnako ako priemysel, začína aplikovať v rámci produkcie verejných statkov, čo je opäť vnímané pozitívne.

V otázke budúcnosti však treba myslieť i na to, aby dochádzalo k múdrej a flexibilnej adaptácií, a to tak aby bezpečie, ochrana a blaho spoločnosti boli vždy na prvom mieste. Učením sa a vzájomnou podporou je možné dosiahnuť efekty, ktoré v minulosti boli nereálne, a ktorých pridanú hodnotu ocení nie len súčasná, ale i budúca generácia.

Dodatok

Tento príspevok bol podporený vedeckým grantom Ministerstva školstva SR agentúry VEGA: "Hodnotenie zmien v kvalitatívnej štruktúre medzinárodných ekonomických vzťahov pod vplyvom Priemyslu 4.0 s implikáciami pre EÚ a SR hospodársku politiku" [Reg. č.: 1/0462/20].

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HUMAN CAPITAL ASSESSMENT IN SLOVAK REGIONS

Dana JAŠKOVÁ[26]

Abstract: *Human capital represents the knowledge, skills and attributes of an individual that facilitate the creation of personal, social and economic well-being. The quality of human capital forms a fundamental platform for the future development of a region. Measuring and analysing the concept of human capital is a prerequisite for the future prosperity of the region. Currently, human capital is assessed using aggregated indicators at the national level. The aim of this paper is to develop a model for assessing human capital in the region based on available indicators. The statistical quantification of this relationship is based on official statistical indicators, which are aggregated using more complex statistical methods into a single index.*

Key words: *composite indicator, HDI, HCI, human capital, statistical method,*

JEL Classification: *C34, C52, R23*

1. INTRODUCTION

The present is characterised by changes resulting from globalisation, unfavourable demographic developments, new information and communication technologies, and changes in qualification structures on the labour market. One has to adapt to these changes, which depends on many factors that make up the concept of human capital (Arnaut et al., 2022). Human capital is the knowledge, skills and health that people invest and accumulate over their lifetime. Investing in people through nutrition, healthcare, quality education, jobs and skills helps develop human capital (OECD, 2001). The nature of work is changing, the boundaries of skills are rapidly shifting. This brings both opportunities and risks. It is clear that if countries do not strengthen their human capital, they will not be able to achieve sustainable, inclusive economic growth, they will not have a workforce ready for the high-skilled jobs of the future. Therefore, countries will not be able to compete effectively in the global economy. The importance of human capital to the employment and economic transformation agenda in countries at all stages of development is now being highlighted. In the context of rapid global changes in technology, demographics, volatility and climate, the human capital gap threatens to widen. Conflict events and pandemics can have a devastating effect on human capital through loss of lives, livelihoods, nutrition and disruption of basic health and education services.

Various initiatives have been undertaken to assess the potential, quality and size of human potential. They quantify it by means of various aggregate indices. The Human Capital Project (HCP, 2022), for example, is helping to create the policy space for transformative investments in health, education and social protection. The project has three pillars: the Human Capital Index HCI, Measurement and Research, and Country Engagement. The HCI is a summary indicator of the amount of human capital that a child born today can expect to acquire by the age of 18, given the risks of poor health and low education that prevail in the country where he or she lives. HCI construction methodology is available on the World Bank´s Open knowledge Repository. The index measures the contribution of health and education to the productivity of individuals and countries, based on macroeconomic studies.

The UNDP Human Development Index (UNDP, 2022) is a summary metric of average performance on key dimensions of human development: long and healthy lives, knowledge and decent living standards. The components of the Human Capital Index do not capture

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everything that is important for human capital development. From October 2020 onwards, the reports that present the HCI also include complementary indicators that present the HCI in a broader human capital perspective across regions and countries. The quantification of human capital in each region is very important for the direction of regional policy in the country. The assessment of this phenomenon at the regional level is absent in official indicators; only country-level values are reported. In this paper, a simple model for assessing the level of human capital at the regional level is presented. Officially reported indicators are aggregated into one number, a composite indicator. Using the constructed composite index, the years 2010 and 2020 are compared.

2. HUMAN CAPITAL DEVELOPMENT AND THE COVID-19 PANDEMIC

Human capital forms one of the fundamental concepts of growth theory (Jones, 2016). Investments in human capital, both private and public, are essential for the economic prosperity of a region. The penetration of the concept of human capital into economic theory has fostered the emergence and availability of databases with empirical data, the emergence of measures and studies quantifying the level of knowledge and skills in individuals. This has enabled empirical studies of the relationship between human capital and the economic success of individuals and entire economies. Human capital contributes to the prosperity of society directly - by increasing labour productivity, enabling faster adoption of technology. Equally important, however, are the consequences of its action in other areas of social life, which indirectly contribute to the performance of the national economy - improving the health level of the population, improving the quality of interpersonal relations, creating an environment of higher motivation and civic participation, reducing social exclusion. Accepting the importance of the stock of human capital in the economy, its impact on the performance of the economy, allows economists to choose and manage the economic policy of the state more effectively. Human capital positively influences the creation of new technologies through innovation, and also helps society adapt to the use of new technologies (Yang, 2014).

The Covid-19 pandemic has caused changes in human development in almost every country, the war in Ukraine, record temperatures, fires and storms, each of which is an alarm signal of climate change that is increasingly out of balance. The answer to these problems is to redouble human development, to unleash the creative capacities that are so essential to human beings. Global crises are piling up: the global financial crisis, the ongoing global climate crisis and the Covid pandemic19, the looming global food crisis. Feelings of insecurity are growing almost everywhere, a trend that has been going on for at least a decade, and that significantly predates the Covid-19 pandemic and the associated decline in global human development. Even before the Covid-19 pandemic, more than 6 out of 7 people globally felt insecure, against a backdrop of global progress on common indicators of well-being, including many indicators of human development. One index that comprehensively characterizes human capital development is the Human Development Index (HDI).

Today, technology is a double-edged weapon. Fossil fuel combustion technologies are warming the planet. With every internet search, retweet and like, our digital footprint generates more data than ever before, which we struggle to use for the common good and are deliberately misused. In the insatiable battle for our data, the tech giants are concentrating more and more power in their hands over the lives of each and every one of us. It is imperative that we bend technology purposefully towards inclusive, creative solutions to old and new challenges. On the other hand, we are seeing the development of vaccines against a new virus in less than a year. In 2021, nearly 20 million deaths have been averted thanks to Covid-19 vaccination programs. It is a lesson in the power of technology to change lives for the better at a time when we hear so much about the ways technology can do the opposite.

In early 2022, the United Nations Development Programme's (UNDP, 2022) Special Report on Human Security found an alarming level of perceived insecurity. People's perceived insecurity is high across all Human Development Index (HDI) groups and has increased even in some countries with very high HDIs. These and other data paint a puzzling picture in which people's perceptions of their lives and society are in stark contrast to historically high rates of overall well-being.

The world economy in general has entered a phase of development that is described as a knowledge society or knowledge economy. In such an environment, human capital, and working with it, is gaining in importance and relevance. Rich and developed countries have gained their position by building, shaping and using the human capital of their people, employees in companies and other organisations. What is the goal of all businesses and even entire economies, i.e. sustainably increasing performance in line with other requirements (such as the need for businesses to behave in an environmentally friendly way and respect the natural environment) and creating a competitive advantage, can only be the result of a systematic, well thought-out and well-designed approach to the use and development of human capital in regions. Investments in human capital, innovation and knowledge dissemination play a significant role in the economic growth of a country and its regions (UNECE, 2016).

3. MEASURING HUMAN CAPITAL

Quantifying human capital is a complex process. Measuring human capital can serve many purposes, as human capital is a key indicator of the current and future potential of regions. In countries where natural resources are the largest form of wealth, human capital is often a growing source of wealth (Lange et al., 2018; Managi and Kumar, 2018). Countries with relatively young populations may have significant advantages over countries with older populations in the long run. In the context of sustainable development, human capital measures can be used to assess how well a country manages its total national wealth in order to assess its long-term sustainability (Liu and Fraumeni, 2020).

Currently, human capital is measured in two ways: Monetary-based measures projects and Indicators-based measures projects (World Bank, 2011). Human Capital is now measured by applying lifetime income approach, based on a database developed by World Bank. Two projects are currently preferred, The Changing Wealth of Nations (CWON) and Inclusive Wealth Report (IWR). That both CWON and IWR projects make the astimate of human capital per capita. A detailed description of the human capital quantification methodology can be found in A Brief Introduction to Human Capital Measures (Liu, Fraumeni, 2020).
New measures of human capital are based on realistic rates of return to education, which are allowed to vary substantially across countries. The new measures perform well in regression analysis explaining productivity across OECD countries and over time. In OECD samples, coefficient estimates are broadly consistent with the private returns underlying the construction of the new measures of human capital. In a wider sample of countries, most estimates imply additional positive social returns. The new measures will be made available in the 2019 update of the OECD's SPIDER database. Follow-up research focuses on identifying the policy drivers of the new measure of human capital. Further research is also needed to incorporate 'quality' aspects (usually proxied by student test scores) into aggregate measure of human capital (Botev, 2019). Three ways of assessing human capital are currently recommended, World Bank´s Human Capital Index (WB HCI), United Nation´s Human Development Index (UN HDI) and United Nations Development Programme (UNDP).
The HCI and its variations represent a composite indicator. A composite indicator is an indicator that is constructed from several sub-indicators that assess a region from different perspectives. It summarises and completes the view of such multifaceted phenomena as human capital, social inclusion, knowledge economy, competitiveness. However, the process

of summarisation inevitably leads to a loss of some basic information. In the absence of a good composite index, excessive public attention may once again be focused on one or a few dimensions, thus defeating the original purpose of portraying a multidimensional phenomenon. In fact, this could worsen the credibility of the assessment of regions (Micklewright, 2001).

When assessing human capital in a region, it is important to keep in mind the purpose, the choice of method and its correct application. The choice of indicators for their assessment is also important. How they are integrated into a single indicator and the correct interpretation of the results play a key role. The indicator must be significant, relevant, understandable, transparent, analytical and complete. The number of indicators should be optimal, indicators must be measured regularly and published officially (Atkinson, 2003; Costa et al., 2020).

Currently, there are several ways to calculate it. OECD (2008) methodologically described the ten-step process of creating a composite indicator. Classical construction of a composite index (CI) is based on the relationship

$$CI(\boldsymbol{x}_i, \boldsymbol{w}) = \sum_{j=1}^{m} y_{ij} w_j \quad (1)$$

while set of units (regions) $I = \{1, \dots, n\}$ to be evaluated with respect to the set of dimensions $J = \{1, \dots, m\}$ (in our case dimension is input indicator), the value of which are x_{ij} and y_{ij} is its normalization. The weight w_j is specified for each dimension $j \in J$, such that $w_j \geq 0$ for all $j \in J$ and $\sum_{j=1}^{m} w_j = 1$ (Nardo et al., 2005).

Mazziata and Pareto (2020) present another approach to the use of the composite index. They recommend constructing an interval, which they called ´performance interval´. The one-number description approach is called the compensatory approach. In the case of a description of reality, the ´performance interval´ would refer to the non-compensatory approach. Additive methods can be used for aggregation, in the case of a compensatory approach. Otherwise, it is recommended to use non-linear functions, such as the geometric mean (OECD, 2008).

$$CI(\boldsymbol{x}_i, \boldsymbol{w}) = \prod_{j=1}^{m} {y_{ij}}^{w_j}. \quad (2)$$

Based on these facts, it is recommended to construct ´performance interval´ of composite index, rather than a single value. This interval is bounded by a lower (LB) and upper (UB) boundary. It is constructed depending on the level of compensability of individual indicators. Formula for ´positive´ performance interval is

$$\left(\min_j(y_{ij})\,;\ \sum_{j=1}^{m} y_{ij} w_j\right), \quad (3)$$

and for ´negative´ performance interval is

$$\left(\sum_{j=1}^{m} y_{ij} w_j\ ;\ \max_j(y_{ij})\,;\right). \quad (4)$$

The longer the length of this interval, the greater the imbalance between the input indicators. If an object has all the indicators rated the best, compared to other objects, the interval is narrowed to one number. The interval does not depend on how the original values are normalized.

3. RESULTS AND DISCUSION

For the assessment of human capital in the regions of Slovakia, 12 relevant indicators (DataCube, 2022) were selected at the NUTS 3 level. The comparison period was 2010 and 2020. The data were converted to the number of inhabitants in the region in the given period. The input indicators are: Ratio of pupils to teachers - grammar school, Ratio of pupils to teachers – secondary vocational school, Ratio of pupils to teachers - primary school, Crude birth rate, Crude death rate, Crude rate of natural increase of population, Crude rate of migration, Economically active population – basic and eneducated, Economically active population – upper secondary, Economically active population – tertiary (academic), Criminal

offences, Gross domestic expenditures on research and development. We construct a positive performance interval. Its higher value is better for the company. Thus, the adoption of a negative penalty allows lower values of the composite index than the arithmetic average, with the largest changes occurring in the regions with a good life in the monitored indicators. The input values of the analysed indicators were normalized by the method of standardization (or z-scores), depending on the direction of action of the indicator.

After normalization, the indicator was assigned the same weight. Thus $w_j = 0{,}083$ for each $j = 1, \dots, 12$. In next Table 1 are lower (LB) and upper (UB) bound for the composite index. In this case LB represents non-compensatory index and UB represents full compensatory composite index. Then there are the Midpoint (compensatory CI) and Geometric mean (non-compensatory *CI*) values, all for the compared years 2010 and 2020.

Table 1: Resulting values of *CI* in 2010 and 2020

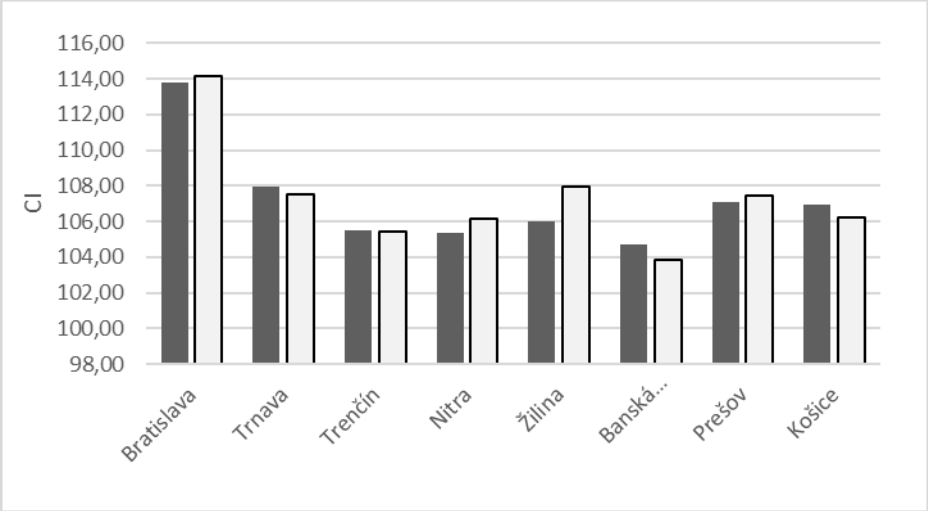
	2010				2020			
Regions	LB	UB	Midpoint	Geometric Mean	LB	UB	Midpoint	Geometric Mean
Bratislava	76,64	117,35	97	113,79	78,57	118,02	98,29	114,13
Trnava	92,19	110,57	101,38	107,97	94,42	110,12	102,27	107,56
Trenčín	87,85	107,44	97,65	105,49	90,11	106,42	98,27	105,4
Nitra	85,47	105,51	95,49	105,36	85,54	105,49	95,02	106,18
Žilina	88,45	107,43	97,94	106,2	96,02	108,92	102,47	107,97
B. Bystrica	86,37	106,6	96,48	104,73	89,52	106,6	98,06	103,82
Prešov	82,24	108,42	95,33	107,12	89,76	109,7	99,73	107,42
Košice	87,28	109,43	98,36	106,94	91,61	108,66	100,14	106,25

Source: author's calculations

The biggest difference in the positions of both applied approaches are in the regions of Bratislava and Prešov. In the case of Bratislava, this is due to the large width of the performance interval. This region has long had the highest number of children in schools per teacher.

We will now explain an interesting interpretation of the displayed intervals. The length of the interval characterizes the balance of individual assessed indicators. The region that has the performance interval of the smallest length shows the best balance of indicators. Of the assessed regions, the Trnava region has the most balanced indicators. The largest length of the performance interval is displayed for the Bratislava region. This is due to the value of the Separate waste collection indicator. In this area, the Bratislava region is in last place compared to other regions. On the contrary, as far as other indicators are concerned, they always come first. Regional policy interventions should be interested in a certain homogeneity of important indicators. The results further show that a region can perform better that another region from a non-compensatory point of view, but it can perform worse from a full compensatory point of view. This is an example of a pair of regions Bratislava - Trnava. In this case, the performance interval of the region is contained within a larger performance interval. Figure 1 compares the *CI* values calculated using the geometric mean in 2010 and 2020 years.

Figure 1*:* Comparison of CI values in 2010 and 2020



Source: author's calculations

Regions are compared on the basis of geometric mean. Some regions show an increase, some a decrease.

5 CONCLUSION

What drives economic development and the development of society forward is above all human capital. Today's society is characterised by constant dynamic change, and changes in the quality of human capital are judged negatively on the basis of various indices. The quantitative assessment of human capital is a complicated process. A methodology for assessing human capital using a number of indices has now been developed. The indices capture the essence and objective of human capital development. On their basis, countries can be compared and changes can be assessed over time. It is important to be able to compare countries, but for regional development it is very important to compare different regions of a country with each other. In this case, it is important to develop a methodology for assessing the quality and potential of human capital in the different regions of a country. The paper presents a methodology for calculating an aggregate indicator, a composite indicator that allows to compare different territorial statistical units with each other. Several possibilities of construction of the aggregate indicator are presented, advantages and shortcomings are given.

The aggregate indicator compares Slovak regions at NUTS 3 level. The comparison was carried out between 2010 and 2020. 12 officially published indicators that correlate with the concept of human capital were used for the assessment. Based on the OECD methodology, these indicators were aggregated into one index and the regions were compared with each other. It was essential to compare the changes in the regions over the ten years.

The model of human capital assessment in Slovak regions, presented in the article, needs to be supplemented with other indicators in the future, to examine their importance and to assess its overall suitability. However, it represents something new in this area, which could be built upon.

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TRH PRÁCE VO VZŤAHU K VÝKONNOSTI EKONOMIKY

LABOR MARKET IN RELATION TO THE PERFORMANCE OF THE ECONOMY

Eva KOIŠOVÁ[27]
Jana MASÁROVÁ[28]

Abstrakt: *Ekonomiky jednotlivých štátov sa usilujú o zvyšovanie svojej ekonomickej výkonnosti, ktorá predurčuje hospodársku úspešnosť a konkurencieschopnosť daného štátu. Dôležité postavenie v tomto úsilí má trh práce a kvalita pracovanej sily. V článku sa venujeme hodnoteniu ekonomickej výkonnosti štátov Vyšehradskej skupiny na základe skúmania vývoja tempa rastu HDP, inflácie, nezamestnanosti a vonkajšej rovnováhy. Zmeny v ekonomickej výkonnosti hodnotíme vo vzťahu k vývoju na trhu práce. Z nášho výskumu vyplynulo, že všetky štáty V4 dosiahli v roku 2021 vyššiu ekonomickú výkonnosť oproti roku 2010 a práve trh práce bol významným faktorom, ktorý prispel k priaznivému vývoju ekonomickej výkonnosti.*

Kľúčové slová: *nezamestnanosť, trh práce, výkonnosť ekonomiky, zamestnanosť*

Abstract*: National economies of particular states strive to improve their economic performance, which determines the economic success and competitiveness of a particular country. The labor market and the qualitative aspect of labor force play an important role in this effort. In this paper, we assess the economic performance of the Visegrad Group countries by examining the evolution of GDP growth rates, inflation, unemployment and external balance. We assess the economic performance changes in terms of labor market development. Our research shows that all V4 countries achieved a higher economic performance in 2021 compared to 2010, and the labor market was an important factor contributing to favorable economic performance development.*

Key words: *unemloyment, labour market, economic performance, employment*

JEL Classification: *E24, E31, O11*

1. ÚVOD

V súčasnosti sa ekonomiky dostali opäť do obdobia, ktoré je pre mnohé krajiny obzvlášť turbulentné. Tieto turbulencie a výkyvy v poslednom sledovanom roku boli zapríčinené hlavne mimoekonomickými faktormi spôsobené pandémiou COVID-19, ktorá v marci 2020 intenzívne zasiahla aj krajiny EÚ. Zavedeniu opatrení spojených s elimináciou zdravotných dôsledkov na obyvateľov krajiny sa nevyhli ani krajiny Vyšehradskej štvorky (V4). Snahou každého štátu však je zabezpečiť zvyšovanie jeho ekonomickej výkonnosti a konkurencieschopnosti, ktoré sú odrazom ekonomickej úspešnosti štátu.

Cieľom príspevku je zhodnotenie výkonnosti ekonomík Vyšehradskej štvorky vo vzťahu k situácii na trhu práce. V príspevku hodnotíme a porovnávame situáciu na trhu práce, vývoj základných ukazovateľov výkonnosti a pomocou magického štvoruholníka hodnotíme ekonomickú výkonnosť v štátoch V4. Pracujeme s údajmi dostupnými z databázy Eurostatu v skúmanom časovom rade 2010-2021.

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2. SÚVISLOSTI TRHU PRÁCE A VÝKONNOSTI EKONOMIKY

Každá vyspelá ekonomika sa snaží o ekonomický rast, ktorý je nevyhnutným predpokladom dosahovania ekonomického rozvoja. Ekonomický rozvoj si podľa Meliška (2008) vyžaduje, aby ekonomický rast bol zosúladený s určitými cieľovými predstavami, ktoré môžu byť zo sociálno-spoločenského a civilizačného hľadiska rozličné a závisia od historických a kultúrnych tradícií, spoločenských noriem a hodnotového systému. Ekonomickú výkonnosť môžeme hodnotiť na základe rôznych oblastí fungovania spoločnosti a úrovne života jej obyvateľov. Ekonomickú výkonnosť Draková (2012) indikuje ako trendy vo vývoji rozhodujúcich makroekonomických indikátorov štátu, respektíve ako dosiahnuté výsledky fungovania ekonomiky ako celku v určitom období, ktoré sú zaznamenávané a posudzované na základe vybraných ukazovateľov. Podľa Vlčeka (2016) možno výkonnosť ekonomiky posudzovať aj podľa toho, aký objem produkcie dokáže vyprodukovať ekonomika na jedného obyvateľa.

Výkonnosť ekonomík sa vo všeobecnosti hodnotí najmä prostredníctvom základných makroekonomických ukazovateľov. Najčastejšie sa využíva hrubý domáci produkt (HDP), resp. hrubý domáci produkt na obyvateľa, tempo rastu reálneho HDP, miera zamestnanosti, miera nezamestnanosti, miera inflácie, ukazovatele vonkajšej rovnováhy a pod. (Masárová, Koišová, Navickas, 2022).

Sledovaním, porovnávaním a vyhodnocovaním výkonnosti ekonomík jednotlivých štátov sa zaoberá mnoho výskumných prác. Viaceré práce sa zameriavajú buď na skúmanie vývoja vybraných ukazovateľov (Spišáková a Pétrová, 2011; Kiss, 2018), alebo na hodnotenie výkonnosti ekonomiky využívajú tzv. magický štvoruholník (Sloman a Wride, 2009, Sivák a Staněk, 2011; Firme a Teixeira, 2014; Hamdini a Gaidi, 2021, Özkaya a Alhuwesh, 2021). Ďalej sa často využívajú aj rôzne multikriteriálne metódy hodnotenia výkonnosti ekonomiky, s využitím tradičných i alternatívnych ukazovateľov výkonnosti.

Dôležitým predpokladom dosahovania ekonomického rastu a zvyšovania výkonnosti ekonomiky je priaznivá situácia na trhu práce. Vysoká miera zamestnanosti a nízka miera nezamestnanosti sú na jednej strane predpokladom vysokej výkonnosti ekonomiky, no na druhej strane závisia od ekonomickej úrovne štátu a od tendencie jej vývoja.

Z pohľadu trhu práce a zvyšovania zamestnanosti je nereálne a štát nedokáže zabezpečiť všetkým ľuďom dobrú prácu za slušnú mzdu. Ako uvádzajú Vážny a kol. (2014), vždy ostanú na trhu práce ľudia, ktorí nebudú ochotní pracovať za ponúknutú mzdu a dobrovoľne sa rozhodnú nepracovať. Hlavným cieľom makroekonomickej politiky v tejto oblasti je dosiahnuť: vysokú úroveň zamestnanosti a nízku nedobrovoľnú nezamestnanosť. Trh práce v krajinách V4 v minulosti musel čeliť tlakom viacerých faktorov, ktoré sa postupne na trhu práce začali prejavovať. Najvýznamnejším problémom pre makroekonomickú stabilitu v štátoch V4 v rokoch 2001-2005 bola nezamestnanosť, najmä v Poľsku a na Slovensku, ktorá dosahovala hodnoty až okolo 18 - 20 %. To sa prejavilo nie len ako ekonomický, ale aj sociálny problém. Navyše takmer vo všetkých štátoch V4 zamestnanosť vo verejnom sektore vysoko koreluje s hospodárskym cyklom, ale v súkromnom sektore sa tento vzťah sa nepotvrdil. Poľsko bolo jedinou krajinou, kde zamestnanosť nesúvisí s ekonomickým cyklom (Bilka a Bodľa, 2012).

Na trhu práce sa prejavovali aj integračné a globalizačné procesy a s tým súvisiaci voľný pohyb pracovnej sily (Dagiliene, Leitoniene a Grenčíková, 2014; Adepoju, Van Noorloos a Zoomers, 2010) a z toho plynúce migračné pohyby pracovnej sily. Ďalšími významnými míľnikmi ako uvádzajú Tupá a kol. (2019) bol vstup do schengenského priestoru a uplynutie prechodných opatrení, chrániacich pracovné trhy starých členských krajín integračného zoskupenia v Európe. Trh práce reagoval aj na zmeny, ktoré podmieňovali technické a technologické procesy súvisiace s digitalizáciou a digitálnou revolúciou, ktorá ovplyvňuje

všetky hlavné makroekonomické ukazovatele: HDP, spotrebu, investície, zamestnanosť, infláciu (Simanaviciene a kol. 2019).

A v posledných rokoch (2019-2020) na trh práce vplývali aj ďalšie mimoekonomické faktory, ktoré so sebou priniesla pandémia COVID-19. Pandemická situácia v prvej polovici roku 2020 spojená s rozšírením ochorenia COVID-19 do celého sveta obmedzila každodenné spotrebiteľské návyky osôb, čím sa znížil dopyt po tovaroch a službách, čo v konečnom dôsledku ovplyvnilo aj dopyt po pracovných silách. Počas pandémie sa za niekoľko mesiacov úplne zmenil každodenný životný štýl ľudí, fungovanie podnikov a nastavenia trhu práce. Nielen na Slovensku a v krajinách V4, ale aj celosvetovo krajiny striedavo sprísňovali a uvoľňovali opatrenia na zabránenie šírenia pandémie podľa vývoja aktuálnej situácie a počtu nakazených. Prijímané preventívne opatrenia zasiahli široké spektrum zamestnancov a mnohých zamestnaní a mali dopady na ekonomickú výkonnosť a trh práce.

Podľa Lemieux a kol. (2020) mala kríza súvisiaca s COVID-19 kľúčový vplyv na trh práce, na príjmy domácností a na zmeny hrubého domáceho produktu. Trh práce a ľudský kapitál boli prvé, ktoré pocítili tieto účinky v dôsledku rastúcej nezamestnanosti, neistoty zamestnania a zmenšujúcich sa kariérnych príležitostí v dôsledku šírenia COVID-19 po celom svete (Costa Dias a kol., 2020). Spolu s ekonomikou sa trhy práce EÚ pôsobením opatrení zameraných na nešírenie COVID-19 výrazne zhoršili. V dôsledku politických opatrení prijatých na obmedzenie účinkov pandémie na zamestnanosť sa tento pokles premietol najmä do zníženia počtu odpracovaných hodín a menšieho počtu zamestnaných alebo zvýšenia počtu nezamestnaných ľudí (Römisch, 2020). Očakáva sa, že dôsledky pandémie COVID-19 sa budú prejavovať ešte niekoľko nasledujúcich rokov, a to vo všetkých oblastiach ľudskej činnosti.

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je zhodnotenie výkonnosti ekonomík Vyšehradskej štvorky vo vzťahu k situácii na trhu práce v kontexte šírenia pandémie COVID-19.

Na dosiahnutie uvedeného cieľa sme zvolili nasledovný postup: Najskôr sme preskúmali situáciu na trhoch práce štátov V4 na základe zhodnotenia vývoja zamestnanosti a nezamestnanosti. Následne sme skúmali a porovnávali vývoj ukazovateľov výkonnosti: tempo ekonomického rastu, miera inflácie a vonkajšia rovnováha. Nakoniec sme zhodnotili výkonnosť ekonomík štátov V4 v prvom a poslednom sledovanom roku prostredníctvom magického štvoruholníka.

V článku je využitá analýza časového radu skúmaných ukazovateľov za roky 2010-2021, ďalej bola uskutočnená vzájomná komparácia skúmaných ukazovateľov v štátoch V4 a následne bola použitá syntéza.

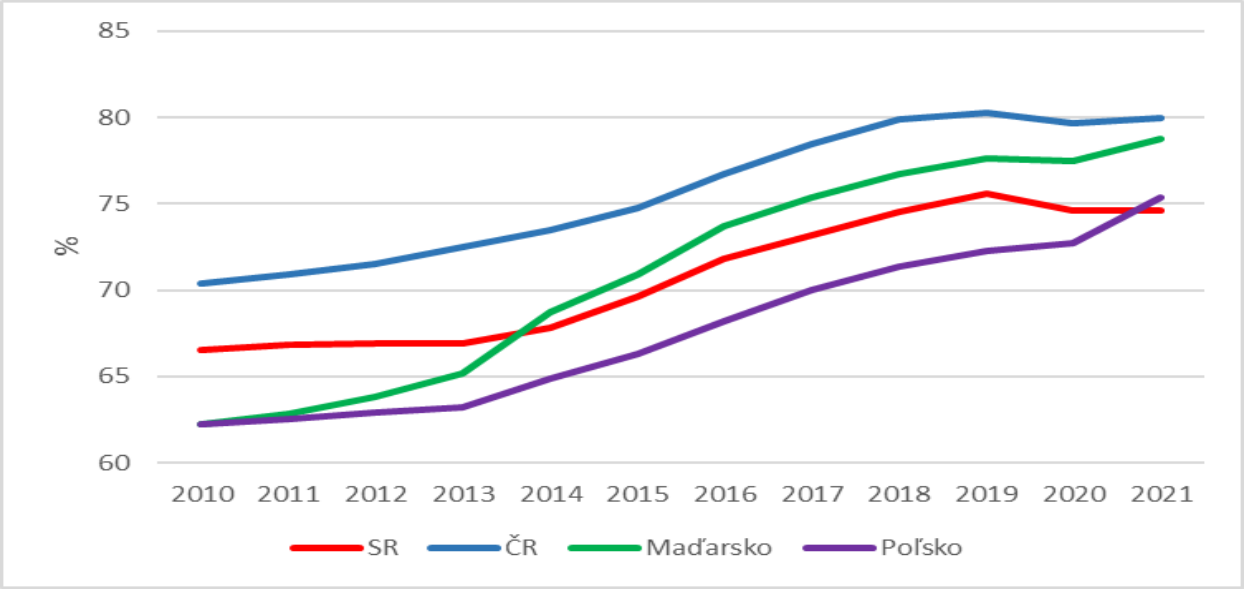
3. VÝSLEDKY A DISKUSIA

Najskôr sa zameriame na zhodnotenie situácie na trhu práce na základe skúmania vývoja miery zamestnanosti a miery nezamestnanosti.

3.1 Zhodnotenie situácie na trhoch práce štátov V4

Miera zamestnanosti vypovedá o podiele zamestnaných osôb na celkovom počte ekonomicky aktívneho obyvateľstva. Je najdôležitejším ukazovateľom hodnotenia situácie na trhu práce. V obrázku 1 sme znázornili vývoj miery zamestnanosti v štátoch V4 v rokoch 2010-2021.

Obrázok 1: Vývoj miery zamestnanosti v štátoch V4 (%)

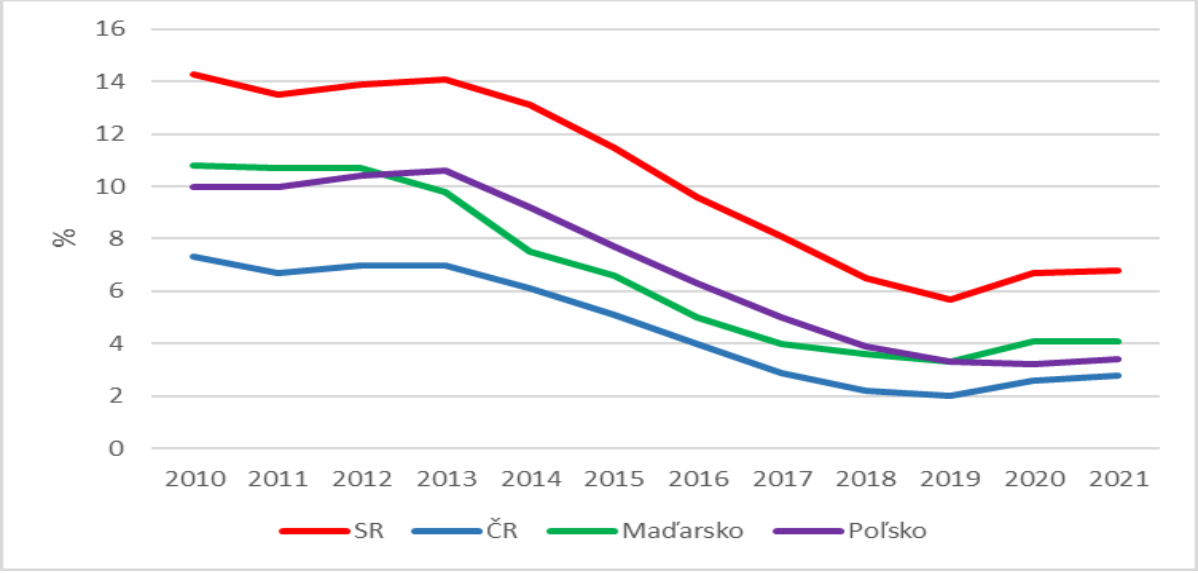


Zdroj: Eurostat (2022), vlastné spracovanie

V sledovanom období je vývoj miery zamestnanosti pozitívny, najmä v rokoch 2014-2019 štáty V4 dosahovali pomerne výrazný rast miery zamestnanosti. Najvyššia miera zamestnanosti je v celom sledovanom období v Českej republike, pričom v roku 2019 dosiahla až 80,3%. Na opačnom konci rebríčka bolo do roku 2020 Poľsko, ktoré však zaznamenalo zvýšenie miery zamestnanosti o 13,2 p.b. na 75,4% v roku 2021. Najvýraznejší nárast zamestnanosti však dosiahlo Maďarsko, a to o 16,6 p.b. Pandémia COVID-19 sa na miere zamestnanosti najviac prejavila v SR, kde došlo k zníženiu miery zamestnanosti na 74,6% v roku 2021.

Vývoj miery zamestnanosti úzko súvisí s vývojom nezamestnanosti. Vývoj miery nezamestnanosti v štátoch V4 je znázornený v obrázku 2.

Obrázok 2: Vývoj miery nezamestnanosti v štátoch V4 (%)



Zdroj: Eurostat (2022), vlastné spracovanie

V súvislosti s rastom zamestnanosti môžeme pozorovať vo všetkých štátoch Vyšehradskej skupiny znižovanie nezamestnanosti, keď najnižšie hodnoty boli zaznamenané v roku 2019. Ako uvádzajú Burksaitiene a kol. (2019) v tomto období bol v Európe zaznamenaný ekonomický rast, ktorý bol mimoriadne náročný na pracovnú silu. Pandémia COVID-19 však tento priaznivý vývoj zastavila, čo sa prejavilo v náraste nezamestnanosti, kedy o zamestnanie prišli najmä zamestnanci z najviac postihnutých odvetví (ubytovacie a stravovacie služby, umenie a kultúra, činnosti reštaurácií a pohostinstiev, maloobchod a stavebníctvo a pod.). Nárast nezamestnanosti v štátoch V4 však nebol rovnaký, ako je možné sledovať v obrázku 2. Kým v SR, ČR a Maďarsku sa miera nezamestnanosti mierne zvýšila, v Poľsku v roku 2020 dokonca slabo poklesla a nepatrný nárast bol zaznamenaný v roku 2021.

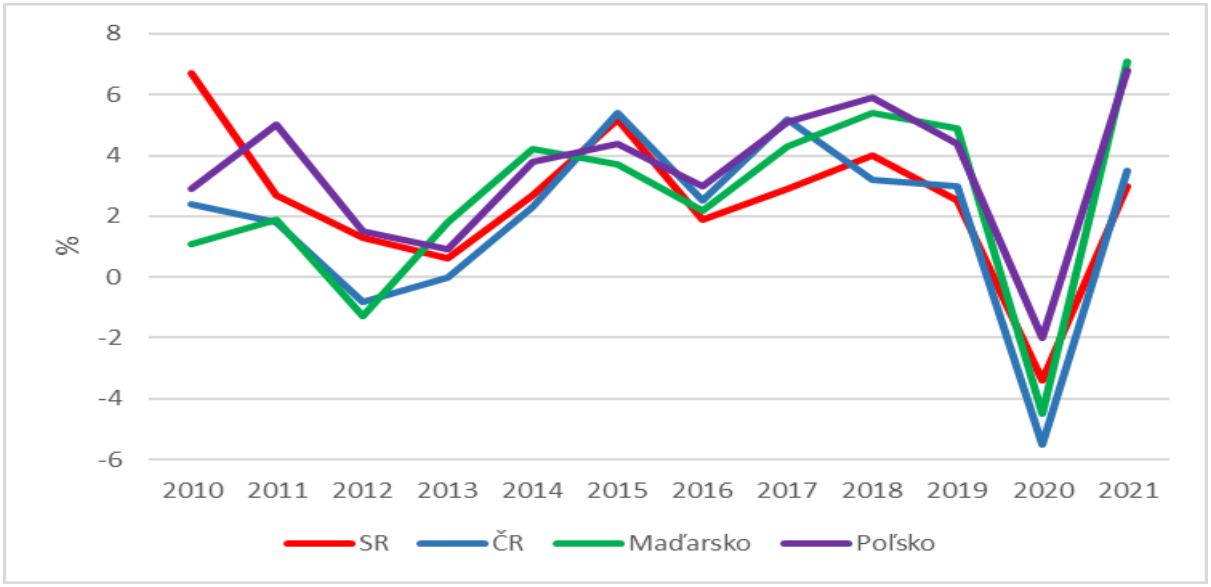
V celom sledovanom období bola najnižšia nezamestnanosť v ČR, naopak SR patrí medzi štáty s vyššou mierou nezamestnanosti, ktorá v rokoch 2010 a 2013 prekročila úroveň 14%.

3.2 Zhodnotenie vývoja ukazovateľov výkonnosti ekonomík štátov V4

Ako sme už vyššie uviedli, medzi základné ukazovatele hodnotenia výkonnosti ekonomík sa okrem ukazovateľov hodnotiacich situáciu na trhu práce zaraďujú tempo ekonomického rastu, miera inflácie a situácia v oblasti vonkajších ekonomických vzťahov (vonkajšia rovnováha).

Spomedzi týchto ukazovateľov sa najvyššia priorita kladie na dosahovanie priaznivého tempa ekonomického rastu. Jeho vývoj v štátoch V4 je znázornený na obrázku 3.

Obrázok 3: Vývoj tempa ekonomického rastu v štátoch V4 (%)

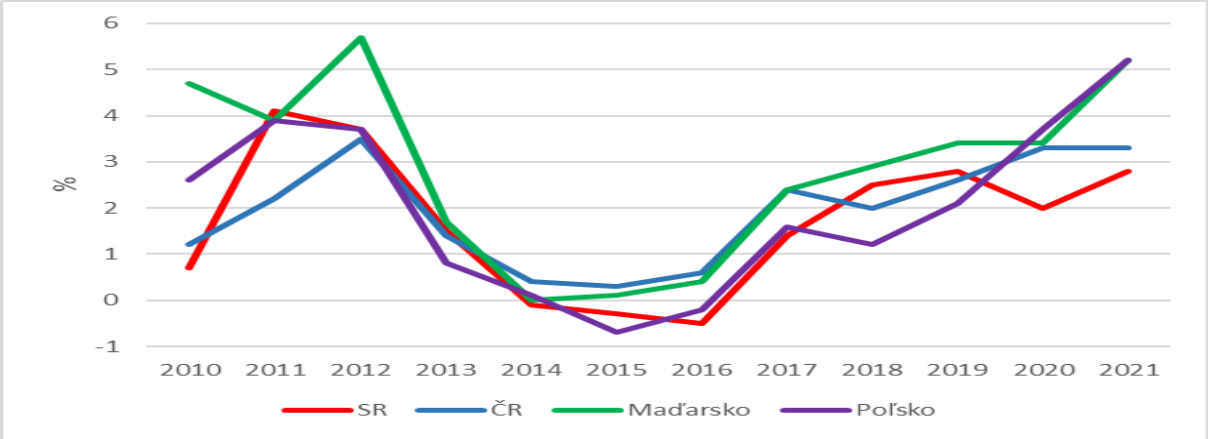


Zdroj: Eurostat (2022), vlastné spracovanie

Štáty V4 zaznamenali v 2010-2021 kolísavý vývoj tempa rastu HDP, s výrazným poklesom v roku 2020. Pri porovnaní vývoja ekonomického rastu v štátoch V4 môžeme konštatovať podobnú tendenciu, okrem roku 2010. Spomalenie ekonomického rastu nastalo v rokoch 2012-2013 (v ČR a Maďarsku nastal až pokles HDP) a v roku 2016. Výrazné zhoršenie vývoja HDP nastalo vo všetkých štátoch V4 v roku 2020, kedy HDP z dôvodu opatrení prijatých na zmiernenie šírenia pandémie COVID-19 poklesol, v ČR až o 5,5%. Najmiernejší pokles, o 2% zaznamenalo Poľsko. V roku 2021 už bol dosiahnutý ekonomický rast, najvyšší v Maďarsku (7,1%) a v Poľsku (6,8%).

Ďalším z významných ekonomických cieľov a prejavom fungovania peňažného trhu je stabilita cenovej hladiny. Plnenie tohto cieľa sa hodnotí na základe miery inflácie. Na obrázku 4 je znázornený vývoj miery inflácie v štátoch V4 zistený na základe harmonizovaného indexu spotrebiteľských cien.

Obrázok 4: Vývoj miery inflácie v štátoch V4 (%)

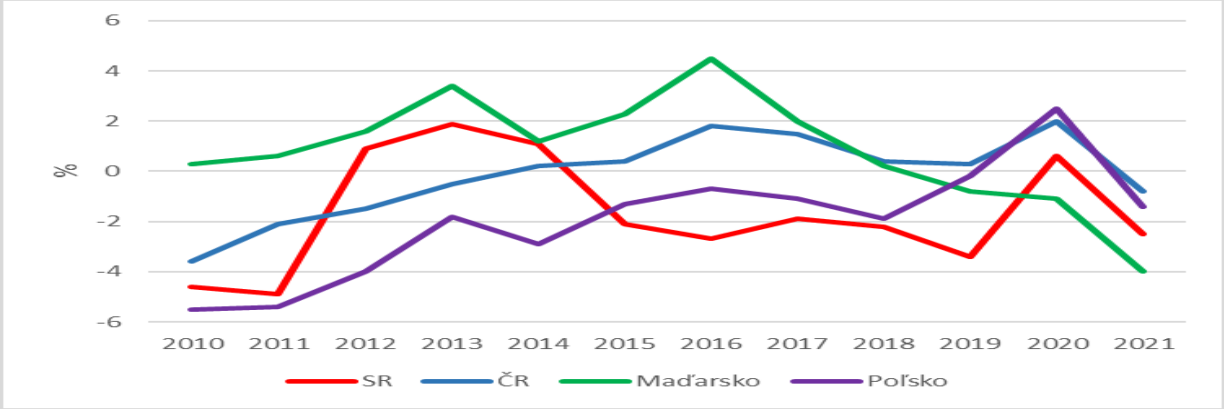


Zdroj: Eurostat (2022), vlastné spracovanie

Pri hodnotení vývoja miery inflácie môžeme pozorovať obdobia vyššieho rastu cenovej hladiny (roky 2011-2012 a 2021) a nízkej inflácie, resp. deflácie (2014-2016). Najvyššia inflácia bola v roku 2012 v Maďarsku, na úrovni 5,7%. Zrýchlenie rastu cien sa prejavilo už v roku 2020, pokračovalo v roku 2021 a v roku 2022 všetky štáty V4 bojujú s vysokou infláciou, ktorá dosahuje dvojciferné hodnoty.

Situácia v oblasti vonkajších ekonomických vzťahov sa hodnotí prostredníctvom ukazovateľa podiel salda bežného účtu platobnej bilancie na HDP v percentách, jeho vývoj v rokoch 2010-2021 v štátoch V4 je zobrazený v obrázku 5.

Obrázok 5: Vývoj vonkajšej rovnováhy štátov V4 (%)



Zdroj: Eurostat (2022), vlastné spracovanie

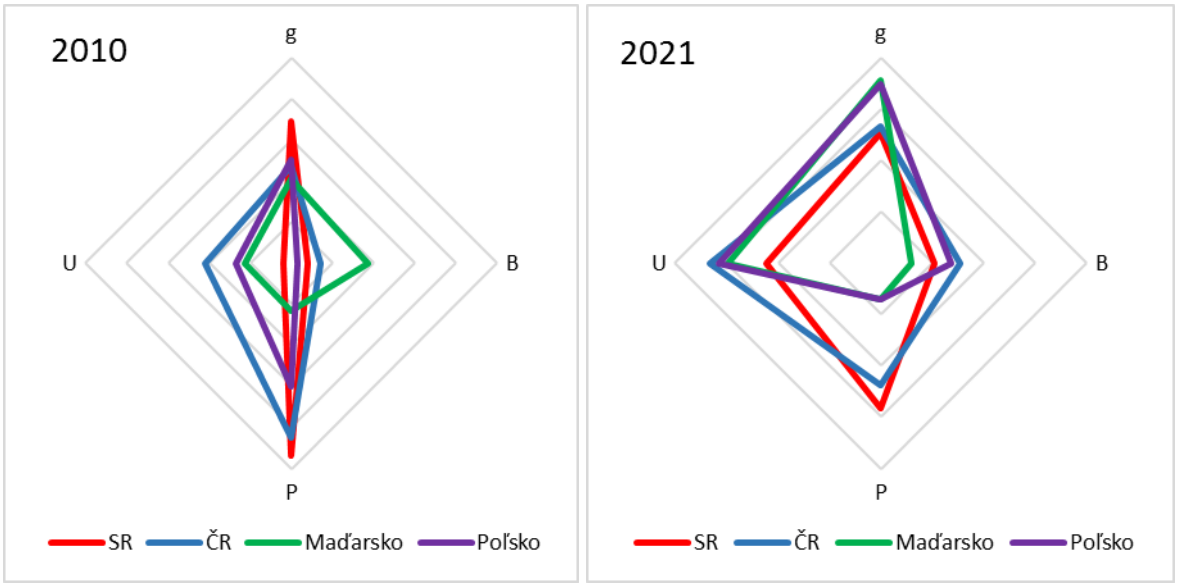
V rámci hodnotenia ukazovateľa vonkajšej rovnováhy nemožno štáty V4 hodnotiť pozitívne. Výrazne kolísavý vývoj pozorujeme v Maďarsku, kde v rokoch 2010-2018 dosiahlo saldo bežného účtu platobnej bilancie kladné hodnoty, avšak v nasledujúcich rokoch sa výrazne zhoršilo a v roku 2021 dosiahlo až -4% z HDP. V Česku došlo k zlepšovaniu situácie v oblasti

vonkajších ekonomických vzťahov v rokoch 2010-2016, avšak v roku 2021 tento ukazovateľ dosiahol nepriaznivú hodnotu -0,8% z HDP. Aj v Poľsku sa hodnoty vonkajšej rovnováhy zlepšovali až do roku 2020, avšak v roku 2021 došlo k poklesu na -1,4% z HDP. V prípade Slovenska je vývoj vonkajších ekonomických vzťahov značne kolísavý, keď najlepšia hodnota bola dosiahnutá v roku 2013 (1,9% z HDP).

3.3 Zhodnotenie výkonnosti ekonomík štátov V4 magickým štvoruholníkom

Po analýze trhu práce a ostatných ukazovateľov, ktoré vstupujú do hodnotenia výkonnosti ekonomiky v štátov V4 zhodnotíme pomocou magického štvoruholníka ich výkonnosť porovnaním dvoch rokov 2010 a 2021.

Obrázok 6: Magický štvoruholník štátov V4 v roku 2010 a 2021



Zdroj: vlastné spracovanie
Poznámka: g – tempo ekonomického rastu, U – miera nezamestnanosti, P – miera inflácie, B – vonkajšia rovnováha

Pri hodnotení výkonnosti štátov V4 v roku 2010 môžeme vidieť najlepšie hodnoty v oblasti stability cenovej hladiny, v ČR aj v oblasti nezamestnanosti, v SR v oblasti tempa ekonomického rastu a v Maďarsku v oblasti vonkajšej rovnováhy.

V roku 2021 sú výrazne lepšie výsledky v oblasti tempa ekonomického rastu a nezamestnanosti, naopak zhoršenie nastalo v prípade miery inflácie, a v SR aj Maďarsku sú nepriaznivé hodnoty vonkajšej ekonomickej rovnováhy.

4. ZÁVER

Vo výskume sme sa zamerali na hodnotene trhu práce v kontexte hodnotenia ekonomickej výkonnosti štátov V4 v sledovanom období 2010-2021. Išlo o veľmi turbulentné obdobie, kedy ekonomiky jednotlivých krajín sa museli vyrovnať na začiatku sledovaného obdobia s dôsledkami hospodárskej krízy a od roku 2020 boli postihnuté mimoekonomickým faktorom pandémiou COVID-19. Tento faktor ovplyvnil aj trh práce hlavne v odvetví turistického ruchu, kultúry a umenia maloobchodu a stavebníctva. Od roku 2014 až do 2019 sa miera zamestnanosti vyvíjala pozitívne vo všetkých štátoch V4 a najvyššiu mieru zamestnanosti dosiahla ČR vo roku 2019 až 80,3% a najnižšiu mieru dosiahlo Poľsko (75,4%

v roku 2021). Najvýraznejší nárast zamestnanosti však dosiahlo Maďarsko, a to o 16,6 p.b. V roku 2021 sa pandémia COVID-19 najviac prejavila v SR, kde došlo k zníženiu zamestnanosti na 74,6%. V roku 2019 bol v Európe zaznamenaný ekonomický rast, ktorý bol mimoriadne náročný na pracovnú silu. Nárast nezamestnanosti v štátoch V4 v období pandémie nebol rovnaký. V SR, ČR a Maďarsku sa miera nezamestnanosti mierne zvýšila. Poľsko naopak v roku 2020 zaznamenalo dokonca mierny pokles. V celom sledovanom období bola najnižšia nezamestnanosť v ČR a naopak v SR bola nezamestnanosť zo všetkých štyroch štátov najvyššia.

Následne sme sledovali vývoj ukazovateľov výkonnosti ekonomiky, ako je tempo ekonomického rastu, miera inflácie a vonkajšia rovnováha. Z výskumu vyplynuli závery, že tempo rastu HDP sa v rokoch 2010-2021 vyvíjalo kolísavo. Najhoršia situácia bola v zaznamenaná v roku 2020, kedy došlo k výraznému zhoršeniu HDP vo všetkých štátoch V4. Najväčší pokles zaznamenala ČR až o 5,5% a najmiernejší pokles, o 2% zaznamenalo Poľsko. V roku 2021 už bol dosiahnutý ekonomický rast, najvyšší v Maďarsku (7,1%) a v Poľsku (6,8%). Vo vývoji miery inflácie môžeme pozorovať obdobia vyššieho rastu cenovej hladiny (roky 2011-2012 a 2021) a nízkej inflácie, resp. deflácie (2014-2016). V posledných dvoch rokoch sa zrýchlil rast cien vo všetkých štátoch a v roku 2022 už všetky V4 bojujú s vysokou infláciou, ktorá dosahuje dvojciferné hodnoty. V rámci hodnotenia ukazovateľa vonkajšej rovnováhy nemožno štáty V4 hodnotiť pozitívne. Výrazne kolísavý vývoj pozorujeme hlavne v Maďarsku, ktoré dokonca v roku 2021 dosiahlo až -4% z HDP. Záporné hodnoty v poslednom roku zaznamenali aj ostatné štáty V4.

Pri porovnaní sledovaných ukazovateľov ekonomickej výkonnosti v rokoch 2010 a 2021 pomocou magického štvoruholníka môžeme konštatovať, že vo všetkých štyroch štátoch V4 sa plocha štvoruholníka výrazne zväčšila. Najlepšie hodnoty zaznamenala ČR a Poľsko. K tomuto priaznivému vývoju výrazne prispel aj trh práce, kde od roku 2013 až do roku 2019 dochádzalo postupnému znižovaniu miery nezamestnanosti až na úroveň prirodzenej miery nezamestnanosti.

Dodatok

Tento príspevok bol vytvorený v rámci projektu VEGA 1/0357/21 “Multiplikačné efekty kvality ľudského kapitálu na ekonomickú výkonnosť a konkurencieschopnosť ekonomiky SR”.

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THE ISSUES AND CHALLENGES OF SPANISH HEALTHCARE SECTOR WORKERS

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Abstract: *The Spanish health sector has undergone different variations, depending on the period. It is currently going through a period of crisis due to the pandemic and the existing brain drain in our country. The Spanish National Health System is the entity that encompasses the health benefits and services in Spain, which according to the law are the responsibility of the public authorities. The main goal of this paper is by means of analysis; comparative analysis methods followed by logical deduction to figure out the possible improvements regarding the Spanish healthcare sectors workers within the Spanish labor market issues. In recent years, Spain has only increased investment in ICT health by 3%, allocating only 1.2% of public health expenditure. This fact and our research findings show that the potential for improvement in the Spanish healthcare sectors workers within the Spanish labor market is still very high and that there is still a long way to go to reach the leading countries in this field.*

Key words: *New Technologies Implementation, Hiring and Firing, Healthcare professionals, Global Pandemic Outbreak*

JEL Classification: *F63, O31, O51*

1. INTRODUCTION

To begin with, the employment situation of doctors and nurses in Spain is very complicated and is plagued by seasonality, instability and precariousness as well as future job insecurity, which prevents doctors and nurses from being able to develop professionally and personally their careers once they have graduated and finished their studies. There is also a big difference between doctors and nurses who graduate annually and those who have a place in public or private health care. The difference between these two types of public and private health care is also a factor to be taken into account when it comes to the labor market for doctors and nurses, as the positions are obtained differently, and the working conditions are also different. Just as a doctor who works and has a permanent position in the public health system has to pass very demanding exams and a very high level of competition for positions, a doctor who has a position in the private health system does not have a permanent position and does not have to pass the MIR exams that doctors face or the EIR exams that nurses face.

Working conditions for doctors have always been complicated. Since the great recession that hit Spain in 2008. The health system has been involved in cutbacks that have meant an increase in working hours and a reduction in resources for doctors. These cuts have been more notable during the pandemic, as health professionals have been forced to work 24-hour shifts in hospitals, increasing their working hours and reaching the point of not resting and even finding themselves in a situation where they cannot attend to patients properly, nor can they cope, with all the number of appointments and issues to resolve that they had and could not do because they had insufficient staff and resources to attend to them. One example of this was that there were not enough masks during the height of the 2020 pandemic and people were forced to make their own homemade masks at home using cloth or even baby nappies. This situation of instability, insecurity and poor employment conditions has led to what is known in Spain as the brain drain, which means that many professionals who have been trained through the Spanish education system, once they have obtained and completed their studies, leave for foreign countries to practice their profession. This departure is largely motivated by

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the working conditions and future prospects offered by these countries, which Spain does not currently offer. All these issues, job insecurity, insecurity, instability and poor employment conditions suffered by many doctors and nurses in Spain and which force many others to go abroad, will be developed throughout this work, as well as the classification system to which health professionals in Spain are subjected.

2. THEORETHICAL OVERVIEW

The Spanish National Health System is the entity that encompasses the health benefits and services in Spain, which according to the law are the responsibility of the public authorities. Created in 1908, it gradually extended its coverage, upon payment of healthcare services, to the entire Spanish population. In 1989 this process was completed; since then, health care in Spain has been universal and sustained through different types of taxation. In Spain, in accordance with the principle of decentralization enacted by the Constitution and following the dissolution of INSALUD in 2002, competence for health care has been transferred to each of the Autonomous Communities. The central government only provides this service directly in Ceuta and Melilla, through the National Institute of Health Management (INGESA),1 and carries out general and basic coordination tasks between the different communities (Agencia Española de Protección de Datos, AEPD, 2018; La Fundación Cotec para la innovación, 2020). In accordance with the Spanish Constitution and the Welfare State, the National Health System's main objective is to ensure and enable health care: Public financing. Universality. The quality and safety of its services.

Regarding the competent bodies of the Spanish health system in Spain there are *t*he Ministry of Health, Social Services and Equality develops the Government's policy on health, planning and healthcare and consumer affairs, as well as exercising the powers of the General State Administration to ensure citizens' right to health protection. The Ministry has its headquarters on Paseo del Prado in Madrid, opposite the Prado Museum. The General Health Law of 1986 created the Interterritorial Council of the National Health System (CISNS) as a general health coordination body between the State and the Autonomous Communities that had health transfers at that time. It would have a parity composition and would coordinate the basic lines of health policy with regard to contracting and purchasing pharmaceutical and health products and other goods and services, as well as the basic principles of personnel policy (Doblyte, Guillen, 2020; Feldman, Martin, Skotnes, 2012).

In terms of health responsibilities of the Autonomous Communities, Article 41 of the General Health Law establishes that the Autonomous Communities shall exercise the powers assumed in their statutes and those transferred or, where appropriate, delegated to them by the State. The decisions and public actions foreseen in this law that have not been expressly reserved to the State shall be understood to be attributed to the Autonomous Communities. The State, through the general taxes that it collects, finances all the health benefits and a percentage of the pharmaceutical benefits; but this budget is distributed among the different Autonomous Communities in accordance with various distribution criteria, since the Communities are responsible for health in their respective territories. In the Interterritorial Council of the SNS, after deliberation, the portfolio of services corresponding to the catalogue of benefits covered by the National Health System is agreed each year and published by means of a Royal Decree of the Ministry of Health. The Autonomous Communities, within the scope of their competences, may approve their respective service portfolios, which shall include at least the service portfolio of the National Health System (Agencia Española de Protección de Datos, AEPD, 2018; Doblyte, Guillen, 2020; La Fundación Cotec para la innovación, 2020).

3. PROBLEM FORMULATION AND METHODOLOGY

The research task is focused on the analysis of the problematic aspects of Spanish health care sector workers in terms of Spanish labor market development and to find out its consequences. The main goal of this paper is by means of analysis; comparative analysis methods followed by logical deduction to figure out the potential benefits for Spanish health care sector workers development coming out Spanish labor market issues. The paper is focused on problematic aspect analyses such as the current status of Spanish health care sector environment and possibilities to change the situation in labor market within the Spanish health care sector. The issue is to figure out whether and to what measure the Spanish labor market issues might affect the new job creation along with the labor force adaptability to Spanish health care sector situation.

The ways of synthetic and analytic methods will be used in the paper such as the analysis and comparison to illustrate the Spanish health care sector environment, synthesis, and logical deduction to discuss the impact of Spanish labor market development. Subsequently, the analysis will lead to synthesis and prognosis by means of abstraction method eliminating the less important factors in order to set general statements and opinions. The analysis of data from scientific and professional publications, periodical, and no periodical press as well as international economic organizations such the Statistical office of Spain, will be primarily used and examined. Basic data will be drawn from generally accepted institutions, assessing the international trend agenda such as Eurostat, Spanish Ministry of Healthcare.

4. PROBLEM SOLUTION / RESULTS

The Spanish healthcare sector has been in crescendo since the end of the 1940s, with the greatest growth in healthcare personnel in the Spanish market occurring from the beginning of the 21st century onwards. In the following table we can see how in 2021 there was an increase in all Spanish healthcare personnel. In nursing staff, for example, there were a total of 5,726 more nurses than in 2020. In the medical staff, there was an even greater number of registered doctors, with 7,625 more in 2021 than in 2020. Finally, pharmacists, physiotherapists, dentists, psychologists and veterinarians increased by 1307 more pharmacists than in 2020, 2900 more physiotherapists, 654 more dentists, 2784 more psychologists and 1208 more veterinarians (Agencia Española de Protección de Datos, 2018; Doblyte, S., Guillen, Ana M. 2020; Redaccio Mmedica, 2022).

Table 1: Registered health professionals by profession 2020-2021

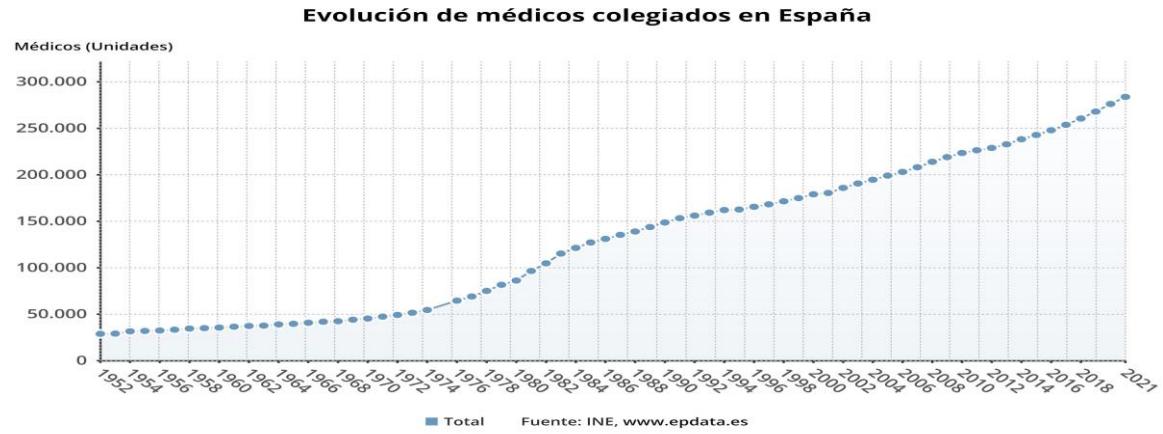
	Professionals (2021)	Professionals (2022)	percentage of total in 2021 (%)	percentage of total in 2022 (%)	increase or decrease 2020-2021 (%)
nurses	330 745	325 018	35,83	35,96	1,76
Physicians/doctors	283 811	276 191	30,74	30,55	2,76
pharmacists	78 128	76 821	8,46	8,5	1,7
physiotherapists	62 691	59 791	6,79	6,61	4,85
dentists	40 417	39 764	4,38	4,4	1,64
psychologists with health specialty	37 611	34 827	4,07	3,85	7,99
veterinarians	35 561	34 443	3,85	3,81	3,25

Source: own processing by Agencia de Datos, 2022.

The number of registered doctors in Spain reached 283,811 in 2021. The following graph shows the evolution of the number of registered doctors in Spain since 1952. In this year, the figure in units of doctors was about 28,931 doctors, which if we compare it with the 283,811

doctors registered in 2021, the difference is 254,880 more doctors registered (Agencia Española de Protección de Datos, 2018; Redaccio Mmedica, 2022).

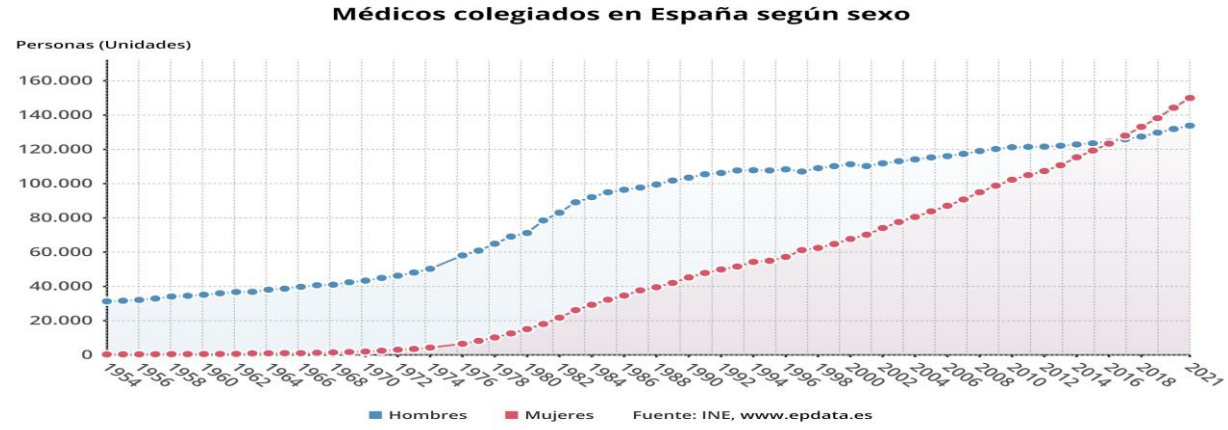
Figure 1: Evolution of registered physicians in Spain



Source: Agencia de Datos, 2022

It is also important to show the strong presence of women in the health sector. During the period of Franco's dictatorship in Spain (1939-1975), women had very difficult access to the world of work and it is from 1976, after the death of the dictator Francisco Franco and the democratic transition that Spain underwent, that we can observe a very strong increase in female participation in the health sector. This growth has only been increasing and as can be seen in the following graph, from 2015 onwards female participation exceeds male participation.

Figure 2: Physicians registered in Spain by gender (hombres – men, mujeres - women)



Source: Agencia de Datos, 2022

The employment situation of these medical professionals in Spain is very complicated. In Spain there are two types of health care: public health care (financed by the state) and private health care (financed by users). A place in the public health system is obtained through a competitive examination. A competitive examination is a selective system for access to public employment. Therefore, it is a procedure used to select the most suitable people for a specific type of civil servant or labour staff position, always respecting the principles of equality, merit and ability. There are very few vacancies in the public health system, and access to one of them is very complicated and there is a great deal of competition. Currently, 36% of medical professionals do not have a permanent position in the public health system and of this

36%, 55.4% have not obtained a position through competitive examinations for more than 6 years. Likewise, the Organización Médica Colegial carried out a survey on the "employment situation of doctors in Spain" and the results showed that, in addition to the aforementioned percentage of 6 years without a permanent post, 19.2% have not obtained a permanent post for between 11 and 20 years and 6.7% have not obtained a permanent post for more than 20 years. Nursing. Access to degree studies is through four years of university studies, which can then be complemented with a postgraduate course that would involve a Master's degree, a doctorate and continuous training with which to update knowledge and train in more specific areas of care. Vocational training facilitates access to another series of posts such as those of undergraduate technician, assistant nursing care technician or senior laboratory, diagnostic or nuclear medicine technician. The competences in general are delimited, something that could, however, change with the new VET in care supervision, socio-health care, a qualification that for nurses encroaches on their competences and has a negative impact on the quality of care for the elderly. If one wishes to specialize in one of the areas recognised in Spain (midwifery, mental health, pediatrics, geriatrics, work and family and community) it is necessary to first pass through the filter of the EIR, a competitive examination, similar to that of doctors, which gives access to residencies in health centers, through which the speciality is obtained. Every year a certain number of vacancies are created in hospitals and health centers dedicated to the training of specialist nurses, but not all autonomous communities develop it to 100%. There is a lack of identification of which posts can be filled exclusively by specialist nurses and which competencies correspond to them, nor is there currently a sufficient pool of specialist nurses to be able to fill all the posts that can be filled. The fact is that there are some specialities such as midwifery, i.e. a nurse specializing in obstetrics and gynecology, which have developed considerably, although the rest have not yet been fully developed. In contrast, the private sector has been growing. There are currently a total of 147,780 private healthcare companies, which translates into a total of 452 hospitals in Spain, accounting in percentage terms for 57% of the centers. Doctors and nurses working in the private sector are ordinary workers, where the contracting company hires them directly without any screening. Public health personnel who get a post through a competitive examination obtain a permanent post, while private health personnel do not have a permanent post (Agencia de Datos, 2022; Gobierno de España, 2018; Secretaría Técnica, 2022; Sindicato Médico Andaluz, 2022).

In 2020, the public health sector will have a total of 759,855 jobs. Public health employment had increased by 10.9%, while in the private sector this increase was only 1.6%. Up to 2019, the growth of private and public healthcare had a certain relationship, but from 2020 onwards it decreased. Between 2013 and 2019, private healthcare employment evolved in line with the economy. In 2020, the year in which the public contribution to the increase in healthcare employment is as high as 94%. During 2020, employment in the public and private health sectors evolved very differently. In the public sector there was a monthly increase The difference with the variation experienced by the private sector is striking. On the other hand, it is important to mention the precariousness and seasonality of health employment. Job stability and remuneration is what worsened the most among doctors in Spain. In addition to the fact that there are doctors who have not been able to obtain a post in the public health system for 10 years, the stability and remuneration of doctors has also been declining. The monthly variation in health employment has an extraordinarily marked seasonal pattern. In health care, especially in the public sector, staffing levels are adjusted according to the work calendar. Human resource policies tend to incorporate a certain proportion of seasonal work. During the summer months employment is increased and is reduced once autumn comes. A pattern of behaviour that finds justification in organisational reasons and possibly in a reduction of labour costs (Sindicato Médico Andaluz, 2022; Secretaría Técnica, 2022).

Between 2014 and 2021, in a context of employment growth, on average, the public health sector increased its workforce by 50,630 in the summer months, while in the autumn months it decreased by 44,972 workers. In the private sector, the summer expansion was 4,727 jobs,

while in the autumn it fell to 3,227 jobs. In the face of the health care crisis caused by COVID-19, health care employment in 2020 grew very markedly. In February of that year, prior to the declaration of the State of Alarm in Spain, Spanish healthcare had 1,005,558 employees, 67.2% of whom were in the public sector. At the height of the pandemic, public health expanded its staff and created 34,041 net additional jobs. In the private sector, 7,292 jobs were cut. The seasonal pattern, especially in the public health sector, has been altered in 2020. In the first months of the year, unlike the pattern of previous years, public health employment did not remain constant, with growth occurring between March and April. As in previous years, it increased during summer, but unlike in previous years, it did not decrease significantly in autumn and reached the highest pattern of the year in winter (Agencia de Datos, 2022; Secretaría Técnica, 2022).

At this point it is important to mention temporariness in the health sector. In 2022, the number of employed in health was 20,545.7 (according to the National Institute of Statistics). The recent labour reform implemented by Yolanda Diaz, Minister of Labour and the Government, led by Pedro Sánchez, has among its main objectives to reduce the number of people employed in the health sector temporary employment. In Spain, the use of temporary contracts was a very recurrent practice for companies and meant that it was one of the European countries with the highest rate of temporary employment. Thanks to the aforementioned labour reform, the rate of temporary contracts in healthcare fell. This seemed intrinsic and inevitable. The percentage of workers with temporary contracts as a proportion of all workers has fallen from 30% to 20.2%, the lowest in the entire historical series. It is now 6.5 points below the rate of the same quarter in 2019 (26.7%) and 6 points below the rate of the previous year (26%). The fall in temporary employment is greater in the private sector. The data on temporary employment and the fall in employment from the Labour Force Survey are very positive for the Spanish labour market. In the public sector, the situation is quite different, as temporary employment continues to grow, as can be seen in the following table (Agencia de Datos, 2022; Sindicato Médico Andaluz, 2022).

For the public sector, the government has committed to reduce the level to 8% in a maximum of two years, which has been signed in the Recovery Plan to be delivered to Brussels. It has previously been mentioned that the labour reform implemented in 2021, with effects in 2022 by the Government of Pedro Sánchez, had as one of the objectives to reduce temporality and restrict the types of temporary contracts and therefore, companies that owned temporary workers in temporary contracts that were going to get rid of had to be transformed into indefinite ones or remain at risk of sanction. In the public sector, a commitment was also made to expand the supply of public employment to convert some 840,000 temporary jobs into permanent ones. Temporariness in the health sector is the main problem for professionals. In fact, although in March 2017, the government signed an agreement with the unions to reduce temporary employment to 8%, the number of temporary workers has grown in recent years. It has become commonplace that doctors, for example, can take up to 20 years to get a permanent position in the public health system. Health spending in Spain per capita is 15 % below the European average. One of the reasons that with less expenditure there is a better health service is the effort of the staff: 55% of doctors work more than 40 hours a week, according to a report by Medscape, and more than half of them work more than 50 hours a week (Gobierno de España, 2018; Secretaría Técnica, 2022).

5. DISCUSSION

In 2022, healthcare employment in Spain, especially in the public sector, has grown very rapidly. The ratio of health workers per 1000 inhabitants has come very close to the European Union (EU). Throughout the economic crisis that started in 2008, healthcare employment increased more slowly in Spain than in Europe; during the economic recovery phase, and in 2022, Spanish healthcare employment grew much faster than European employment.

However, despite this growth in employment, there is also a large margin of unemployment in the health sector and the fact that, each year, around 20,000 doctors and 12,000 nurses graduate in Spain and of these, the vast majority cannot join the public health system because they have not been able to study the specialty, which is why Spanish health employment is living in a paradoxical situation. On the one hand, public and private institutions present a paradox. The public and private institutions some problems when it comes to hiring temporary staff and is even considering options such as increasing the homologation of qualifications for foreign professionals to cover the supply. This is in paradox with Spanish doctors and nurses who are far from full employment. Data from the State Public Employment Service and Eurostat showed as a total of 1,161 doctors and 3,448 nurses were in unemployment. Despite the fact that in both cases they represent the minority group, the evolution of employment among the youngest professionals, those with a university degree, is the most worrying. In both cases it is worrying, although the number of unemployed in the nursing degree has doubled (96% more), while the figures for doctors have worsened by more than 50%. The data from the State Public Employment System contrasts with a situation that both the public and private sectors have referred to: the lack of healthcare professionals and, therefore, problems in their recruitment. A survey carried out by Medscape showed that 43% of Spanish doctors fear that by 2022 their working conditions will worsen as a result of a lack of staff, stress and burnout syndrome. Burnout syndrome stands for "burnt-out worker", and is a situation that occurs in workers when they are exhausted at work. It is a special type of work-related stress, a physical or emotional exhaustion that also implies an absence of a sense of achievement and loss of personal identity. This concern of Spanish doctors about their employment conditions has its origins largely in 2021, as a consequence of COVID-19, which led to an increase in working hours and overload. It was at this time that the medical unions became particularly relevant, standing up and denouncing the situation in which doctors find themselves (Kiselyova. E,2020; Krajnakova, Navickas, Kontautiene, 2018; Eurostat, 2022).

The current health crisis is helping the bike to rationalize the role of nurses in intensive care and emergency units, but in order for the system to meet the needs of people beyond one-off emergencies, a model is needed that first and foremost promotes the primary care of its patients. It is essential, however, to have enough nurses, specialists in family and community care so that health centers and homes can provide close care and prioritize the promotion of health and the prevention of illness. This facilitates the empowerment of patients, so that they are aware of their illness and the most appropriate habits and behaviors to improve and maintain their state of health. For example, in the UK. Primary care is essentially nurse-led and managed by specialist nurses with consultant family doctors. The increasing ageing of the Spanish population means that another essential profile is that of geriatric nurses in order to ensure dignified and quality care for increasingly elderly patients with multiple pathologies. All the evidence collected in different countries shows that the management of these patients by advanced practice nurses reduces the frequency with which these patients visit hospitals, the length of stays and the need to go to the emergency department, as well as improving their quality of life, which would require the regulatory development of its implementation in Spain and which has been introduced in some autonomous communities, but not on a regular basis (Gajda, Mikalauskas, Navickas, 2020; Mura, Svec, 2018; Vojtovic, Klimaviciene, A., Pilinkiene, 2019; Yang, Fabus, Bae, Zhang, 2020).

In the private sector, meanwhile, they see the shortage of professionals, especially nurses, as one of the biggest headaches. According to data from the Spanish Private Healthcare Alliance, 95% of Spanish private hospitals are looking for nurses to join their staff but cannot find any. Faced with this situation, the employers' association is calling on the government to speed up the process of homologation of foreign healthcare staff, to address the compatibility of work in public and private healthcare and to include work experience in the private sector as an aspect to be taken into account in public job offers. This situation is a response to the fact that many health graduates (whether in medicine or nursing) leave Spain at the end of their

studies, which is known as the "brain drain" (Haviernikova, Ivanova, 2018; Kiselyova, 2020; Kotaskova, Belas, Bilan, Khan, 2020).

CONCLUSION

In conclusion, we can establish that the situation of doctors and nurses in Spain is quite complicated. They are currently immersed in a wave of job insecurity, which means low salaries, poor employment conditions, instability and insecurity. Job insecurity originated especially since the great recession of 2008, which Spain suffered as a result of the real estate boom crisis. This crisis led to cutbacks in health care, which were reflected in a reduction in working hours for health care workers, as well as a reduction in the number of hospital beds, resources and investment in medical research. Likewise, doctors and all health personnel saw their salaries reduced, as there was a blockage in the salaries of all civil servants that prevented their salaries from increasing and therefore, doctors and all health professionals saw how their working hours increased, their productivity increased, but their salaries did not. This situation led many workers to find themselves in a situation of work overload, which resulted in negative psychological circumstances for all those professionals in the health sector, leading to work stress and a general burnout syndrome. The poor employment conditions are reflected, apart from the low salaries of health professionals in Spain, in increased working hours, especially on call. Many are forced to work on call for up to 24 hours inside the hospital, which also translates into physical and mental exhaustion that hinders the proper productivity and efficiency of healthcare staff. These conditions also pose a risk for patients, as they cannot dedicate all the time necessary for them to improve their health. Health professionals also suffer from job insecurity, instability in job security and many of them are on temporary contracts of about three months on average, which prevents them from being able to develop future plans with a certain degree of security and solvency.

We can therefore conclude that the employment situation of doctors and nurses in Spain is currently going through a serious crisis, not only because of the working conditions in which they find themselves, but also because of the brain drain that is taking place and which must be resolved for the good of both the citizens and the country itself, and the debate on professional reclassification and the struggle that is taking place between the doctors' unions and the nurses' unions.

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SPANISH LABOR MARKET CHANGES VERSUS INDUSTRY 4.0 ASPECTS

Marcel KORDOŠ[30]

Abstract: *The Industrial Revolution 4.0 consists of the accelerated introduction of artificial intelligence systems and work automation and interconnection processes into production activity since the mid-2010s. In this revolution, the management and exploitation of data, the interaction between the physical and digital worlds, the interaction between the physical and digital worlds (physical-to-digital-to physical), autonomous artificial learning and the introduction of robots capable of learning and increasingly and perform increasingly complex tasks. The goal of the paper is to explore Spanish labor market analyses and its further development under the Industry 4.0. to illustrate the assessment of the next obstacles to be faced within the job dissplacement issues as well as by means of synthesis and logical deduction to discuss the impact of Industry 4.0 elements implementation on new jobs vs old jobs issue due to implementation of robotics and automation resulting in qualitative structure changes of workers consequences. As a result new policies for industry and the private sector that are committed to automation are indispensable enable create a resilient industry capable of retaining jobs even in times of crisis. Companies must assimilate and integrate the new changes and take advantage of the opportunities that would appear thanks to this situation.*

Key words: *Industrial Revolution, New Technologies Implementation, Spanish Labor Market Development, Automation and Robotics*

JEL Classification: *F63, O31, O51*

1. INTRODUCTION

The concept of Industry 4.0 refers to the fourth industrial revolution, which is characterized by the massive incorporation of information technology to the entire value chain of processes related to the manufacturing industry. This revolution not only opens the door to the development of new goods and services, but also to new forms of work organization (World Economic Forum, 2016) and profound social changes (World Economic Forum, 2016). For example, the combination of new technology, coupled with artificial intelligence and real-time networked data real-time networked data transmission, allows the car owner to move from being an energy from being an energy consumer to a prosumer. Or think of cybercurrencies, based on the exploitation of algorithms. Or the bots that control a large part of the funds managed in the financial markets. Or the tailoring of advertising offers for goods and services to each individual consumer, thanks to the use of algorithms. Individualized to each consumer, thanks to the exploitation of big data. All are examples of changes that have taken place in recent years, linked to the Industrial Revolution 4.0. Industrial Revolution 4.0, and which have generated new job opportunities. opportunities. However, this whole process brings opportunities for some people, but it also poses a threat to other groups. The introduction of new technologies and new forms of work organisation implies the destruction or transformation of previous jobs. People who do not have the necessary skills to adapt to these changes run a high risk of being excluded from the new production system. The aim of this paper is, on the basis of documentary collection and expert opinions, to try to understand the most important features of the transformation in the Spanish world of work. This paper is developed as follows: after this brief introduction, we describe the structure and basis of the Spanish labour market, a description of the Spanish labour market in the 1990s and nowadays. Then we examine Industry 4.0 and the effects it has caused. Finally, we provide some statistics and comparisons between Spain and the rest of the countries.

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2. PROBLEM FORMULATION AND METHODOLOGY

The research task deals with the analysis of the problematic aspects within the quantitative and qualitative structure changes of workers in terms of Industry 4.0 elements implementation and find out its consequences and impacts on Spanish labor market. The research will be focused on exploring the Spanish economy analyses and its further development under the Industry 4.0. In general, this paper will handle the problematic aspects regarding the economic and social issues within the Spanish economy covering the industry policy tools implementation processes.

The ways of synthetic and analytic methods will be used in the paper such as the analysis and comparison to illustrate the Spanish economy environment and Spanish labor market, synthesis and logical deduction to discuss the impact of Industry 4.0 elements implementation on services in new jobs vs old jobs issue due to implementation of robotics and automation resulting in qualitative structure changes of workers consequences. Subsequently, the analysis will lead to synthesis and prognosis by means of abstraction method eliminating the less important factors in order to set general statements and opinions. In particular, to estimate the next obstacles to be faced within job dissplacement issues and to recommend the activities for Spanish state authorities, entrepreneurs and companies to eliminate the negative impacts of Industry 4.0 implementation that would affect their businesses. For the most objective assessment of the changes being awaited by Spanish economy due to the implementation of Industry 4.0, the theoretical analysis method has been chosen as the basic research method the researchers were approached by.

3. SPANISH LABOUR MARKET ANALYSIS

The composition of the Spanish economy has changed substantially during the first quarter of the century. All sectors have been losing relative weight in GDP, just the opposite if we look at the services sector, which, in 2021, accounted for 74% of the GVA of the Spanish economy (Figure 1).

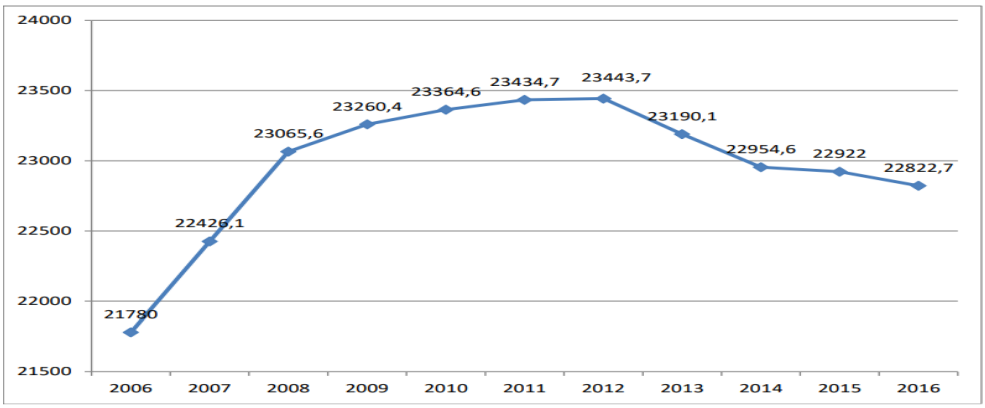
Figure 1: Weight in gross value added and in terms of employment (in brackets) by productive sectors, percentages) Spain, 1996-2021.

	1996	2001	2006	2011	2016	2021
Primary	4.3	3.7	2.5	2.4	2.8	2.7
Construction	8.7	10.1	11.7	7.5	5.5	5.8
Industry	23.6	22.0	19.6	17.9	17.4	17.9
Services	63.4	64.2	66.1	72.3	74.2	73.7
TOTAL	100	100	100	100	100	100

Note: Data for the first quarter of the corresponding year.
Source: Atria Innovation. 2022.

As can be seen in the graph there has been an increase in the active population. This increase is due to three reasons: the entry of additional members of the household to reinforce the family income as a solution to the increase in unemployment, the loss of capital and indebtedness of families, the incorporation of women into the labour market and the increase in the immigrant population in the analysis of the labour force. This increase was stagnated by the recent crisis and began a significant decline from 2012 onwards due to economic cycles. Starting 2017 (1st quarter) with 22,693,300 active people (Alcázar Anievas, 2017).

Figure 2: Labour force, 2006-2016 (Thousands of persons)



Source: Alcázar Anievas, 2017

According to Alcázar Anievas (2017) there was a strong job creation until 2007 and a great destruction afterwards due to the crisis that has had such an impact worldwide. In Graph 2 we can see how the employment rate falls sharply from 2008 to 2013. From 2013 onwards it starts to stabilise and even rise, reaching an employment rate of 47.76% in 2017.

3. 1 Spanish labour market issues regarding global pandemic outbreak

The pandemic caught the Spanish economy with symptoms of economic slowdown and a lesser push from the foreign sector due to the trade war between China and the USA central feature of all recessions is a positive co-movement amount output, hours worked, consumption, and investment. In this respect, the COVID-19 recession is not unique. Most macro models of the Great Contagion that integrate the epidemiological (SIR) process take for granted that the virus generated both negative demand and supply shocks by reducing consumption and labour supply in order to reduce the risks of infection. What type of shock dominates depends on whether prices/wages are fully flexible (neoclassical RBC model) or sticky (new Keynesian model). Typically, the neoclassical model (where output is supply-determined) fails to generate a positive co-movement between investment and consumption since people shift consumption today (save and invest more) to tomorrow. The fact that consumption and investment have plummeted in Spain (reductions of -6.8% and 12.3%, respectively, relative to 2019, while working hours so far have fallen by about 6.2 pp.) and a strong deflation has not happened yet, points to a balanced combination of both shocks in a sticky-price environment (Negro Macho, Tovar Martínez, 2021; Industria interconectada 4.0., 2020).

3. 2 Employment during the COVID-19 crisis

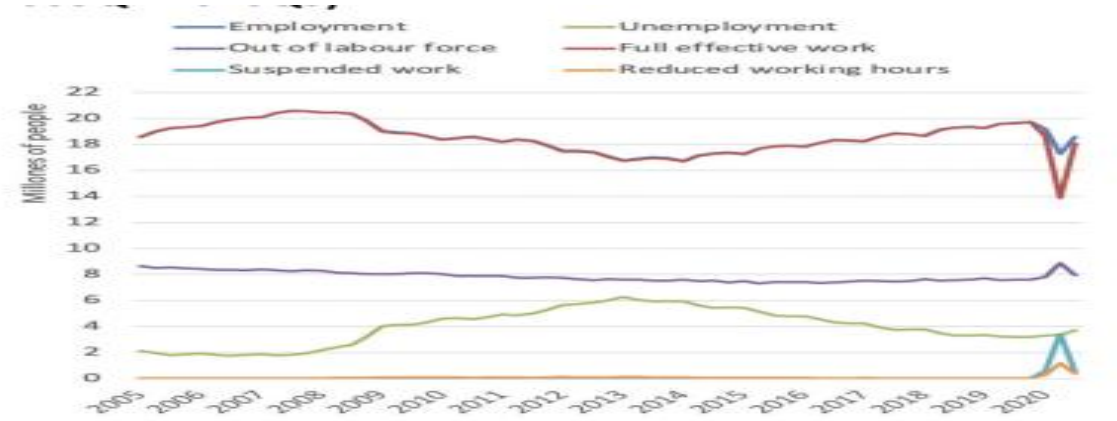
The pandemic has had a large impact on the labour market performance, both in aggregate stocks and in worker and job flows. Using Labour Force Survey data (EPA), figures 2 and 3 display changes of these indicators in millions of people and in quarterly rates, respectively the remarkable features stand out (Dolado, Felqueroso, Jimeno, 2020; Eurostat, 2022):

- Employment has fallen by 1,34 million people (14,2%) in two quarters, while it took 17 quarters to achieve such a crash in the financial crisis. By 2020Q3, slightly more than half (52,5%) of these job losses have been recovered, but the cumulated loss relative to 2019 still reaches 4,1%.

- Unlike the Great Recession, employment protection mechanisms have been activated involving STW programs, such as the Temporary Employment Regulation scheme and those

that allow firms to transitorily suspend contracts or reduce the working time of part or all of their employees, the so- called ERTEs. In addition, the Extraordinary Benefits of Termination of Activity programme for the self-employed allowed these workers to remain employed and keep their status as Social Security affiliates.

Figure3: Employment, Unemployment, Inactivity and SWT schemes (millions 2005Q1-2020Q3)



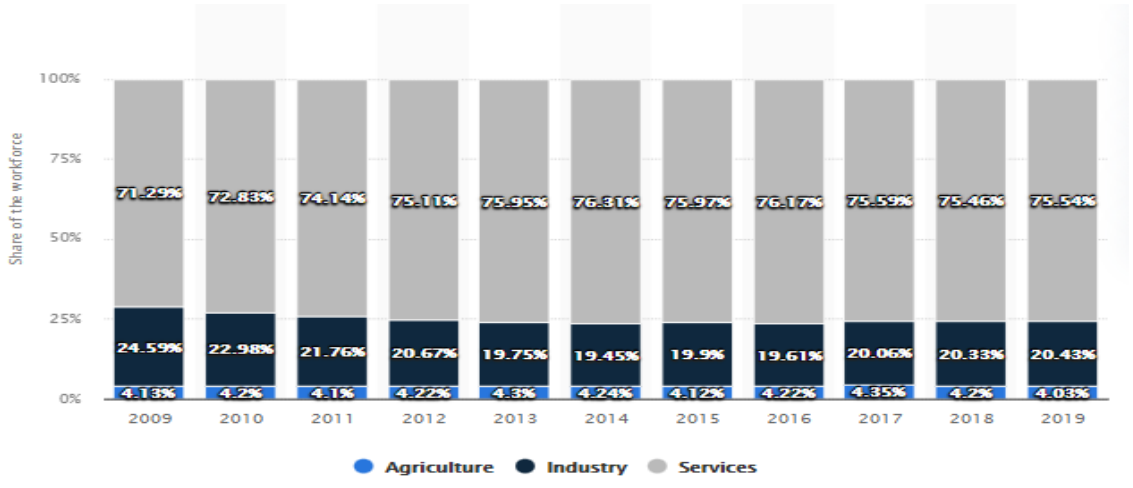
Source: Dolado, Felqueroso, Jimeno, 2020.

According to Social Security Data, in April 2020, workers protected by ERTEs reached a maximum of 3.4 million and 1.5 million self-employed workers attended the cessation of activity. By September 2020, ERTEs covered 729 thousand workers. The data on benefits, reaches about 4 million initial registrations due to suspension ERTEs, and 900 thousand in suspension of contracts.

- There has been a labour force reduction, the number of inactive people between 16 and 64 years of age increased by about 1.3 million (16,9%) compared to 2019Q4, while in 2020Q3, this figure was still 5,1% lower than 2019. This fall initially slowed down the rise in the number of unemployed.

The above-mentioned features undermine the role of the unemployment rate as a good indicator of the underutilization of labour during this pandemic. The official unemployment rate barely increased by 2.5 pp since 2019Q4, due to both the fall in activity and the SWT schemes (Dolado, Felqueroso, Jimeno, 2020; Eurostat, 2022).

Figure 4: 1Distribution of the workforce across economic sectors in Spain from 2009 to 2019



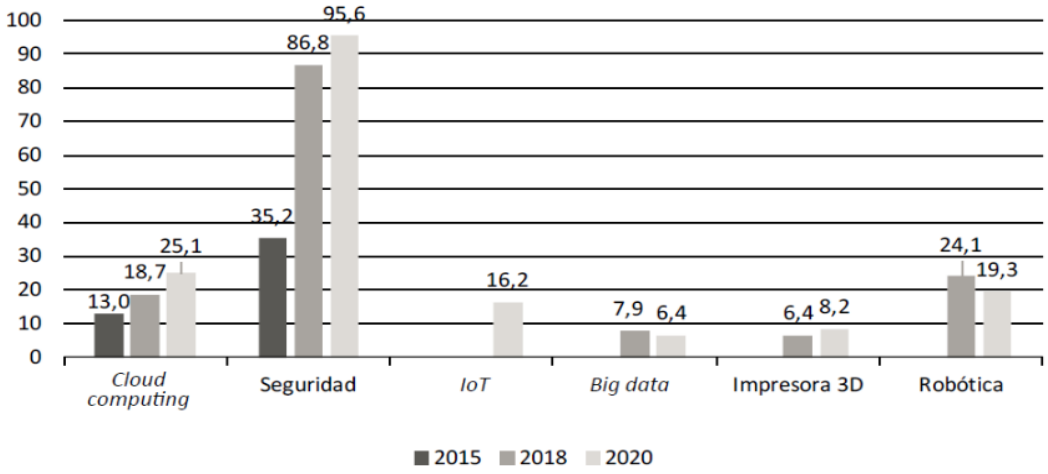
Source: Atria Innovation. 2022.

4 DISCUSSION

In order to assess the state of digitalisation of Spanish industry, data from the INE's Survey on the use of ICT and e-commerce in companies is used. This survey is carried out on companies belonging to different sections of group 95.1 according to the National Classification of Economic Activities (CNAE- 2009). It consists of a sample of approximately 15,000 companies with 10 or more employees and 11,000 companies with fewer than 10 employees. The reference period of the survey is the first quarter of each year. The surveys are analysed here for the years 2015, 2018 and 2020. This is a period of economic expansion, after the Great Recession and before the Covid-19 pandemic. This analysis establishes as dependent variables different technologies that are identified with i4.0: cloud computing, robotics, big data IoT, 3D printer and ICT security. The mission of the analysis is to check the inclusion of these technologies in the main industrial sectors in Spain (automotive, food and beverages and machine tools). Their presence is evaluated according to the size of the company, differentiating between small (10 to 49 workers), medium (50-249 workers) and large companies (250 and more workers). The 2015 survey only includes data on cloud computing and ICT security. The 2018 survey adds information on big data, 3D printers and robotics, and in 2020, in addition to the rest, IoT is also added (Santos, Muñoz, R., D., & Poveda, 2017; Atria Innovation, 2022; Haviernikova, Klucka, 2019).

As we can see, the data highlights progress in the deployment of ICT security technologies across the three surveys. Their presence in the industrial sector has risen from 35.2% of companies in 2015 to 86.8% in 2018 and 95.6% in 2020 (Figure 5). Moreover, it should be noted that in 2020, these technologies include new forms of protection (biometrics, encryption, or virtual private network) that were not available in previous years. This high degree of implementation can be linked to the new protection needs generated by the high presence of ICTs in the industrial sector (Bilan, Rubanov, Vasylieva, Lyeonov, 2019; Krajnakova, Vojtovic, 2020; Negro Macho, Tovar Martínez, 2021).

Figure 5: Presence of i4.0 technology in Spanish industries (2015-2020) (percentages)



Source: Own elaboration by Negro Macho, Tovar Martínez, 2021.

There has also been an increase in the presence of cloud computing among the technologies used by companies in the industrial sector, albeit with a lower level of implementation. Indeed, according to the data presented in graph 1, while in the 2015 survey 13 per cent of companies used cloud services, this figure rises to 18.7 per cent in 2018, reaching 25.1 per cent in 2020. Meanwhile, the use of 3D printers in the industrial sector seems to be more limited, although it also shows a slight increase. While 6.41 per cent of companies were using them in 2018, 8.2 per cent were using them in 2020. It can be seen in Figure 4 that their use is growing more in larger companies; moreover, it can be observed that the companies that use

their own 3D printers are more often the larger ones, while the smaller ones tend to use 3D printing services provided by other companies (Negro Macho, Tovar Martínez, 2021; Gruzauskas, Baskutis, Navickas, 2018).

In the case of robotics technologies and big data analytics, the survey data do not indicate that their uptake has increased significantly between 2018 and 2020. In 2017-2018, 24.1 per cent and 7.8 per cent of firms used these technologies, respectively (figure 4). The figures for the 2020 survey (19.3 per cent and 6.4 per cent) suggest a small decrease in the percentage of enterprises using these technologies. In terms of the deployment of robotics in industries, there is some decline between 2018 and 2020, from 24.1 per cent of companies to 19.3 per cent. This decline is led by companies using service robots (for warehouse management tasks, cleaning or waste disposal, transport of people or goods, surveillance and security or inspection), from 25 per cent to 22 per cent. However, the percentage of companies using industrial robots remains the same (89.4 per cent in 2018 and 90.8 per cent in 2020) (Guide to business in Spain, 2022; Belas, Gavurov, Cepel, Kubak, 2020).

Finally, in the 2020 survey, information is available for the first time on the deployment of IoT, with 16.2 per cent of companies in the industrial sector. This technology can be considered as the core of the digital transformation of industry. The prospects for its development and deployment by 2025 and 2030 are very high (Joyanes, 2018: 28). So far, it is the large companies that have most frequently incorporated this technology, although there are significant differences depending on the sector. The energy and water sectors (CNAE 35-39) (33.7 per cent) and the coke and oil refining, pharmaceuticals, rubber and plastics, and non-metallic mineral products sectors (CNAE 19-23) (20.6 per cent) are the ones that have implemented this technology the most so far. The data therefore show that the uptake of these disruptive technologies in companies is still limited and suggest that public education efforts for industrial development have not been successful. However, the specific limitations to incorporate these technologies in the short term, despite the perceived need to do so, must also be considered. For the near future, it can be argued that the economic uncertainty linked to the COVID-19 pandemic may make it difficult to move forward with this type of business investment (Industria interconectada 4.0, 2020; Sanchez-Urán, Grau Ruiz, 2015; Mura, Marchevska, Dubravska, 2018).

4. 1 Approaches of Spanish government

In the business world, production aspects, organisational, commercial, and logistical innovations and innovations in products and processes are of fundamental importance. In the 2030 Agenda, the EU has set a target for the industrial sector to reach 20% of GDP in each Member State, although in Spain before the COVID-19 pandemic this sector did not reach 15%. On the other hand, disparities within Member States seem inevitable due to economies of scale, the high investment required by these technologies and the need for a highly qualified workforce. In this sense, the main role of public administration and private actors is to establish a framework within which companies can orient their digitisation strategy (Negro Macho, Tovar Martínez, 2021). In Spain, the COVID-19 pandemic has interrupted the pedagogical work that public administrations had carried out until then to promote digitalisation in companies. Public-private partnerships had focused on raising awareness of the importance of technological transformation and had set out the basic conditions required by i4.0. It had also tried to reduce the digital divide in the industrial sector at national level. On the other hand, in both the short and medium and long term, major lines of aid from the EU will be implemented, such as the Recovery and Resilience Funds, Horizon Europe or the Just Transition Fund and Digital Europe. In this way, public institutions are seeking to boost those sectors with a large weight in GDP, such as the automotive sector, but without leaving behind other sectors such as agro-industry, aeronautics and machinery and tools (Atria Innovation, 2022; Negro Macho, Tovar Martínez, 2021).

4. CONCLUSION

In the face of the problems caused by automation, there are pessimistic and optimistic thinkers. On this issue, it is preferable to abandon catastrophic approaches (while still analysing them) and to see the advantages of technological advances that can increase workers' productivity and spare them from heavy and unhealthy tasks. The impact of new technologies creates the need to adopt more flexible models of employment contracting, which adapt to the time of each company and - at the same time - ensure the quality of life of the worker. It should be borne in mind that the "uberisation" of economic activity crosses borders that are difficult to control, not least because it operates in very different contexts. And, as it is expanding, its functioning needs to be assessed. While the world of work is changing and the economy tends to be global, social, and political institutions remain local, regional, or national, and forms of labour agreements emerge from both public and private actors. Social dialogue is needed to address these new problems. We can conclude with the phrase mentioned above, countries must renew or die in the face of industrialisation, as it is expected to advance by leaps and bounds in the years to come.

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DEVELOPMENT OF HUMAN RESOURCES IN THE ENTERPRISE AS A PREREQUISITE FOR SUSTAINABLE DEVELOPMENT OF THE ENTERPRISE.

Katarína KRÁĽOVÁ[31]

Abstract: *The paper focuses on the area of human resource development today, where the issue of sustainable development resonates at all levels of business management and where the essence of sustainable development is to define sustainability correctly. This mainly requires the formulation of principles and measures to improve and maintain conditions from an economic, social and environmental point of view. The role of managers in companies is to set corporate strategies in such a way that they are acceptable in terms of sustainability objectives and that they can be implemented through active interventions. Therefore, in this paper we have focused on the current trends, directions and tendencies in the development of organizational management and its impact on the policies, methods, processes and practices of human resource development of the enterprise. The aim of the paper is to sketch a picture of possible changes in the field of human resource development, in the context of sustainable development of today's modern enterprise.*

Key words: *human resources, sustainable development, human resource development*

JEL Classification: *M12, O15, Q01*

1. INTRODUCTION

The effects of natural resource depletion on economic growth were already the subject of research in the early nineteenth century, but it was not until the 1930s that formal theories in this area began to emerge, with the first theory of exhaustible resources being presented by Hotelling (1931).(Mojžiš,et.al.,2007) Issues of economic growth are inevitably linked to questions of the availability and value of the resources needed to realise it. Relevant from this perspective are the issues of scarcity, substitutability and complementarity of resources, and consequently the implications of their use. (Mojžiš,et.al.,2007) This situation of resource scarcity is due to the lifestyles of previous generations and the current population, which have gradually contributed to the fact that the Earth is currently unable to renew the natural resources that are so necessary for production. The intensity of humanity's economic activity also has a significant impact on climate change. A continuation of the current trend of economic activity and behaviour of many inhabitants would lead to an unsustainable system, increased labour migration, conflicts over resources and many other social defects and unrest. (Slobodová, Mitríková, 2020) This is why sustainability has begun to receive global attention. The concept of sustainable development began to emerge in the late 1970s and especially during the 1980s. In addition to the sustainable use of resources by society and business, this concept also deals with environmental and social conditions that should clearly ensure the sustainability of the environment as well as socio-economic development itself. This therefore requires innovative approaches to sustainable development to be actively applied at all levels of business management and the economy as a whole. (Loučanová, Parobek, 2014) And what is sustainable development anyway? Before business managers start to actively apply new, modern and innovative approaches in the development of human resources in the company, they should understand what sustainable development actually is and how to incorporate it into corporate strategies. The task of today's business managers is to define the elementary objectives of sustainability so that they are acceptable and can be actively implemented in the company, and thus not just remain empty phrases. It is important to realise that entrepreneurs,

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managers and, last but not least, humanity as a whole can benefit greatly from the development of modern businesses capable of achieving efficient and sustainable development. Some definitions of sustainable development:

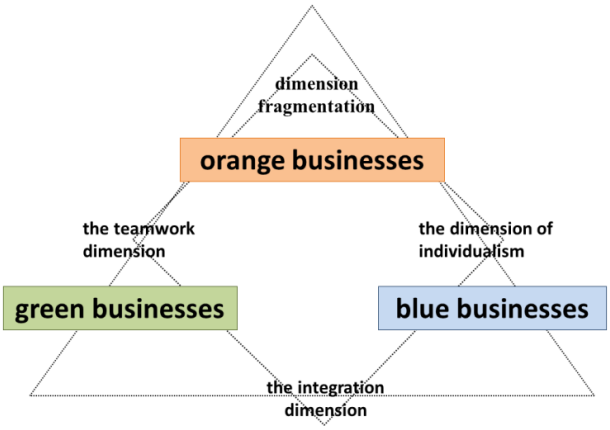
- development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs,
- is an organizing principle that accommodates human development goals while seeking to maintain the ability of natural systems to provide the natural resources on which the economy and society depend,
- is a state of society where living conditions and resource use continue to meet human needs without compromising the integrity and stability of the natural system.(Rusko, Ferencz, Kollár, 2018)

In the recent past, alongside neoclassical growth theories, theories of endogenous economic growth have also been developed, which saw the source of economic growth in human capital. The traditional instruments of corporate competitiveness, linked to technological development, innovation and standardisation of activities, are gradually being exhausted. The development of human resources in organisations is becoming increasingly important as one of the most important competitive weapons is the knowledge potential of people. Nowadays, the intellectual, emotional and social commitment of the company's employees is also important. The term human resources has been introduced in an attempt to emphasize the importance of people as a key factor of production, a determinant of the utilization of every factor of production of an organization. Employees should be seen as a source of future value - intellectual capital. Intellectual capital includes employee knowledge and experience, research and development, technology, organisational structure, marketing, customer and supplier networks and software. (Dvořáková, et.al., 2012), The main challenge in developing human capital is to ensure maximum value for money from the investment made. Because their appreciation ultimately depends on the personal will and willingness of employees, their intrinsic motivation, ethical principles and morale.

2. OBJECTIVE AND METHODOLOGY

The aim of the paper is to try to identify and in particular to point out the changes that need to be implemented in the development of human resources of the enterprise, which are caused by the current trends in the economic and social life of economies resulting from the shortage or even significant decline of natural non-renewable resources. This fact requires a change of approach and to start applying new methods, ways and procedures of working with human resources in the enterprise. In fact, there is a statistically significant relationship between sustainable business conduct in society and the transfer of these principles of the concept of sustainable business development to the employees of the enterprise, so that the competitiveness and performance of the enterprise are not compromised. These are essentially the challenges for today's new millennium businesses. In this paper, based on the literature search and the conclusions of the empirical studies conducted, we want to find out what are the directions, focus and future needs of human resource development in the context of sustainable development. The paper can then be the basis for further research activities aimed at assessing the level of sustainability of enterprises in relation to human resource development. In our reflections and efforts to identify new challenges in the process of enterprise human resource development, we have framed the enterprises of the current millennium into three groups as stated in the studies of Šinková see. Figure 1. (Blštáková, 2014), The enterprises are divided according to two dimensions that aptly characterize the way they do business. Šinkova divided enterprises into orange, blue and green. We will focus exclusively on green enterprises in our paper, as green enterprises are organizations that aim for long-term sustainable development.

Figure 1: Three types of new millennium organisations according to selected dimensions



Source: processed by Šinková,V., Blštáková, J. (2014), Contemporary challenges of managing people to new generation of HR specialist. In: 2nd International Scientific Conference Economics and Business Management in the 21st Century, Ostrava 2014, str. 314-322

3. DISCUSSION

When the principle of sustainable development is applied in the corporate sphere, it means for companies to take actions that meet business objectives and meet current and future societal expectations. (Ayuso, Navarrete-Báez, 2017) In the postmodern era of industrialization, sustainable business performance is essential for success in a competitive environment. (Haseeb et al., 2019) The concept of sustainability should become an important part of corporate strategy design, management and development in order to maximize enterprise value. Enterprise sustainability can only be achieved if the enterprise achieves a synergistic combination of all its resources, including human ones. Maximising the use of human resources is essential for maintaining and enhancing the competitiveness of the enterprise and sustainable development. The work of people and their continuous development in the enterprise are to be actively managed. Thus, if an enterprise does not use the potential of its employees, not only will it not achieve satisfactory results, but in the current highly competitive environment, its very existence will be threatened and its ability to maintain sustainable development may be forgotten. Here we see the importance and relevance of human resources in the enterprises of the present modern millennium. We can state that the value of human resources lies in their almost unlimited potential and also in their dynamic nature. Therefore, if we approach rationally and effectively to the development of human resources as one of the tools of sustainability of the enterprise, we can gain a perfect competitive advantage, but at the same time underestimation of their development can become fatal to the enterprise. Human resource development is a function of corporate management that recognizes that the transformative power of human resource development lies in its ability to create innovative and radical solutions to real-world problems. The essence of the new modern enterprise human resource development is primarily to identify the potential for improvement of existing human resources. This can then be seamlessly followed by a process of sharing the goals and values of the enterprise, a process of understanding what is to be achieved in the enterprise, and a process of developing employees to achieve the enterprise's goals, in this case primarily in the area of enterprise sustainability. Human resource development must therefore respond proportionately to the changing corporate and societal environment. This is understood by green enterprises that aim for long-term sustainable business. These enterprises promote collectivism in their internal structures. And their norms of expected employee behaviour follow from this. And this, of course, also significantly influences the approach to human resource development in the enterprise. Such

enterprises are generally advocates of corporate social responsibility with a diverse range of activities. In particular, the sustainable development priorities of these enterprises are: reduction of disparities, responsible consumption and production, decent work, economic growth, innovation, gender equality, no poverty, quality education, health, life expectancy, clean water, affordable and clean energy, and they subordinate their behaviour to these priorities. A typical employee of a green enterprise should be sincerely identified with the values of the organisation (transparency, sustainability, social responsibility...), highly committed and convinced of the benefits of doing business. Hence the need for :

- encourage innovative and proactive employee behaviour, e.g. through talent management, knowledge management, incentivisation, bailing or mentoring,
- building a background for the creation of quality collegial relationships between employees, developing collectivism, teamwork,
- develop skills and encourage new challenges and solutions to current corporate issues,
- stimulate the intellectual, emotional and social commitment of employees,
- develop employee focus on performance, stimulate employees' ability to identify with their work, develop and use creativity,
- develop a positive attitude towards their work, identify with the outcome and purpose of their work,
- to increase employee commitment and pride, and to strengthen their belonging to the company.

These are today's challenges for human resource development in companies applying the concept of sustainable development. However, we must also point out two significant problems that enterprises are currently facing, which are also becoming a key issue in enterprises and may limit the enterprise's ability to thrive in the future, let alone to build and develop the principles of sustainable development. It is:

- insufficient number of trained staff and their lower adaptability in the context of the introduction of modern trends in the concept of sustainable development
- the negative demographic trend and the associated increasing proportion of older age groups among employees of enterprises.

4. CONCLUSION

In conclusion, we can say that today many companies, when adopting corporate strategies that affect their future direction, are already aware of the importance of sustainability and long-term perspective, which, among other things, will contribute not only to the development of the company, but also to the development of the whole society. These facts are of course also reflected in the development of human resources, which are the basis for the success of sustainable growth of the company. We consider the concept of sustainability at the micro level to be particularly complicated and debatable, so in this paper we have tried to present the theoretical approaches of sustainable development in enterprises in the context of human resource development. The elaborated literature search and the conclusions of selected empirical studies can subsequently serve as a basis for further research activities.

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TRH PRÁCE V UČIVE ZÁKLADNÝCH ŠKÔL V SLOVENSKEJ REPUBLIKE

THE LABOUR MARKET IN THE CURRICULUM OF PRIMARY SCHOOLS IN THE SLOVAK REPUBLIC

Danka LUKÁČOVÁ[32]

Abstrakt: *Jedným z cieľov inovácie obsahu vzdelávania na základných školách v roku 2015 bola príprava absolventov, ktorí majú nielen základnú gramotnosť potrebnú pre život a ďalšie štúdium na stredných školách, ale ktorí sa dokážu tiež úspešne orientovať na trhu práce. Príspevok sa zaoberá zaradením problematiky trhu práce do učiva na základných školách v Slovenskej republike. Pozornosť je venovaná analýze školských dokumentov – inovovaného štátneho vzdelávacieho programu a obsahových a výkonových štandardov pre jednotlivé vyučovacie predmety, resp. vzdelávacie oblasti. Bolo zistené, že problematika trhu práce je zaradená predovšetkým do vzdelávacej oblasti Človek a svet práce, pričom ťažiskom problematiky je orientácia žiaka na trhu práce z pohľadu jeho profesijnej orientácie, ktorá začína výberom strednej školy.*

Kľúčové slová: *trh práce, základná škola, učivo*

Abstract: *One of the goals of the innovation of the content of education in primary schools in 2015 was the preparation of graduates who not only have the basic literacy necessary for life and further studies in secondary schools but who can also successfully navigate the labour market.*
The paper deals with labour market issues in the curriculum at primary schools in the Slovak Republic. Attention is devoted to analysing school documents - the innovative state educational program and content and performance standards for individual teaching subjects, respectively for educational areas. It was found that the labour market issue is included primarily in the academic field of Man and the world of work. In contrast, the focus of the matter is the student's orientation on the labour market from the point of view of his professional orientation, which begins with choosing a secondary school.

Key words: *labour market, primary school, curriculum*

JEL Classification: *I21, J24, I28*

1. ÚVOD

Súčasné trhy práce sa vyznačujú vysokou dynamikou, ktorá sa dotýka všeobecných i špecifických kvalifikačných požiadaviek na pracovníkov a ich schopnosti, organizáciu produkcie, typy produktov. Zároveň sa pritom zvyšujú požiadavky na produktivitu, kvalitu i diverzifikáciu produkcie, na obmedzenie relatívnych nákladov produkcie. Postavenie pracovníkov na trhu práce je závislé predovšetkým na ich schopnosti permanentne sa adaptovať na tieto do istej miery rozporné nároky (Sirovátka et al, 2009).

Byť adaptabilný a vyznať sa v zložitom trhu práce je namáhavé pre všetkých pracovníkov, ktorí sú súčasťou toho trhu. Pre nastupujúcu generáciu – generáciu žiakov, ktorí sú ešte v príprave na svoje povolanie na jej začiatku, na základnej škole, to nie je o nič ľahšie. Pre žiaka základnej školy je zložité vyznať sa v zložitom pracovnom procese a v jednotlivých pracovných oblastiach a konkrétnych povolaniach (Feszterová, 2018). Žiak má ťažkosti zhodnotiť svoje schopnosti a ďalšie predpoklady pre určité povolanie. Jeho záujem o vybraný odbor na strednej škole je preto ľahko ovplyvniteľný viacerými faktormi (Ardies et al, 2015; Kozík, 2013; Průcha, 2009; Hrabinská et al, 2015; Haile, 2017, Trexima, 2019). Podľa výskumu Tomkovej (2019) najväčší vplyv na výber strednej školy žiaka majú jeho rodičia

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(31 %). Tieto závery potvrdzujú aj výskumy iných autorov, ktorí tvrdia, že vplyv rodinného zázemia na voľbu strednej školy je u žiakov základných škôl zásadný. Voľba typu stredného vzdelania je ovplyvnená viacerými faktormi, okrem prospechu, vlastných ambícií a študijného záujmu hrá významnú úlohu aj rodina a sociálne okolie (Trhlíková et al, 2008). Vplyv výchovného poradcu je v tomto kontexte zanedbateľný. Pritom výchovný poradca je primárne určený na kariérové poradenstvo žiakov. Viacerí odborníci namietajú, že výchovný poradca nie je zamestnanec so psychologickým vzdelaním, nedisponuje žiadnymi štandardizovanými meracími nástrojmi. Školský psychológ môže štandardizované nástroje orientačne použiť, ťažisko jeho práce v oblasti kariérneho poradenstva by však malo byť najmä v prevencii problémov v kariérovom rozhodovaní sa žiakov, a to prostredníctvom rozvíjacích programov (Gatial, 2017). Výsledky výskumov ukazujú, že je potrebné podstatne viac rozvíjať kariérové poradenstvo na školách, venovať pozornosť nielen deťom s výchovnými a vzdelávacími problémami, ale zamerať sa na tie, ktorých ambície nezodpovedajú ich študijným možnostiam (Trhlíková et al, 2008). Avšak nie každá škola zamestnáva školského psychológa a aj tam, kde školský psychológ v škole pracuje, nemá často dostatočné kapacity na to, aby sa venoval všetkým žiakom pri ich profesijnom rozhodovaní

Z hľadiska individuálnej spokojnosti žiaka aj využitia spoločenského potenciálu je pritom podstatné, aby zvolená vzdelávacia dráha, úroveň získaného vzdelania i vyštudovaný odbor čo najviac zodpovedali možnostiam a záujmom žiakov ako aj požiadavkám aktuálneho trhu práce (Trhlíková et al, 2008).

Z tohto dôvodu je dôležité, aby sa žiaci už počas základného vzdelávania mali možnosť zoznámiť sa so „zložitosťami“ fungovania trhu práce veku primeraných spôsobom. V našom príspevku sme sa rozhodli urobiť sondu do obsahu vzdelávania základných škôl a zistiť, ako sú zakomponované poznatky o trhu práce do učiva žiakov základných škôl.

2. CIEĽ A METODOLÓGIA

Cieľom výskumu bolo zistiť, v ktorých vyučovacích predmetoch na základných školách sú zakomponované poznatky o trhu práce. Predmetom nášho výskumu bol inovovaný Štátny vzdelávací program (iŠVP) pre základné školy, ktorý formuluje základné ciele vzdelania na základných školách a vymedzuje obsah učiva v jednotlivých ročníkoch vyučovacích predmetoch. Tento dokument sa formálne člení na dva: Inovovaný ŠVP pre 1.stupeň ZŠ a Inovovaný ŠVP pre 2.stupeň ZŠ. Štátny vzdelávací program predstavuje záväzný národný rámec pre primárne a nižšie stredné vzdelanie (1. a 2. stupeň ZŠ). Prílohami štátnych vzdelávacích programov sú obsahové a výkonové štandardy predmetov, ktoré sú zaradené do ôsmich vzdelávacích oblastí: Jazyk a komunikácia, Matematika a práca s informáciami, Človek a príroda, Človek a spoločnosť, Človek a hodnoty, Človek a svet práce, Umenie a kultúra, Zdravie a pohyb. V týchto základných dokumentoch, ktoré vymedzujú obsahy vyučovania, sme hľadali kľúčové slová, ktoré charakterizujú danú problematiku. Zvolili sme slová „trh“ a „povolanie“. Tieto výrazy sme potom hľadali vo všeobecnej charakteristike oboch štátnych vzdelávacích programov ako aj v obsahoch vyučovacích predmetov. Obsah jednotlivých vyučovacích predmetov vymedzujú obsahové a výkonové štandardy. Na 1. stupni ZŠ sme analyzovali obsahové a výkonové štandardy 16 predmetov, na 2. stupni to bolo 18 vyučovacích predmetov.

3. VÝSLEDKY A DISKUSIA

Zistili sme, že explicitne je učivo týkajúce sa trhu práce spomenuté na 1. stupni základnej školy iba vo vzdelávacej oblasti Človek a svet práce, kde sa pri vymedzení cieľov vzdelávacej oblasti hovorí: *Žiaci sa stretávajú s dôležitou zložkou nevyhnutnou pre uplatnenie sa človeka v reálnom živote a na trhu práce. Spoznávajú a využívajú technické materiály, konštruujú,*

spoznávajú základy stravovania a prípravy jedál, ľudové tradície a remeslá, povolania a získavajú prvé skúsenosti zo sveta práce. (iŠVP pre 1. stupeň ZŠ) V ostatných vzdelávacích oblastiach sa v ich cieľoch nestretávame s problematikou trhu práce. Pri analýze obsahových a výkonových štandardov jednotlivých predmetov sa však pojem *povolanie* objavil aj v 2. ročníku v predmete prvouka. Obsahom predmetu podľa tohto dokumentu majú byť okrem iného aj povolania ľudí (lekár, učiteľ, vedec, strojník, pekár, mäsiar, obchodník a i.)

Obsah Vzdelávacej oblasti Človek a svet práce sa na 1. stupni základných škôl realizuje v predmete pracovné vyučovanie v 3. a 4. ročníku. Obsah vzdelávania žiakov tam v súvislosti s témou trhu práce zahŕňa:

3. ročník: učenie, povolanie, práca; význam učenia sa k príprave na budúce povolanie,

4. ročník: technické vynálezy a ich vplyv na výber povolania, povolania budúcnosti v súvislosti s novými vynálezmi, pracovné príležitosti v regióne, najžiadanejšie povolania.

Z uvedeného je možné konštatovať, že problematika trhu práce na 1. stupni základných škôl je predovšetkým doménou vzdelávacej oblasti Človek a svet práce.

Na 2. stupni základných škôl je problematika trhu práce plánovaná vo dvoch vzdelávacích oblastiach: Jazyk a komunikácia a Človek a svet práce. V rámci vzdelávacej oblasti Jazyk a komunikácia sa predpokladá u žiakov *dobré zvládnutie jazykového učiva a najmä komunikačných kompetencií, čo vytvára predpoklad na rozvinutie schopnosti úspešne sa uplatniť na trhu práce a v súkromnom živote, podporuje otvorenejší prístup k ľuďom, umožňuje poznávať odlišnosti v spôsobe života ľudí iných krajín a ich odlišné kultúrne tradície* (iŠVP pre 2. stupeň ZŠ). Napriek takto stanovenému cieľu vzdelávacej oblasti v obsahu predmetov slovenský jazyk a literatúra ako aj v obsahových a výkonových štandardoch cudzích jazykov nenachádzame pojmy *trh práce* a *povolanie*. Vo vzdelávacej oblasti Človek a svet práce *žiaci spoznávajú trh práce aj z hľadiska ich budúcej profesijnej orientácie, spoznávajú reálne podmienky trhu práce, moderné stroje a zariadenia, funkciu základných bytových inštalácií* (iŠVP pre 2. stupeň ZŠ).

Napriek tomu, že ostatné vzdelávacie oblasti nedeklarujú vo svojich cieľoch vzdelávanie v oblasti trhu práce či povolaní, v predmete informatika (vzdelávacia oblasť Matematika a práca s informáciami) sa takéto učivo nachádza v 8. ročníku, konkrétne: *informatika ako povolanie, informatika v povolaniach (napr. aj v dizajne a v architektúre, v obchode, vo financiách)* a v predmete občianska náuka v 9. ročníku, konkrétne: *voľba povolania, spôsobilosť na povolanie, profesijná orientácia*.

Všetky ostatné obsahy učiva viažuce sa k problematike trhu práce tak ako sme ich vymedzili v úvode sú predmetom vzdelávacej oblasti Človek a svet práce. Zaradené sú v 7. - 9. ročníku ZŠ v predmete technika nasledovne:

7. ročník ZŠ:

- trh práce – povolanie ľudí, druhy pracovísk, pracovných prostriedkov, pracovných objektov, charakter a druhy pracovných činností,
- kvalifikačné, zdravotné a osobnostné požiadavky, rovnosť príležitostí na trhu práce ,
- možnosti vzdelávania – náplň učebných a študijných odborov, prijímacie skúšky, informácie a poradenské služby,
- zamestnanie – pracovné príležitosti v obci (regióne), spôsoby hľadania zamestnania, písanie životopisu, motivačného listu, pohovor u zamestnávateľa, problémy nezamestnanosti, úrady práce, práva a povinnosti zamestnancov a zamestnávateľov (iŠVP pre 2. stupeň ZŠ).

8. ročník ZŠ:

- voľba profesijnej orientácie – základné princípy, sebapoznávanie, osobné záujmy a ciele, telesný a zdravotný stav, osobné vlastnosti a schopnosti, sebahodnotenie, vplyvy na voľbu profesijnej orientácie,
- informačná základňa pre voľbu povolania, práca s profesijnými informáciami a využívanie poradenských služieb (iŠVP pre 2. stupeň ZŠ).

9. ročník ZŠ:

- voľba profesijnej orientácie – základné princípy, sebapoznávanie, osobné záujmy a ciele, telesný a zdravotný stav, osobné vlastnosti a schopnosti, sebahodnotenie, vplyvy na voľbu profesijnej orientácie,
- informačná základňa pre voľbu povolania, práca s profesijnými informáciami a využívanie poradenských služieb,
- podnikanie – druhy a štruktúra organizácií, najčastejšie formy podnikania, malé a stredné podnikanie (iŠVP pre 2. stupeň ZŠ).

Z obsahu vzdelávania určeného pre jednotlivé ročníky vidíme, že problematika trhu práce je zameraná na základných školách predovšetkým na rozhodovací proces žiaka v súvislosti s jeho budúcim povolaním. Žiaci sa však predsa len majú možnosť zoznámiť s možnosťami zamestnania vo svojom regióne, s niektorými problémami nezamestnanosti ako aj s možnosťami podnikania. Uvedené obsahy vzdelávania sú pre základné školy záväzné a musia byť odučené v plnom rozsahu. V rámci vzdelávacej oblasti Človek a svet práce môže škola ešte do obsahu výučby vybrať niektoré z tém, ktoré sú zaradené do tematického okruhu Ekonomika domácnosti. V tomto tematickom okruhu sú tiež témy súvisiace s trhom práce. Nie sú určené pre konkrétny ročník ZŠ, môžu byť zaradené do ľubovoľného ročníka od 5. po 9. ročník. Obsahovo sú zamerané na témy:

- trh práce – povolanie ľudí, druhy pracovísk, pracovných prostriedkov, pracovných objektov, charakter a druhy pracovných činností, kvalifikačné, zdravotné a osobnostné požiadavky, rovnosť príležitostí na trhu práce,
- možnosti vzdelávania – náplň učebných a študijných odborov, prijímacie skúšky, informácie a poradenské služby,
- zamestnanie – pracovné príležitosti v obci (regióne), spôsoby hľadania zamestnania, písanie životopisu, motivačného listu, pohovor u zamestnávateľa, problémy nezamestnanosti, úrady práce, práva a povinnosti zamestnancov a zamestnávateľov,
- voľba profesijnej orientácie – základné princípy, sebapoznávanie, osobné záujmy a ciele, telesný a zdravotný stav, osobné vlastnosti a schopnosti, sebahodnotenie, vplyvy na voľbu profesijnej orientácie,
- informačná základňa pre voľbu povolania, práca s profesijnými informáciami a využívanie poradenských služieb,
- podnikanie – druhy a štruktúra organizácií, najčastejšie formy podnikania, malé a stredné podnikanie,
- sústava povolaní - národná sústava povolaní, národné štandardy zamestnaní, register zamestnaní, karta zamestnania plán profesijného rozvoja.

Ak však porovnáme témy zaradené do tohto tematického okruhu, môžeme pozorovať, že sú všetky totožné s povinnými témami vyučovanými v 7. – 9. ročníku, okrem témy zameranej na sústavu povolaní. Takže učivo naviac, ktoré môžu školy ponúknuť žiakom, predstavuje iba táto jediná téma. Je pritom veľmi pravdepodobné, že národnú sústavu povolaní (NSP), karty jednotlivých zamestnaní učitelia používajú pri výučbe témy informačná základňa pre voľbu

povolania, nakoľko uvedené informácie sú súčasťou celoštátneho, jednotného informačného systému opisu štandardných nárokov trhu práce na jednotlivé pracovné miesta. NSP určuje požiadavky na odborné zručnosti a praktické skúsenosti potrebné na vykonávanie pracovných činností na trhu práce. Jej centrom je Register zamestnaní tvorený z národných štandardov zamestnaní, ktoré opisujú požiadavky zamestnávateľov kladené na kvalifikovaný výkon zamestnaní (Národná sústava povolaní).

4. ZÁVER

Miera nezamestnanosti na Slovensku v roku 2021 dosiahla 6,8 %. Najviac sa zvýšili počty tých ľudí bez práce, ktorí naposledy pracovali v obchode a stavebníctve. Výrazne sa znížil počet nezamestnaných, ktorí naposledy pracovali v oblasti priemyslu. Na Slovensku má dominantné postavenie automobilový, elektrotechnický a strojársky priemysel. Významné postavenie na trhu práce zaujal aj sektor informačných a komunikačných technológií a sektor centier zdieľaných a podnikových služieb (Európska komisia, 2021).

Jedným z ťažiskových sociálno-ekonomických vplyvov na trh práce je vplyv štvrtej priemyselnej revolúcie – priemyslu 4.0. Nové technológie a ich zavádzanie do praxe so sebou prinášajú obavy, že práca ľudí bude nahrádzaná strojmi. Tieto obavy sú podporované mnohými domácimi a zahraničnými štúdiami, ktoré SR vnímajú ako jednu z najohrozenejších krajín z hľadiska náhrady pracovných síl automatizáciou. Vyplýva to práve z dominantného postavenia automobilového, elektrotechnického a strojárskeho priemyslu v ekonomike krajiny. OECD predpovedá Slovenskej republike ohrozenie pracovných miest automatizáciou na úrovni cca 60 %. Tento údaj potvrdzujú aj ďalšie zahraničné štúdie, ktoré zaraďujú SR medzi krajiny s najvyšším podielom ohrozených pracovných miest (Hrnčiar, M., 2022). V tejto súvislosti je nevyhnutné pripravovať budúcich pracovníkov, dnešných žiakov základných škôl na zmeny na trhu práce, ktoré sa v najbližšom období uskutočnia. Už žiaci základných škôl musia mať základné informácie o trhu práce, o povolaniach, ktoré zaniknú a naopak o povolaniach, ktoré rozvojom niektorých odvetví hospodárstva vznikajú (napr. herný priemysel), aby vedeli plánovať svoju profesijnú dráhu, ktorá začína výberom správnej strednej školy. Rodičia žiakov, ktorí najviac zasahujú pri nerozhodnosti žiaka do výberu strednej školy, často sami nepoznajú nové možnosti, ktoré sa žiakom zmenou trhu práce otvárajú a nevedia ich nasmerovať na správny študijný (učebný) odbor. Preto je potrebné na základnej škole pracovať nielen so žiakmi, ale aj s ich rodičmi, resp. právnymi zástupcami žiakov tak, aby výber strednej školy nebol pre žiaka stresom, ale ukázal mu príležitosti pre rozvoj jeho schopností a možnosti budúceho zamestnania, ktoré bude prínosné pre spoločnosť.

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THE BENEFITS OF DIGITALIZATION FOR THE LABOUR MARKET

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Abstract: *Digitalization in the context of Industry 4.0 (digital revolution, smart industry, digital economy and more) confronts the world of work with many serious issues. Digitalization and robotics are not a challenge of the future, but already exist and are present in real time. New technologies, automation and digitalization have an influence on the quantity and quality of work, but also on the form and nature of work. As a result of the developments outlined above, we can expect a decreasing capability of employees to win the competition against technology. Technological change proves to have two important impacts – it is eliminating some jobs by replacing human workforce with robots, and it is changing the skill requirements of workers in many occupations. This will affect labour markets and social security systems at various levels, such as the availability of workforce, the need for new job skills or the maintenance of social standards. Threats can also be found in the shortage of skilled workforce, in the deficit of education for the needs of the labour market, the lack of adaptability and flexibility of the education system and also the unwillingness to learn.*

Key words: *Industry 4.0, digitalization, labour market, employees, competences*

JEL Classification: *J08, J23, J24, O33*

1. INTRODUCTION

Digitalization today affects all areas of human activity. The development and implementation of digital technologies is facilitating the automation of processes in most industries, as well as the replacement of physical service channels with digital ones, which can lead to structural unemployment. Thus, in the short term, labor supply will not match the demand. (Halal et al., 2016; Dorn & Hanson, 2018; Kudryavtseva, Skhvediani & Arteeva, 2019).

Technological advances are changing demand and supply in the labor market and a new model of work and employment called Industry 4.0 is emerging (Kudryavtseva, Skhvediani & Arteeva, 2019). This model is being implemented in a market area that is saturated with digital technologies and includes not only potential opportunities but also risks associated with structural changes in the economy and changing human resources requirements. This makes work activities more transparent, expands the practice and boundaries of using digital technologies to solve work tasks, and creates opportunities for continuous learning, leading to

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improved quality of work resources and increased demands on them (Glukhov & Vasetskaya, 2017; Sizova & Khusiainov, 2017; Brambilla & Tortarolo, 2018; Kudryavtseva, Skhvediani & Arteeva, 2019).

The digital environment favors skills that are complemented rather than replaced by automation. Education systems have so far been rather slow to respond to this challenge. In addition, the pace of change caused by the spread of innovation is so high that it leads to constant fluctuations in the demand for employee competencies and skills (Bataev, 2017). As a result, employees are challenged to continuously improve their skills and acquire new competencies throughout their careers. This is already happening in many countries whose economies are going through digitalization (Glukhov & Vasetskaya, 2017; Sizova & Khusiainov, 2017; Brambilla & Tortarolo, 2018; Kudryavtseva, Skhvediani & Arteeva, 2019).

1.1 Industry 4.0 and digitalization

The world of Industry 4.0 is built on people, machines, equipment, logistics systems, and products being able to communicate and collaborate directly with each other. Everything is moving towards total networking. The reason for this is the use of vast amounts of previously uncapturable information to make significantly faster and more correct decisions. The tight integration of products, equipment, and people increases the efficiency of production machines and equipment, reduces costs, and saves resources. Intelligent tracking and transparent processes provide companies with continuous visibility that enables them to react quickly and flexibly to changes in the markets (Lukáč, 2022).

This approach allows machines and devices to operate autonomously and efficiently, it also facilitates communication between machines and humans regardless of their location, and allows multiple devices to interact. Through these interactions, all stakeholders in the organization's environment (suppliers, manufacturers, and consumers) can obtain and jointly analyze data on products and production, supply processes (Velasquez, Estevez, & Pesado, 2018).

Industry 4.0 represents a massively disruptive and dynamic change entering the industry. The driving force behind these changes is digitalization, which will affect all areas of our lives. It is about the digitization of products, business processes, including services. Therefore, it is built on digital technologies, Product Lifecycle Management (PLM), Big Data, Artificial Intelligence, Sensors, and the like (Kordošová, 2021). Today's digital technologies support progress and growth in education in particular. People need a wide range of abilities, competences and skills to adapt to this 'digital age'. Therefore, concepts of digital literacy are emerging in the context of the development of ICT.

1.2 Digital literacy

Digital literacy involves more than just the ability to use software or operate a digital device. It aims to encompass the wide range of complex cognitive, motor, sociological, and emotional skills that users need to function effectively in a digital environment (Lukáč, 2022).

In particular, information technology literacy includes (Kollár, Polakovič & Gasperová, 2015; Lukáč, 2022):

- practical skills and knowledge that enable us to use each technology effectively,
- the ability to gather, analyze, critically evaluate and apply information using information and communication technologies,
- the capability to use ICT in a variety of contexts and for a variety of purposes based on an understanding of terms, concepts, systems, and operations,

- the knowledge, skills, abilities, attitudes, and values that lead to the responsible and safe use of information and communication technologies,
- the ability to accept and critically evaluate new information and communication technology initiatives, to understand the rapid development of technologies, their relevance to personal development, and their impact on society.

According to Bradič-Martinoviča (2018), a digitally literate population is one of the main conditions that must be met for a digital society to be successful. Digital literacy is one of the eight key competencies for lifelong learning and development in a modern, global, information, and digital society (Lukáč, 2022).

1.3 Technologies and dehumanization

Industry 4.0 is transforming the labor market, leading to a demand for new skills and the digitization of jobs that the workforce has traditionally performed (Eberhard et al, 2017).

The use and analysis of big data, the use of sensors, robots, and new technologies, are providing new opportunities to increase the overall productivity of the production system. Nevertheless, it is essential to apply new working approaches to the main elements of manufacturing systems (Eberhard et al, 2017; Behrendt, 2017):

- technique and methods (processes and resources),
- management (organization and performance measurement),
- people (skills, thinking, and behavior).

Industry 4.0 is not only expected to reduce the number of manual jobs but also to create new jobs that are more flexible and less physically exhausting. It is necessary to capture the essence of the interdependence of technology rates with other aspects of the process. The essence of Industry 4.0 innovation is the interconnection of technological components and the human workforce interacting with each other at an unprecedented rate (Porubčinová et al, 2021).

New technological trends such as big data analytics, digitalization, and robotization are driving the increasingly massive automation of more and more jobs, where human labor will be replaced in many areas. The consequence of digitalization in labor markets will therefore be in a decline of employment related to routine and intensive tasks (Eberhard et al, 2017). According to a study by Frey and Osborne (2013), advanced robots with a wider range of tasks will replace human labor, even in a large number of non-routine tasks.

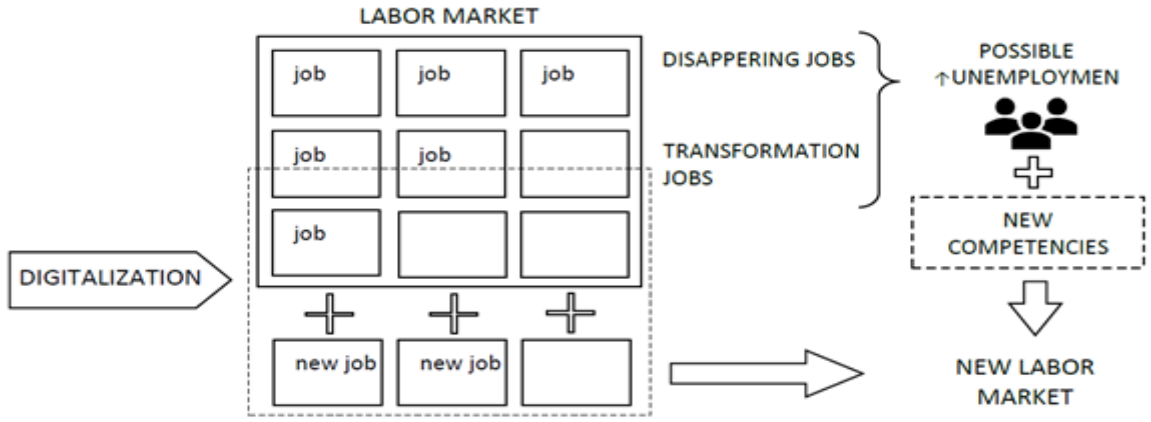
According to Kagermann et al. (2013), the roles and competence profiles of employees working in so-called smart factories will be significantly different (Eberhard et al, 2017). The replacement of human workers by robots or computers in job tasks will occur primarily at the middle-skill levels. As middle-skilled positions become increasingly automated, the consequence will be an increase in demand for highly skilled workers in technically demanding fields with higher pay. These new jobs will have a low risk of automation. Paradoxically, there is also a growing demand for lower-skilled workers in non-routine positions that are currently difficult to automate (Berger & Frey, 2016; Porubčinová et al, 2021; RUZ, 2017). Low-skilled workers will still be able to find a job in the digital economy, but the opportunities will be diminishing and the wage will also be low-paying (RUZ, 2017).

There is a transition in human resources, where it is becoming necessary to acquire specific work competencies, skills, and attitudes in the context of human-machine cooperation, to acquire new competencies related to highly skilled jobs associated with the use of automated technologies, and also to develop interpersonal, communication skills and creative skills, which are difficult to automate and where humans (currently) have a comparative advantage over machines and artificial intelligence (Porubčinová et al, 2021).

According to Askapour et al. (2019), although smart factories are equipped with a high degree of automation, this does not eliminate the need for human workers; on the contrary, they are required to collaborate with machines and perform mixed (hybrid) work tasks (Porubčinová et al, 2021). Job opportunities in automated systems will require employees with new skills and capabilities that they do not currently possess. Improving the skills of employees will be essential in all industries and service sectors.

Digitalization will change the requirements for employees in all parts of the value chain - from development, through production to sales as indicated in Figure 1. Processes and business models will become more flexible and data-dependent, thus increasing the demand for software developers and data analysts and the associated development of new opportunities in cyber security, big data, and analytical skills that will not be tied to one specific location in the future (RUZ, 2017). For some jobs, this means the disappearance or transformation, with the associated emergence of a group of potentially unemployed or unemployable workers who, for a variety of reasons, will be unable or unwilling to apply themselves in a labor market changed by digitalization.

Figure 1: New theoretical model of Labour market change



Source: Kudryavtseva, Skhvediani & Arteeva, 2019

Industry 4.0 is dependent on hiring people with technical training and analytical skills; new jobs will require creative and technical skills, e-leadership, and innovative engineering. At the same time, the quality of people's skills will change, and the value of those people's skills will also change.

Those most at risk will be the less skilled, with low digital skills, but also, as is becoming the standard, the over 50 years old. According to forecasts, computerization threatens in particular jobs for which a high school education without a degree is sufficient today. Some of these positions are already replaceable by technology, but due to the large disparity between wage costs and the costs of automation, they are still surviving in the labor market. However, the replacement of people by technology will not happen all at once.

The most in demand will be specialists in databases and networks, managers in information and communication technologies, analysts, and developers of software or computer applications. These positions have the greatest positive potential in the world of digitization and automation. When recruiting human resources, the focus will have to be on identifying people with a high learnability quotient (LQ) and creating a system for their continuous development. Employees will need to be able to learn new skills to remain employable. It is necessary to be prepared for the jobs and skills of the future, it will be essential for organizations to learn how to become learning organizations. (Záležáková, 2018; Kordošová, 2021)

2. PROBLEM FORMULATION AND METHODOLOGY

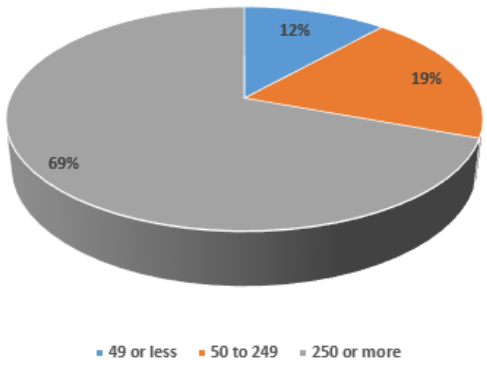
The next part of the paper is focused on the description of the research problem, and defining the objective of the research. The research aimed to identify the impact of digitalization on the human factor, as one of the basic resources/limitations of the functioning of current industrial production - how does the competence profile of employees affect their ability to be employed in the labor market. We specified the research problem by defining the research questions.

Empirical data on the subject were collected using a scientific questionnaire that contained 37 closed-ended questions. The first part was aimed at finding out the identification and demographic characteristics of the respondents. The selected questions were primarily aimed at identifying the status and level of implementation of Industry 4.0 elements (depending on the size of the organization), revealing the areas in which organizations have invested, as well as the promotion and development of digital skills necessary for the performance of work under the changed conditions.

The basic thought processes such as analysis, synthesis, abstraction, concretization, deduction, analogy, comparison, etc. were used in the preparation of the paper. Data interpretation was handled through descriptive and quantitative statistical methods. The collected data were processed through Microsoft Excel and IBM SPSS 22.0. The anonymity of the respondents was maintained in the processing of the results.

The research sample consisted of employees of industrial enterprises of all sizes in Slovakia. The sample consisted of 556 respondents. Out of this number, 80 (14%) respondents work in the public and state administration sector, 138 (25%) in the service sector, and **338** (61%) in industrial production. Given the thematic focus of our paper, we focused on organizations operating in the industrial sector. The distribution of employees depending on the size of the organization is shown in Figure 2.

Figure 2: Distribution of employees by size of organization



Source: own processing (2022)

3. RESEARCH AND RESULTS

In the following section, the research questions will be evaluated and interpreted in order to identify the necessary capabilities/skills of employees changing over time, influenced by the introduction and application of Industry 4.0 principles and technologies.

RQ1: Which skills/abilities do you consider to be the most important in the context of digitalization and automation of work (0 don't know;1 least important to 5 most important)?

For the question stated above, respondents were given the choice to rate individual skills (abilities) using a Likert scale - 0 don't know;1 least important to 5 most important. Table 1 shows the mean values, which are "cleaned" of don't knows. Respondents considered digital skills (3.453) and technical skills (3.422) to be the most important skills in the context of digitalization and automation of work. The least important competencies (skills) according to the respondents are social (ability to get along with other people). Given the demands of digitalization and automation of work, these results are understandable.

Table 1: Averages of respondents' answers in relation to digitization and automation of work

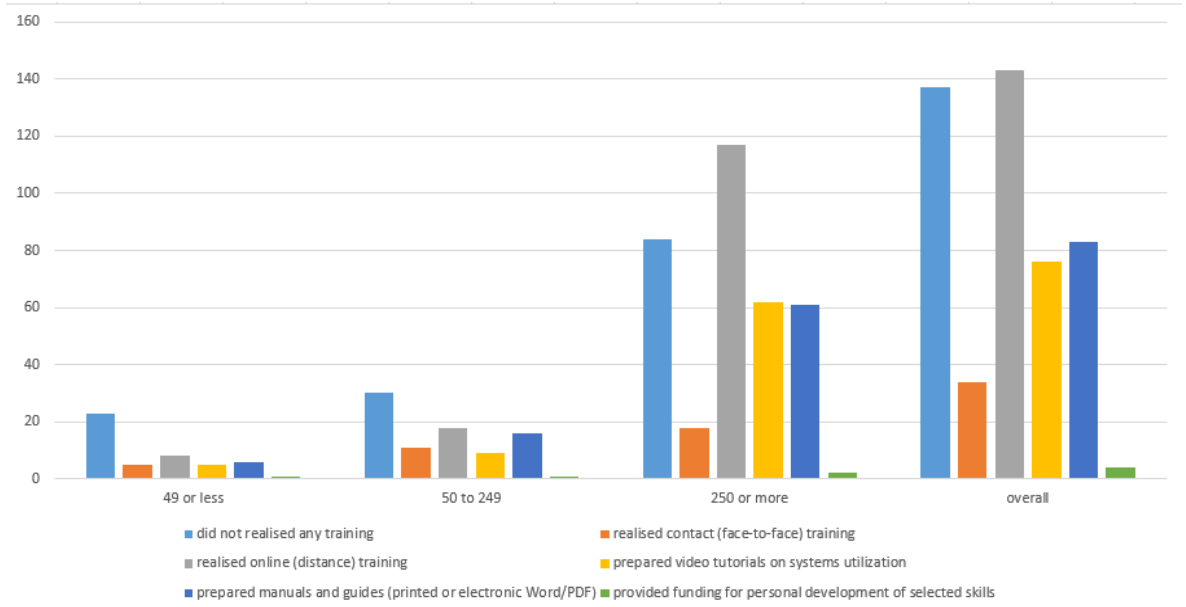
	49 or less	**50 to 249**	**250 or more**	**overall**
technical (professional) skills	3,538	3,516	3,376	**3,422**
communication skills	3,179	2,984	3,079	3,072
organisation of time at work, work tasks	3,154	2,873	3,035	3,027
ability to manage and make decisions	3,256	3,079	3,005	3,050
ability to learn	3,231	3,141	3,341	3,279
ability to work under pressure	3,205	2,922	3,014	3,018
digital skills	3,436	3,500	3,458	**3,453**
linguistic (foreign languages)	3,256	3,190	3,288	3,275
social (ability to get on with other people)	2,846	2,698	2,817	2,806
initiative (entrepreneurship, commitment)	2,744	2,746	3,050	2,991
flexibility, adaptation	2,974	2,969	3,329	3,236
creativity and innovation	3,154	3,175	3,201	3,200

Source: own processing (2022)

RQ2: How has your employer ensured the development of the digital skills that needed to be developed regarding the global pandemic?

In the next question, we identified how digital skills were developed, which needed to be developed in the context of the global pandemic, which unexpectedly became a kind of catalyst (accelerator) for the utilization of the previously little-used digitalization, the use of smart technologies in the conditions of (not only) industrial production. The answers obtained can be seen in Figure 3. The most common form of developing digital skills was the implementation of online (distance) training, which was indicated by 42%, i.e. 143 out of the total number of respondents. At the same time, it is interesting to note that as many as 41% of respondents (i.e. 137) indicated that no training was conducted by the employer.

Figure 3: Developing digital skills in the presence of a global pandemic



Source: own processing (2022)

RQ3: To which areas has your organization invested in the last 3 years in relation to Industry 4.0 ?

The last research question aimed to determine where (in which areas) the organization's investments have been directed over the last 3 years. The 3-year period was chosen to cover approximately the same time interval before and during the pandemic. The responses of the respondents are shown in Table 3. The results show that organizations were aware of the dire need to invest in production (production systems - refurbishment, higher degree of automation, or robotization). Related to this is the area of frequent investments also in information technologies - without their introduction and application, investments in production would be far from achieving the intended effect.

Table 2: Respondents' answers regarding the direction of investment over the last 3 years in the context of Industry 4.0

	49 or less	**50 to 249**	**250 or more**	**overall**
research and development	3	16	69	88
production	3	33	123	**159**
logistics	5	13	67	85
quality	7	15	60	82
engineering (technical solutions)	4	18	65	87
purchase	3	11	28	42
information technologies	7	19	70	**96**
employee development	8	5	51	64
don´t know	21	16	77	114

Source: own processing (2022)

4. DISCUSSION AND CONCLUSION

Digitalization is changing the structure of the economy and employment, the system of employee training, and employers' demand for skills and competences that are essential in the modern world. As a result, routine jobs are becoming outdated, which opens the way to specializations that involve the management and automation of these routine processes. Research results (Kudryavtseva, Skhvediani & Arteeva, 2019) also clearly show that age has been shown to affect the level of digital literacy - with age, the level of literacy is seen to be at a lower level as people get older.

The solution to the problem of labour market transformation lies in developing and shaping the required competencies in specialists and students through the modernisation of the education system (Minor-Major system, interaction between organizations and schools) and online platforms so that education and requalification programmes do not become irrelevant to the requirements of the labour market (Kudryavtseva, Skhvediani & Arteeva, 2019).

Educational institutions are challenged to respond to these trends and adapt their policy-making to provide students with the appropriate skills for future job profiles and the required skills. It is, therefore, necessary to analyze the impact of technological innovations on the labor market, and it is pertinent to ask whether it is possible to predict, in the current turbulent times, the future demands placed on managers, as well as whether it will be necessary to create a competence model of "Manager 4.0" that will be a "product" for the constantly evolving, digitalizing industrial entities of the future. In the meantime, however, it remains on the shoulders of secondary and university education, as well as several other adult education institutions, to help supplement the missing skills and competencies of all market-active generations of employees.

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THE CHALLENGES OF CIRCULAR ECONOMY FOR LABOUR AND EDUCATION MARKETS

VÝZVY CIRKULÁRNEJ EKONOMIKY NA TRHY PRÁCE A TRHY VZDELÁVANIA

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Abstrakt: *Príspevok je zameraný na cirkulárnu ekonomiku z hľadiska požiadaviek, ktoré kladie na trhy práce a trhy vzdelávania. Cieľovými skupinami na trhu práce a trhu vzdelávania sa stávajú podnikatelia, zakladatelia startupov, spotrebitelia, štátna správa s regionálna samospráva a občania, ktorí potrebujú získať vedomosti a zručnosti v oblasti cirkulárnej ekonomiky, dôvodoch jej zavádzania, prejavoch a výsledkoch. Spoločnosť a podnikatelia sa potrebujú oboznámiť s témami previazanými na cirkulárnu ekonomiku, ako napr. inovatívne a účinné spôsoby výroby a spotreby, príležitosti pre lokálnu zamestnanosť a sociálnu integráciu, optimalizácia odpadového hospodárstva, úspory energie, prínosy pre životné prostredie a podobne. Jedným z rozhodujúcich krokov na trhu vzdelávania v oblasti cirkulárnej ekonomiky bude profesionalizácia vzdelávateľov, zakotvenie idey o udržateľnosti a o spoločensky a environmentálne zodpovednom riadení hospodárskych subjektov, a dosahovaní konkurencieschopnosti a prosperity na trhu.*

Kľúčové slová: *cirkulárna ekonomika, trhy práce, trhy vzdelávania, udržateľnosť, indikátor*

Abstract: *The contribution is focused on the circular economy in terms of the demands it places on labour markets and education markets. The target groups on the labour market and the education market are entrepreneurs, start-ups founders, consumers, state administration and regional self-government and citizens who need to acquire knowledge and skills in the field of the circular economy, the reasons for its introduction, manifestation, and results. Society at large and entrepreneurs need to familiarize themselves with topics related to the circular economy, such as innovative and efficient ways of production and consumption, opportunities for local employment and social integration, optimization of waste management, energy savings, benefits for the environment and the like. One of the decisive steps in the circular economy education market will be the professionalization of educators, embedding the idea of sustainability and the socially and environmentally responsible management of economic entities, and achieving competitiveness and prosperity on the market.*

Key words: *circular economy, labour markets, education market, sustainability, indicator*

JEL Classification: *L17, L19, M11, M14, O1, O32, Q53, Q56, Q57*

1. INTRODUCTION

Reflections on the circular economy reached the level of public discourse, especially in economically developed countries, at the turn of the 20th and the 21st centuries. The year 2002 could be considered the formal beginning of this new paradigm as the German chemist Michael Braungart and the American architect William Donought published the book Cradle to Cradle: Remaking the Way We Make Things (Donought & Braungart, 2002). They described "Cradle to Cradle" principle as contrasted with the usual production procedure of the 18th to the 20th century, and which they likened to the Cradle to the Grave direction. Thus,

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they contrasted the two production principles - circular and linear (Kislingerová & al., 2021, p. 254).

The circular economy represents an economic model based on the re-use and recycling of products with the aim of minimizing or eliminating entirely the generation of waste.

The linear economy model consists of the following activities: extraction of raw materials, production, distribution, consumption and waste. In contrast, the circular economy represents a circular arrangement of activities: production, distribution, consumption and use, reuse and repair of products, reuse (of components and materials), followed by the whole cycle all over again. The circular economy model involves sharing, re-using, learning, and recycling existing materials and products and extending their lifespan (Kollár & Matúšová, 2020, p. 22-42).

The idea of circulation of resources emerged gradually, on the basis that available resources, especially energy resources are limited. Practice shows that there are huge possibilities for circular solutions, but there are considerably fewer possibilities that are financially neutral or profitable from the beginning of the implementation of the circular economy model, or in a sufficiently short time (Geissdoerfer & al., 2018).

Science and research are tools which are necessary for technological and logistical development. The concept of the circular economy is currently taking on more precise outlines and a more detailed form, both in theoretical economics, treatises, and in practical activities.

2. PROBLEM FORMULATION AND METHODOLOGY

The aim of the paper is to present the circular economy and outline the interlinkages with labour markets and education markets. The primary goal of the paper is to characterize the circular economy as a part of the economy, the secondary goal of the paper is to point out the need to interlink the knowledge emerging from circular economy, and the training needs of the most significant target groups on the labour market and the education market.

The focus of the paper required to analyse the current state of art and the legislative framework in the European Economic Area, point out contributions of intergovernmental and international organizations, as well as describe indicators and monitoring tools of the circular economy.

Therefore, we briefly indicated the primary legislation of the European Union in the circular economy and related areas, the initiatives of banks and international organizations promoting the circular economy in practice, as well as the manifestations of the circular economy at central, regional and municipality levels of governance.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

Regarding the circular economy, it is necessary to focus on the standard-setting measures in supranational bodies and developed countries and on research related to circular economy processes at the corporate level, i.e., to examine the effects of the circular economy in the corporate sphere, work organization, cooperation relations and the like.

The principle of circularity is interlinked with many topics that have only been outlined so far, e.g., the markets of secondary raw materials, the market price for waste, the needs of participants in economic processes, the issues of profit and reward, the economic advantage of processing and recycling, and the like.

Circular processes contain several other important aspects related to the costs of waste storage and disposal, health protection costs, questions of waste taxation and the taxation of

technologies in the circular economy, which may produce a greater amount of waste compared to other technologies.

3.1 Challenges of the circular economy on labour markets

The circular economy brings a relatively fundamental intervention to the entire system of economic relations and cooperative ties. Technical and social risks come to the fore, as well as the risks at labour markets. Changes in the production process will subsequently be reflected in labour markets in the form of the demise and creation of completely new branches and professions (the so-called creative-destructive process), so this process will bring significant changes to the labour market (Morgan & Mitchell, 2015).

The disappearance and creation of jobs will probably develop differently in individual states (considering the structure and traditions of national economies), also in individual industries, sectors, and fields of activity (Environment, 2014). Estimates differ quite significantly in numbers of people who will be affected. Most professions will not disappear completely, but the performance of work tasks will change. New technologies such as digitization, automation, robotization, which will replace individual work tasks or work processes, will play a decisive role in the process (Kollár & Matúšová, 2022).

Human resources should be assessed from the aspect of education and employment, as well as from the aspect of physical and moral amortization of human capital, both resulting in the loss of the value of a person's creative ability due to aging, illness, disability, etc. The main determinant of the moral amortization of human capital is the phenomenon of digital exclusion (digital divide), which is related to demographic characteristics such as age, education, socioeconomic status, and geographical factors.

The target groups on the labour market consist of entrepreneurs, start-up founders, consumers, state and regional governments, and citizens who need to acquire knowledge and skills about the circular economy, the reasons for its start, manifestations, results, and consequences. Timely identification of the training needs, the necessary new competences and upskilling in individual branches and professions can fundamentally accelerate changes in educational programmes, especially within lifelong learning.

3.2 Circular economy challenges for education markets

Society at large and entrepreneurs need to familiarize themselves with topics related to the circular economy, such as innovative and efficient ways of production and consumption, opportunities for local employment and social integration, optimization of waste management, energy savings, benefits for the environment and the like. These target groups need to understand the reasons for the application of the circular economy principles in practice.

These reasons primarily include:
a) growing demand for raw materials and lack of resources - non-renewable resources have their limits, and as the population continues to grow, so does the demand,
b) dependence on other countries - since some countries do not possess their own resources of raw materials in sufficient scope, they are dependent on other countries,
c) impact on the planet's climate - extraction and use of mineral raw materials impact the environment, increase energy consumption and CO^2 production,
d) the opportunity to increase sustainability and competitiveness.

Furthermore, they should be aware of the advantages of the circular economy:
a) more innovative and efficient methods of production and consumption,
b) protection of businesses from lack of resources and unstable prices,
c) opportunities for local employment and social integration,

d) optimization of waste management, which promotes recycling and reduces landfilling,
e) energy savings, as smaller production processes require less energy,
f) environmental benefit in terms of climate and biodiversity, air, soil, and water pollution.

Competences for the circular economy are key competencies for a sustainable future, covering detailed knowledge of resources and raw materials, social behaviour necessary to create a model that works for society, the economy, and the environment.

Three types of competences are mostly used in the application of the circular economy:
1. competences aimed at minimizing the use of products and materials so that their value is maintained, as far as possible (preservation),
2. competencies contributing to the maintenance of products and materials at the highest possible utility value (optimization),
3. competencies aimed at re-use of the product (at the end of its useful life cycle) - creating additional value (increasing efficiency).

The preparation and professionalization of educator will rank among the most important activities in the circular economy education market. Such topics as the ideas and principles of sustainability, socially and environmentally responsible management of economic entities, competitiveness efficiency, and prosperity on the market should be embedded in the training and upskilling of educators.

3.3 Challenges of the circular economy in tertiary education

Universities and higher education institutions cope with the requirements of the circular economy by means of innovations in teaching subjects, scientific research, creative activities, publication of research results, participation in international research projects, support of start-ups, partnership with public administration and the businesses, etc.

Concerning the circular economy, universities should focus on the standard-setting measures of supranational organisations, national bodies in developed countries, research on the organization of circular processes at the corporate level, i.e., to examine the effects of the circular economy in the corporate sphere, work organization, cooperative relations, etc.

The principle of circularity is associated with many open questions that have only been outlined so far, e.g., secondary raw materials markets, market price for waste, the interests of stakeholders in economic processes, profit and reward, the economic advantages of processing and recycling, and the like (Kalmykova, Sadagopan & Rosado, 2018).

Processes in circular economy also contain issues related to the costs of waste storage and disposal, health protection costs, waste taxation, the taxation of technologies in the circular economy, which may produce a greater amount of waste compared to other technologies.

Education at universities and institutions of further education should be strengthened in the field of circular economy, including knowledge, competences, and skills in following fields:

a) Circular economy in legislation and activities of the European Union

The subject matter of circular economy is included in primary law (treaties) of the European Union, secondary law, and other documents (action programmes). Several action programmes in the form of decisions (as for example the 8th Action program from 2020) and action plans (packages of binding regulations) were adopted at the EU level for the circular economy (Nováčková & Matúšová, 2020).
The EU legal acts adopted for the circular economy included:
a) revised waste directive (2018/851),
b) revised directive on packaging and packaging waste (2018/852), revised directive on landfills (2018/850), revising directive 2018/849 on end-of-life vehicles, on the removal of

used batteries and the use of waste electrical and electronic equipment, further directive on the ban on single-use plastics (2019/904).

The EU legislative framework demonstrates that the circular economy is understood as a matter of priority and extremely important. The attention of the EU institutions is shifting from waste treatment solutions to waste prevention, or the re-use.

The European Union has supported the creation and application of circular economy indicators and monitoring tools, which are applied at the macro, meso, micro and nano levels when assessing the circular economy progress. Circularity indicators can be divided into macro-level indicators (cities, regions, regions, states), meso-level indicators (associations of organizations, enterprises, clusters), micro-level indicators (enterprise, product, or consumer) and nano-level indicators (product). The indicators measuring the circular economy performance at national, regional, and local levels require a specific definition (Kislingerová & al., 2021, p. 170).

Indicators at the macro level are descriptive in nature and are applied in the decisions of national governments related to economic and environmental policies, sustainable development strategy and plans, or national waste management policies while preserving resources for future generations. They include the Eco-Innovation Index (Eco-Innovation Index, Eco-II), Regional Circular Economy Development Index (RCEDI), and National Circular Economy Indicator System (NCEIS).

Meso-level indicators enable a more differentiated tracking of information and a detailed analysis of material flows in the economy, distinguishing between categories of materials and industries. They primarily focus on industry, regarding regionally interconnected enterprises, affiliated institutions, organizations or groups of interlinked and dependent companies and other organizations in a specific industrial sector (clusters).

Micro-level indicators provide information about specific business-level processes and/or relate to specific products. They help in decisions related to the company's product policy, energy efficiency and integrated waste management. At the same time, they include consumer behaviour. Micro-level indicators include the Sustainable Circularity Index (SCI), Circular Economic Value (CEV) and Circle Assessment (CA).

The nano-level indicators focus on the circularity of products, components and materials that are contained in the three previous system levels throughout the value chain and throughout their life cycle. They include the Material Circularity Indicator (MCI), the Circular Economy Indicator for the Prototype (CCEIP).

The European Commission has created and recommends the following monitoring tools at the macro level:

- Composite indicator Eco-Innovation Index (Eco-Innovation Scoreboard and Eco-Innovation Index),
- Resource Productivity Indicator.

According to Eurostat, the monitoring of the circular economy within the EU member states should focus on four thematic areas:

1. Production and consumption: self-sufficiency in raw materials for production, green public contracts, waste production, food waste.
2. Waste management: recycling rate, specific waste streams (packaging, biological, electronic waste, etc.).
3. Secondary raw materials: contribution of recycled materials to the raw materials demand, trade in recyclable raw materials between EU member states and the world.

4. Competitiveness and innovation: private investment, jobs and gross value added, patents related to recycling and secondary raw materials as proxies for innovation (Kislingerová & al., 2021, p. 256).

b) Initiatives of international organizations in support of the circular economy

Initiatives and projects of international organizations have supported research, projects, and measures to support the circular economy. Among them, for example, the International Organization for Standardization and its Technical Committee have been cooperating with 71 members since 2019 with the aim to promote the circular economy at the global level by incorporating the ideas and practices of the circular economy into the management of projects at the local level in the regions.

Regulation ISO/TC 323 states that circular economy contains new technologies in urban agglomerations, including a) asset tagging determining the condition and availability of products, components and materials for re-use by other consumers; b) geo-spatial information (asset tagging + GPS) to detect the movement of materials, components and products for the needs of logistics and production organization; c) big-data analysis (in-time analysis) of huge data sets from many sources, which enable the connection of previously separate chains (e.g. logistics) and others.

Initiatives of world banks and financial asset management companies have financially supported research focused on the circular economy in terms of technological changes that contribute to the shift away from the linear economy, as well as projects focused on the discovery of new technological procedures in accordance with the circular economy.

They provided investments in EU member states (within the EU cohesion policy) with the aim to accelerate the transitioning to a circular economy.

The OECD has contributed to the formulation of the government policies in circular economy, social policy, educational policy, environmental policy, etc.

The OECD programme "Circular Economy in Cities and Regions" (2020) has been supporting the transitioning of regions and cities to a circular economy by:

a) measuring - developing an indicator framework (identification of indicators) for decision-making and circular economy strategies evaluation,
b) learning - engaging multi-level dialogues in cities and regions to identify challenges and opportunities (by means of SWOT and PEST analyses),
c) sharing – favouring peer-to-peer learning, best practice, and lessons from international experience.

The OECD Synthesis report indicates that "today, cities demand almost two-thirds of global energy, produce up to 80% of greenhouse gas emissions and 50% of global waste. The circular economy can provide a policy response to cope with the above challenges, as a driver for economic growth, jobs, and environmental quality" (OECD, 2020).

Therefore, cities and regions have a key role to play as promoters, facilitators, and enablers of circular economy. Adequate economic and governance conditions should be in place to unlock its potential.

c) Enforcement of the circular economy principles at governance levels

New approaches concern mainly the promotion of the circular economy at state governance and public administration (central level, regional level, municipalities, and cities).

The new approach is promoted especially in cities that become intersections of selected aspects of the circular economy:

a) concentration of population and involvement of citizens in projects and initiatives, the possibility to influence consumer behaviour and improve feedback,

b) concentration of waste in cities, where waste can serve as a resource (transformation of waste into raw material),
c) circular planning, meaning zero waste and maximization of all resources,
d) new models of public purchases and public procurement (shift of public procurement and public contracts from previous criteria such as ownership, operation, and disposal of assets to criteria such as rental and transition to operational models based on services),
e) the establishment of creative economy incubators, based on the concentration of enterprises and business entities in cities, and the utilization of creative potential of entrepreneurs that is necessary for the development of the circular economy.

3.4 Strengths and weaknesses of the circular economy in practice

In tertiary education and lifelong learning, it is becoming obligatory to familiarize target groups with weaknesses and strengths of the circular economy. Weaknesses and unused options should be pointed out, in particular:

- insufficient financial resources, financial risks, weak involvement of the private sector,
- inadequate legislative regulation, inconsistent and unsystematic approach at public administration and governance,
- the absence of a comprehensive approach to the circular economy as a multi-level phenomenon, the lack of "political courage and will",
- poor awareness of residents and decision-making authorities about the benefits of circular economy projects, weak project results dissemination, lack of information, and cultural barriers,
- lack of trained human resources (managers, senior staff, and employees), as well as the lack or absence of technical solutions.

A special topic represents the risks that the circular economy brings with it. At its start, significant imbalances of an economic nature may arise with an impact on the efficiency of production and the competitiveness of producers, as well as imbalances derived from collateral effects (potential criminal activities, abuse of the system for other purposes).

On the other hand, it is significant and beneficial to point out examples of good practice and measures taken by developed countries to strengthen the real start of the circular economy. They include:

a) Promotion of exchange and synergistic effects between primary and secondary producers, producers of raw materials, industrial design specialists and waste disposal companies, as well as promotion of recycling synergies directly between industry and traditional waste disposal companies.
b) Funding of projects from public funds or PPP (public-private partnership) scheme for pilot projects, concerning flows of recyclable materials with recycling potential, which represent advanced recycling technologies.
c) Research of materials and products development and criteria for measuring the circular economy.
d) Labelling of products during the entire life cycle and certification, enabling the identification of the material content of products and secondary raw materials at any time so that their recycling potential can be used at any time, and as an argument for sale.
e) Modularization of product components (replacement, repair, renovation, reconstruction, acquisition of volume materials).
f) Operation of economically functioning recycling systems for complex products, based on a competitive advantage.

g) Emergence of a digital, temporary, and spatial cluster related to the material composition of consumer durables, decrease of resource consumption, and increase of resource efficiency from ecological and economic aspects.

4. CONCLUSION

The idea of circulation of resources emerged gradually, recognizing that available resources, especially energy resources are limited. Practice shows that there are huge possibilities for circular solutions, however, there are considerably fewer possibilities that are financially neutral or profitable from the start or in a sufficiently short time. Research is a tool for required technological and logistical state of art.

The current position of the circular economy is very specific, as it represents a theoretical framework of new requirements and challenges, briefly labelled as a new paradigm.

Raising awareness, developing knowledge and competences, and forming attitudes in target groups by means of specific education and training on the circularity and the circular economy represent new challenges for labour markets and education markets.

Acknowledgement

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BUSINESS INTERRUPTION LIKE AN INCREASINGLY FREQUENT THREAT TO THE BUSINESS ENVIRONMENT

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***Katarína BUGANOVÁ*[41]**

Abstract: *Currently, business interruption is an increasingly frequent threat caused by changes in the business environment. The impact of the COVID-19 pandemic caused significant changes, which primarily affected SMEs in Slovakia but also enterprises abroad. In connection with other threats offered by the external environment to enterprises, the perception of the operability of enterprises as well as ensuring their stability and functionality has changed. The decisions faced by enterprises are increasingly important and decisive for the further direction and development of the enterprise. As part of the contribution, we want to draw attention to current changes in the business environment, present the results of our research and highlight the possibilities of solving the given situation based on risk management. We perceive risk management as an essential tool for ensuring and increasing the resilience of enterprises. Importance is placed on the coordination of activities within individual levels of enterprise management and ensuring preparedness and appropriate response.*

Key words: *business environment, COVID-19, enterprise, interruption, risk management*

JEL Classification: *L21, L26, M51*

1. INTRODUCTION

Enterprises are constantly exposed to a large number of risks (in areas related to quality, safety, production, human resource management, etc.), which makes it difficult for managers to develop effective risk management strategies. In recent years, the risk of business interruption (interruption of business operations) has become a significant problem that has caused a slowdown in the world economy. SMEs, which are the engines of the world economy and the main source of job creation, are the most susceptible to business interruption. Steinerowska-Streb (2022) claims, that key business survival factors include, for example, ability to innovate. Currently, in this constantly and rapidly changing business environment, enterprises must adapt to adverse changes in the environment so that they can function at all. At the same time, on the other side, it is necessary to realize that enterprises need to keep pace with customer requirements. The relationship between innovation and business resilience is closely linked to the need for constant flexibility of enterprises and the activation of business activities to continuously improve processes, products, and services (Leon-Gonzalez 2022; Steinerowska-Streb 2022; Xu-He 2022).

The end of 2019 and the beginning of 2020 were special for enterprises around the world. The economic growth and progress of countries slowed down the emergence of the COVID-19 pandemic. The COVID-19 pandemic has had a significant impact on the main indicators of the economy around the world and has caused several changes in people's social and economic lives. Most of the countries in the world had national borders locked, while the entry of people from other countries was prohibited. To ensure the protection of people's lives and health, individual countries adopted measures to prevent the spread of the pandemic, which also affected the business environment. Restrictions on the movement of people were imposed, which accelerated the unemployment problem and disrupted global trade chains. National governments have been forced to adapt their trade policies, which has changed the business environment and put a lot of pressure on enterprises, disrupting supply chains and

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reducing the amount of global production. The impact of the pandemic was reflected not only in the limited movement of people between countries but also in the overall logistics of products in international trade and sales. Global disruption has affected enteprises processes and strategies that are critical to international business. Disruption of stability was felt primarily by SMEs around the world, while the COVID-19 pandemic affected all business sectors. The fluidity of the operational capabilities of enterprises began to be increasingly disrupted by measures against the pandemic, which led to the permanent closure of enterprise operations (Earl 2022; Sarker 2022; Zhao 2022).

On the one side, the pandemic can be understood as a threat that caused enterprise operations to be interrupted, and at the same time, on the other side, the pandemic as an opportunity that forced enterprises to invent new ways of doing business (sales methods). The brick-and-mortar operations of the enterprises remained obsolete and, despite constant digitization, the overall sales were forced to move to the internet space. If enterprises did not have their online store (e-shop) during the pandemic, they either created one if they wanted to maintain the enterprise's activity or, last but not least, they disappeared because they were unable to maintain themselves on the market under the given conditions. In this quick way, an opportunity was found, a way to adapt to changes, but not every enterprise knew how to adapt sufficiently and efficiently. In some cases, this rapid implementation avoided the effect and caused only increased costs for the enterprise, as the market is highly competitive. The COVID-19 pandemic has become a challenge for business sustainability (Leon-Gonzalez 2022; Zeirenger 2022).

With the new threat in the form of the COVID-19 pandemic, there are also other new risks that can threaten business activity. SMEs have the most vulnerable position on the market. Mthivane (2022) claims, that failure to manage risk in SMEs might be one of the reasons why SMEs in developing countries experience difficulties to grow and be sustainable. We can attribute this to the lack of knowledge, the enterprise's knowledge of risk management and handling, as well as unqualified management in the field of risk management. Due to insufficient preparation of the enterprise's management, it is possible to expect errors in response to the crises that have arisen and thus cause high losses for the enterprise. The aim of risk management is the identification, analysis, and evaluation of risks to minimize the risk and the resulting impacts on the enterprise (Mthivane 2022; Zeirenger 2022).

2. METHODOLOGY

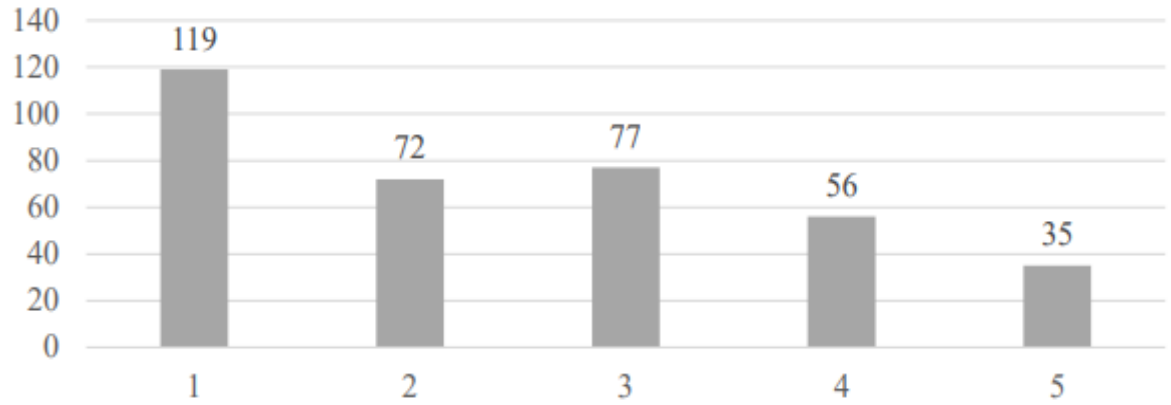
Scientific methods such as analysis and synthesis were used in the preparation of the article, specifically in the processing of the part aimed at identifying the current state of the problem being addressed. In the introductory part, we worked with sources from domestic as well as foreign authors, using scientific and professional sources primarily from the field of risk management. Through the UNIZA grant project entitled: Model of risk management in connection with the impact of the COVID-19 pandemic on the business environment in the Slovak Republic, a nationwide survey focused on the interruption of enterprise operations was conducted. The results of the survey were obtained using a questionnaire distributed among SMEs in the Slovak Republic, while the questions dealt with the impact of the COVID-19 pandemic and the identification of the impact of the pandemic on SMEs in Slovakia. The questionnaire consisted of 22 questions, which were aimed at classifying respondents into individual groups according to the business sector, the number of employees, and the duration of the business, it contained questions related to the current situation associated with the COVID-19 pandemic and questions focused on the risks that enterprises may encounter during of its operation on the market.

3. RESULTS

The interruption of the operation of SMEs in Slovakia but also in other foreign countries was largely caused by the COVID-19 pandemic as well as in connection with other factors (changes) in the business environment. Based on the need to confirm the claims, a nationwide survey was conducted in 2021 focused on the impact of the COVID-19 pandemic and the identification of the impact of the pandemic on SMEs in Slovakia. 359 Slovak enterprises participated in the survey out of 1145 questionnaires sent out during the ongoing COVID-19 pandemic. 179 (50%) micro-enterprises, 122 (34%) small enterprises, and 58 (16%) medium-sized enterprises participated in the survey. In terms of industry, 67 (19%) enterprises from business services, 38 (10%) from construction, 12 (3%) from agriculture, 28 (8%) from transport and information, 36 (10%) from industry and the largest representation had enterpises from the field of accommodation and catering 75 (21%) and other services 103 (29%).

In the questionnaire, one of the questions was whether the COVID-19 pandemic affected the business of SMEs in Slovakia (Figure 1).

Figure 1: Respondent's answers to the survey question: Has the situation associated with the COVID-19 pandemic affected your business (1 - definitely yes, 5 - not at all)?



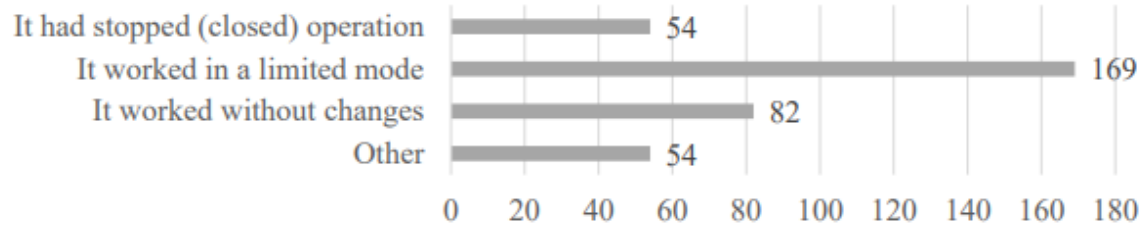
Source: author

119 respondents answered that the pandemic definitely affected their business. At the same time, 72 respondents answered that the pandemic affected their enterprise. 77 respondents gave a neutral answer, leaning neither to yes nor to no. 89 respondents said that it did not affect their business at all.

It was the COVID-19 pandemic that affected every single environment of social life, from the social environment to the business environment. The business environment itself is very variable, with various factors influencing the operation of enterprises. In 2021, one of the most significant factors was the COVID-19 pandemic and the measures taken with it by the governments of individual countries.

Another question from the questionnaire was whether, during the ongoing period of the COVID-19 pandemic, enterprises were closed, or operated in a limited mode or without changes (Figure 2).

Figure 2: Respondent's responses to the survey question: During the COVID-19 pandemic, your enterprise:



Source: author

169 respondents said that they operated in a limited mode during the pandemic, which is the highest number of enterprises. 82 respondents were operating without changes and 54 enterprises had stopped (closed) operations.

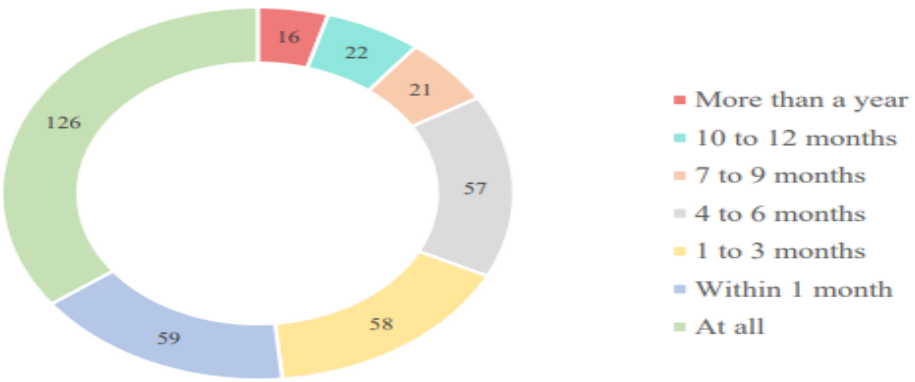
In the case of other answers, the enterprises provided an addendum to the answers:

- the enterprise was open, as it was not closed according to the law, but there were no performances,
- worked in home office mode,
- temporary division of workers into bubbles,
- worked without changes with strict pandemic and internal measures,
- with increased workload and fulfillment of duties,
- a partially limited regime due to the creation of backups in case of the spread of COVID-19 in workplaces.

The pandemic period continues (albeit in a milder mode). Concerning SR, pandemic measures are constantly changing depending on the intensity of the spread of the pandemic. Since March 2019, the Slovak government has adopted pandemic measures in the form of restrictions that primarily affected the business environment, causing significant impacts on enterprises. During this period, some enterprises had to stop (close) their operations for several months, which also follows from the answers of the enterprises in Figure 2.

In the following Figure 3, we can see the responses of enterprises to the question from the questionnaire, which focused on the interruption of enterprise operations as of 31.10.2021 (during the pandemic period).

Figure 3: Respondent's answers to the survey question: During the COVID-19 pandemic, you had interrupted operations on (as of 31.10.2021):



Source: author

126 enterprises reported that they had no business interruption during the pandemic. 59 respondents had their operations interrupted for less than one month, 58 respondents had their operations interrupted for more than a year to 3 months. 57 enterprises had interrupted operations for 4 to 6 months, 21 enterprises had 7 to 9 months, 10 to 12 months had 22 enterprises. Even for more than a year, 16 enterprises had their operations interrupted.

Figure 3 shows that 35% of SMEs in Slovakia from the total number of 359 respondents did not have their activity suspended. 16% of SMEs had interrupted operations within 1 month, and the remaining 49% of SMEs in Slovakia had interrupted operations for at least a month or more.

4. DISCUSSION

The survey shows that SMEs in Slovakia were not prepared for the emergence of the COVID-19 pandemic and the measures taken to deal with it. Enterprises were not able to manage the situation that arose, which was shown by their lack of operability during the ongoing pandemic. The inability of enterprises to adapt to changes in the environment and the lack of resources within the enterprise contributed to the permanent closure of SME operations in Slovakia. Enterprises lacked prevention and the provision of preventive measures, thanks to which they would be able to deal with environmental changes. It follows from the above that the management of the enterprise was not prepared and did not know how to react.

Appropriate integration of risk management into the management of the enterprise would ensure knowledge in the given area, which would be usable in the event of another crisis (another change in the environment). The complex integration of risk management into the management of the enterprise would contribute to ensuring prevention and preventive measures, while the enterprise would be able to react even to an emerging crisis with minimal losses. At the same time, by connecting the implementation and risk management with business continuity management to the management of the enterprise, it is possible to achieve the resilience of the enterprise at all its levels.

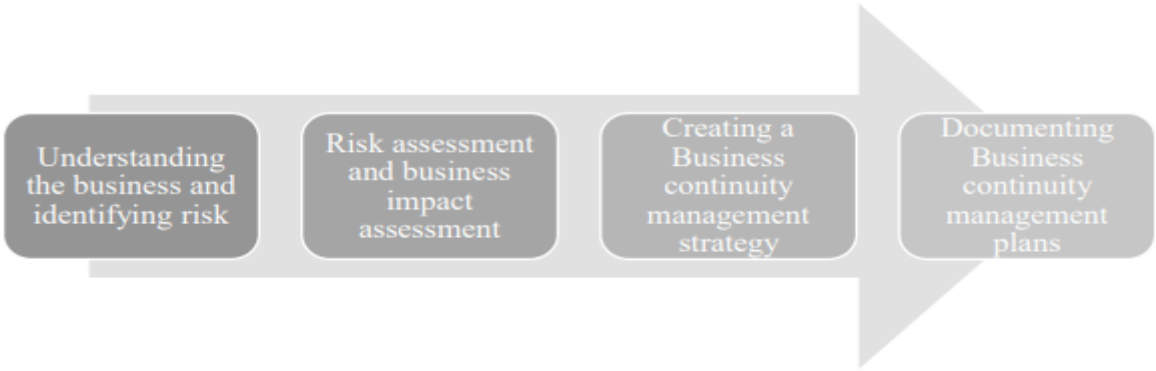
5. PROBLEM SOLUTION

The connection between risk management and business continuity management consists in a better understanding of the enterprise and its individual activities that ensure the operation of the enterprise, as well as in the prevention of negative phenomena that can affect the enterprise. The importance of risk management and business continuity management lies, first of all, in the preparedness and thereby achieved resistance of the enterprise to face unexpected situations. The implementation of these two areas would improve the reaction and resistance of the enterprise to extraordinary events, but also the overall course of the processes performed, with regard to the operation of the enterprise. Thorough prevention and integration of risk management and business continuity management into all business activities reduces negative effects that may occur during the life of the enterprise. Effective risk management helps to maintain the stability and competitiveness of the enterprise, as well as to ensure its resilience and operational viability.

Business continuity management has a complementary nature and serves to support risk management, while helping to clearly understand operational and business risks and their consequences within the enterprise. It can also be understood as the prevention of risks and the subsequent management of continuity as a response to risks. The appropriate selection of methods, techniques and procedures can help activate and create a resilient enterprise system. As part of business continuity management, it is possible to use the Business impact analysis method, which can be used in the entire cross-section of the process. Business impact analysis is a tool with which it is possible to ensure compliance with legal requirements and data

security requirements for recovery (restoration) from the interruption of business activities due to its effective functioning (Sidkar 2017, Szabados 2008). The use of Business impact analysis and its implementation in the enterprise consists of the following steps (Figure 4):

Figure 4: Steps of implementing Business impact analysis into the enterprise



Source: According to Business Continuity Management. Manager´s Handbook. Szabados (2008)

Figure 4 shows the sequence of steps in the processing of Business impact analysis as part of the implementation in the enterprise. Through Business impact analysis and these steps, it is possible to achieve the alignment of activities in the entire cross-section of the process, from understanding the business to the management of business flow planning to prevent highimpact risks and unnecessary losses (Sidkar 2017, Szabados 2008).

6. CONCLUSION

The business interruption has become an increasingly frequent threat caused by changes in the business environment. The constantly changing business environment in connection with the emergence of the COVID-19 pandemic caused significant changes, which primarily affected SMEs all over the world. The adoption of measures against the spread of the COVID-19 pandemic limited the functionality of enterprise operations as well as caused incalculable impacts on international trade. The decisions faced by the companies were difficult and influenced their further direction and development. Business sustainability has become a significant challenge, the extent of which has varied with the capabilities and skills of enterprises.

Considering the results of the survey, we can conclude that enterprises were not prepared for the situation associated with the COVID-19 pandemic. The management of the enterprise was not sufficiently prepared to handle the given situation and there was a lack of prevention. In this perception, we consider risk management to be an essential tool for ensuring and increasing the resilience of enterprises. We see the importance in the implementation of risk management in the management of the enterprise, thanks to which the activities within the individual levels of the enterprise's management would be harmonized, preparedness and an appropriate response would be ensured.

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MODEL UDRŽATEĽNÉHO SOCIÁLNEHO PODNIKANIA

SUSTAINABLE SOCIAL ENTREPRENEURSHIP MODEL

Daniela NOVÁČKOVÁ [42]
Silvia MATÚŠOVÁ [43]

Abstrakt: *Vedecký príspevok je zameraný na analýzu podmienok pôsobenia sociálneho podniku v trhovej ekonomike s poukázaním na jeho udržateľnosť a odolnosť voči iným konkurentom na trhu. Na základe faktov a dát získaných z Registra sociálnych podnikov porovnávame konkrétnu činnosť sociálnych podnikov. Prínosom príspevku je poukázať na skutočnosť, že podniky tohto druhu prispievajú k rozvoju zamestnanosti znevýhodnených a zraniteľných osôb, čím sa posilňuje sociálna, hospodárska, ako aj územná súdržnosť. Zámerom vedeckého príspevku je otvoriť diskurz o význame sociálnych podnikov majúce celospoločenský význam a sú súčasťou sociálnej ekonomiky. Zároveň poukazujeme na skutočnosť, že aj sociálne podniky svoju činnosť môžu vykonávať v súlade s cieľmi udržateľného podnikania a rozvoja v rámci európskeho hospodárskeho priestoru.*

Kľúčové slová: *právny predpis, sociálna ekonómia, sociálny podnik, udržateľnosť*

Abstract: *The scientific paper is focused on the analysis of the conditions in which the social enterprise in the market economy operates, pointing out its sustainability and resistance to other competitors on the market. Based on facts and data obtained from the Register of Social Enterprises, the authors compare the specific activity of social enterprises. The benefit of the contribution is to point out the fact that enterprises of this type contribute to the development of employment of disadvantaged and vulnerable persons, thereby strengthening social, economic and territorial cohesion. The purpose of the scientific contribution is to open a discourse on the importance of social enterprises that have a societal significance and are part of the social economy. At the same time, the authors point out the fact that even social enterprises can carry out their activities in accordance with the goals of sustainable business and development within the European Economic Area.*

Key words: *legal act, social economy, social enterprise, sustainability*

JEL Classification: *F 66, K31, L31*

1. INTRODUCTION

The growing importance of social entrepreneurship is also supported by the European Union (EU) by adopting measures that help the social economy to develop. The sustainability of social enterprises is determined by an appropriate legal framework, their self-sufficiency, a qualified workforce and the ability to introduce innovative measures. Social enterprises are entities that participate in promoting the employment of disadvantaged and vulnerable groups. As a result of membership in the European Union, the Slovak Republic has adapted the legal framework related to business to current trends, which include sustainable business, business with a social dimension. Freedom of entrepreneurship is one of the tools to carry out business activities freely, while freedom of business also has its limits. Doing business within the European Economic Area is currently also determined by the development and obligations arising from the EU Green Deal. (COM/2019/640 final.)

Among other things, the European Green Deal supports the development of sustainable business, sustainable development, sustainable products and the circular economy. It is a

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social enterprise that can be the driving force of sustainable business, where the economic development of the enterprise with minimal impacts on the environment is preferred. The adaptation of the company's social goals requires the inclusion of environmental thinking in all decision-making processes, but above all in investment planning and its implementation. At the start of new measures, sustainable social enterprises should also consider the protection of the environment, favourable working conditions for employees and disadvantaged employees, as well as the support of good relations between the company's management and employees as an important means of productivity. The creation of suitable conditions for the performance of decent work is also to be considered. Development of human resources, equal treatment of employees at the workplace, vocational education and training of employees are part of the sustainable social enterprise model and the overall strategy how the model should be implemented.

2. OBJECTIVE AND METHODOLOGY

The objective of the paper is to investigate social enterprises in connection with their sustainability and resilience on the market, as well as to identify obstacles to the implementation of activities by social enterprises. In this context, we formulated three research questions. Based on the available scientific and professional literature and other available sources (legal regulations), we analysed the concept of social enterprise and social entrepreneurship. We also identified systemic signs of agreement between the approach of different authors. For comparison, we have also included the term social entrepreneurship as defined by the European Commission (2022).

The main research questions were formulated as follows:

Q1 What is the legal framework concerning social entrepreneurship?

By the analysis of valid legislation and legal logic, we clarified the concept of social enterprise, identified the system and conditions of social entrepreneurship. Based on data from the Register of Social Enterprises we also identified categories of enterprises and legal forms of existing enterprises.

The second research question focused on the sustainable social entrepreneurship in relation to the obligations of the European Union and its member states resulting from the European Green Deal.

Q2 How should the strategy of a sustainable social business model be formulated, if the sustainability as an imperative for the to the strategy of sustainability business should be considered?

The third research question concerned the barriers to sustainable social entrepreneurship and their elimination. When searching for an answer to the given question, we reflected the results of our survey.

Q3 What are the barriers to sustainable social entrepreneurship?

In relation to the third question, a structured interview by means of information technology platform was carried out in September 2022. The 40 respondents represented existing social enterprises in Slovakia, and provided answer regarding obstacles to social entrepreneurship. Even the results of a smaller number of respondents can be considered relevant, because they reflect the real opinions of respondents who work in social enterprises. The aim of the survey was to identify obstacles to social entrepreneurship in practice, including the experience of employees in existing enterprises. The results of the survey were summarized and included in the end of the paper.

3. SOLUTION OF THE PROBLEM – DISCUSSION

The topic of social entrepreneurship has been addressed by several authors, while their opinions and positions have shown systemic signs of agreement. Johanna Mair and Ignasi Martí (2006) are of the opinion that "*social entrepreneurship combines the creation of economic value and social value, when the company operates on the market of goods and services similarly to companies focused exclusively on making profit, in this case, however, the main goal is to address a social problem and not to generate profit for the owner or owners*."

S. Fuentes and H. Valenzuela-Garcia argue that: "*it is a sector appropriated and leaded by financial and public actors based on a reconfigured and potentially profitable third sector in times of economic hardship. Consequently, not all initiatives of the third sector are included within the definition of a social enterprise, however, only those options that are more profitable and present a better market profile: companies that employ minority and vulnerable sectors of the population, that create an innovative product with and added value (better if it is ecological, healthy or respectful with the environment) and great potential demand."*

Kovalančíková, V. (2014) shares the opinion that*: "social entrepreneurship is a new area of economic activities, which is characterized by the linking of economic and social goals. It thus represents a new dimension of unconventional business dynamics, which is at the same time the bearer of social innovation and social development, as well as a new impetus for economic growth."*

A social enterprise is a stake-holder in these relations. According to Škobla et al. (2018), "*social enterprise thus operates on the regular market of goods and services and competes with other business entities. However, prioritizing the social goal over profit puts a social enterprise at a disadvantage compared to those business entities that are focused exclusively on profit."*

The topic of social entrepreneurship is also included in the portfolio of the European Union and other international organizations. The European Commission (2022), in the document What are social enterprises? clarifies social entrepreneurship as business of

- *those for who the social or societal objective of the common good is the reason for the commercial activity, often in the form of a high level of social innovation,*
- *those whose profits are mainly reinvested to achieve this social objective,*
- *those where the method of organisation or the ownership system reflects the enterprise's mission, using democratic or participatory principles or focusing on social justice.*

In the search for an answer to the first research question, we have considered two important secondary legislation acts of the European Union:

a) Regulation (EU) No 346/2013 of the European Parliament and of the Council of 17 April 2013 on European social entrepreneurship funds (OJ L 115, 25.4.2013).

b) Regulation (EU) No 1296/2013 of the European Parliament and of the Council of 11 December 2013 on a European Union Program for Employment and Social Innovation and amending Decision No 283/2010/EU establishing a European Progress Microfinance Facility for employment and social inclusion (OJ L 347, 20.12.2013).

The mentioned regulations contribute to the consolidation of the social dimension of the EU internal market and to support the creation of quality and sustainable jobs.

Slovak legislation on social entrepreneurship, Act No. 112/2018 on the social economy and social enterprises and on the amendment of certain laws of May 2018 established the conditions of social entrepreneurship and social enterprises. This legislation is fully harmonized with secondary EU acts and established explicit conditions for companies with a social impact:

a) the goods or services they produce, supply, provide or distribute do contribute to the achievement of a positive social impact, or the method of their production or provision does contribute to it,

b) they will make use of more than 50% of the profit after taxation from the economic activity, the main goal of which is to achieve a positive social impact as the main goal,

c) interested persons are involved in the management of economic activity, the goal of which is to achieve a positive social impact.

Due to the Slovak legislation, the social dimension of the enterprise is determined by the social impact, the investment of part of the profit into the social enterprise and the democratic management of the enterprise.

Based on the facts (authors' opinions and legislation), the basic characteristics of a social enterprise can be identified as follows:

a) A social enterprise carries out activities in its own name, on its own responsibility, but not for the purpose of making a profit, but for the purpose of fulfilling a social goal - the employment of disadvantaged persons and the provision of services to disadvantaged groups.

b) It facilitates access to employment for vulnerable groups (30%).

c) Part of the generated profit should be reinvested in the development of the social enterprise.

d) The social enterprise is managed in an entrepreneurial spirit, but the emphasis is placed on responsibility, transparency and a democratic system of enterprise management, ie. involving workers in the enterprise's activities.

The European Union requires all member states to introduce EU rules in relation to social entrepreneurship and to create suitable conditions for social entrepreneurship and the proper functioning of the EU internal market. For this purpose, the European social entrepreneurship funds supporting the social dimension of business was established. We consider it correct that new business models have social and environmental dimensions. These models are characterized by sustainable employment, guarantee of adequate social protection that prevents poverty, improvement of working conditions and the participation of the public and private sectors. The introduction of new business models to address urgent social needs requires the rationalization of measures supporting the activity of social enterprises. This includes the institute of direct (investment) aid and indirect financial aid (reduction of the VAT rate in the amount of 10% of the tax base), which has the characteristics of state aid. State aid is one of the appropriate tools for the development and sustainability of social entrepreneurship. In this context, we share the opinion that social enterprises are able to act as carriers of social change, because they support inclusive labour markets and social services accessible to all, while they can also use the state aid system in accordance with Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty. Slovak Act No. 112/2018 Coll. on Social Economy and Social Enterprise offers financial aid for social enterprises but the current arrangements are largely reliant on European structural and investment funds which are limited to the duration of the programming period.

In order to promote common interests and goals in the field of social entrepreneurship, the Association of subjects of social economy was established. It is an organization of the social economy sector, an interest association of legal entities based in Banská Bystrica. The platform is interested in promotion of the social economy development in Slovakia and with its activities presenting the successes of existing social enterprises or other projects. (Aliancia pre sociálnu ekonomiku,2022)

Registered social enterprises in Slovakia

According to the Social Enterprise and Social Enterprise Act (2018), a social enterprise does not need to be registered, which means that alongside registered social enterprises there are also a number of unregistered enterprises. As of 1 October 2022, the Register of Social Enterprises, maintained by the Ministry of Labour, Social Affairs and Family of the Slovak Republic states that there are 530 registered social enterprises. According to the date of establishment, the least registered social enterprises were established in Bratislava Region (16), Nitra Region (30) and Trnava Region (31). (Catalogue of social enterprises.2022)Registered social enterprises state have mentioned that the percentage of employed disadvantaged persons and vulnerable persons is a measurable indicator of a positive social impact.

The social enterprises carry out activities in the sector of construction, education, provision of social services, such as operation of a laundry, production of bakery and confectionery products, textile production, wood processing, etc. It is clear that the social enterprises demonstrate a wider spectrum of business activities included in the service sector. Out of the registered social enterprises, we selected as an example MEPOS SNV s.r.o. (Ltd.), based in Spišská Nová Ves and founded in 2019 as a municipal enterprise. The MEPOS social enterprise fulfils public-beneficial goals, including the maintenance and care of public spaces and greenery. The company's social goals also include the employment of disadvantaged groups of the population. According to data published on the MEPOS website, the social enterprise employs 25 people, out of which 9 are disadvantaged. (Mestský podnik.2022) The company is expanding its activities and, due to the in the FINSTAT database, it is one of the prosperous companies with a profit of EUR 93,216 in 2021. (FINSTAT.SK.2022)

The Slovak legislation concerning social entrepreneurship and social enterprises listed since 2018 the types of social enterprises (§11). Table 1 presents the types of registered enterprises divided according to social impact, table 2 presents the division of enterprises according to the focus of the subject of activity.

Table 1: Types of registered enterprises

Types of businesses	The purpose of the enterprise	Legal forms - existing since 2018
Public benefit enterprise	achieves a positive social impact in fulfilling the public interest	limited liability company, social cooperative, civil association
Community enterprise	achieves a positive impact in fulfilling the community interest	limited liability company, social cooperative, civil association

Source: Act No. 112/2018 on social economics and social enterprises (own processing, 2022)

Table 2: Types of enterprises according to the subject of activity

Types of businesses	Social impact	Conditionality
Integration enterprise - public benefit enterprise	promotes employment through the employment of disadvantaged or vulnerable persons.	the integration enterprise employs at least 30% of the total number of employees of disadvantaged persons and vulnerable persons in an agreed employment relationship of at least half of the established weekly working hours,
Social housing enterprise - public benefit enterprise	provides socially beneficial rental housing, which is a social service of general interest (No. 3 of Regulation 1304/2013). Positive social impact is measured in the social housing enterprise through the number of apartments under construction, reconstruction or acquired apartments or by the percentage of rented apartments.	Socially beneficial rental housing is intended for groups of people with low incomes and people with severe physical disabilities.
General registered social enterprise	achieves a positive social impact through the fulfilment of public or community interest by providing any of the socially beneficial services.	§ 2 par. 4 of Act no. 112/2018 Coll. provision of services: health care, social assistance, environmental protection and population health protection, etc.

Source: Act No. 112/2018 on social economics and social enterprises (own processing, 2022)

As for the size category of enterprises, the category of small and medium-sized enterprises prevails as of September 30, 2022. Entrepreneurial activity is developed, but in some cases the business is terminated. We observe that registered social enterprises do come into existence and on the other hand they disappear from various reasons. According to the register of social enterprises, 13 registered social enterprises ceased to exist as of August 31, 2021. In general, it can be concluded that based on the data published in the Register of Social Enterprises, the activity of social enterprises is focused on work integration while achieving their socially beneficial goals. No less insignificant is the fact that, due to the Catalogue of Social Enterprises (2022), as many as 5,700 employees work in social enterprises in various positions.

A model of sustainable social entrepreneurship - a new generation model

The Article 3(3) of the Treaty on European Union aims to establish an internal market that works for the sustainable development of Europe, based, among other things, on balanced economic growth and a high level of protection and the improvement of the quality of the environment. Sustainability has long been central to the Union project, and the Treaty on European Union and the Treaty on the Functioning of the European Union (TFEU) reflect its social and environmental dimensions (Regulation (EU) 2020/852, OJ L 198/2020).

Sustainable business can also be understood as responsible business in the context of the Slovak Republic's obligations arising from its membership in the European Union, currently including sustainable economic development and a green economy among its priority goals. If we adhere to the taxonomy related to Regulation (EU) 2020/852, the following criteria for sustainable business with a social dimension should be considered:
a) The ecological approach of social enterprises that means the institutions of a more ecological economy with a positive effect on regional development are preferred.

b) The circular economy approach, focusing on the reduction of waste in the production process.
c) The energy efficiency approach.
d) The social sustainability approach interlinked with labour relations.
e) The CSR (corporate social responsibility) approach focusing on responsible business or distribution of food.
However, there are several opinions related to the principle of sustainability. Schaltegger, S. et al. (2015) claims that: „*A business model for sustainability helps describing, analysing, managing, and communicating (i) a company's sustainable value proposition to its customers, and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social, and economic capital beyond its organizational boundaries.*"
It can be accepted that the components of sustainable business are natural, social, and economic capital. The European Union in a secondary act, characterized by an element of superiority, more precisely defines sustainability factors. Provision of Article 2 (24) Regulation EU 2019/2088 states "sustainability factors mean environmental, social and employees´ matters, respect for human rights, anti-corruption and anti-bribery matters". In principle, we understand sustainable social business as business that neither violates environmental nor social goals, while the management decisions taken are in accordance with the applicable legal framework.

The model of a sustainable social enterprise is also determined by the key performance indicators of the enterprise and the financial health of the enterprise. Considering the difficulty and the conditions of social entrepreneurship as a social entrepreneurship model, we recommend the establishment of a work-integrating enterprise that will operate in the field of food production and processing of local products.

The model proposed by us is based on the fact that this type of business does not demonstrate high demands for education and IT skills. Another reason is the fact that the European Union is increasingly promoting the approach from 'Farm to Fork', which is also part of the European Green Agreement (COM/2019/640 final). This social enterprise model could be characterized by self-sufficiency, competitiveness and sustainability, as the food industry and the processing and sale of (local) products are prospective. This model of business basically connects employment policy, social assistance and inclusion, as well as community development at the regional and local levels.

In our opinion, the development and sustainability of social enterprises is determined by suitable conditions for social enterprises emerging in the market, the provision of state aid, and the provision of financial products by commercial banks designed specifically for social enterprises. The sustainability of a social enterprise is dependent on the quality of human resources, including the social and emotional well-being of individuals, and high degree of humanity and moral qualities. The proper and smooth operation of social enterprises requires knowledge sharing and interaction with other conventional enterprises, which can contribute to the acquisition of new practical skills of employees.

Identification of obstacles to the operation of social enterprises

Despite suitable legal instruments for the development of social entrepreneurship, and the increase in number of social enterprises, as documented by the data in the Register of Social Enterprises, there are obstacles to the launching and development of social entrepreneurship. The idea and motivation to establish a social enterprise are not enough. The basis of any economic activity is associated with financial resources, so social enterprises are financially dependence on financial resources. With the aim to identify business obstacles, we carried out interviews with 40 respondents and representatives of existing social enterprises in three

regions of Slovakia (Prešov Region, Banská Bystrica Region and Bratislava Region) in September 2022. Interview questions were focused on obstacles that could hamper the lauch of social entrepreneurship. The findings were sorted on the scale from a) to e) showing the circumstances that could obstruct the launch of social entrepreneurship:
a) the lack of financial resources limits the continuous development (100%);
b) the employment of disadvantaged persons could lead to a reduced labour productivity (98%);
c) the lack of experts skilled in social entrepreneurship and state aid on the labour market (87%);
d) the lack of relevant work habits and skills in socially disadvantaged employees (85%);
e) low competitiveness in goods or services and offer at lower prices (76%).
Since social enterprises have been operating on the market since 2018, the survey also confirmed the limited experience in the operation of the entities and the law enforcement.

4. CONCLUSION

Through its activities, the European Union directly promotes the system of establishment and operation of social enterprises and the social economy. Currently, the process of European integration is deepening and the topics related to sustainability and the Recovery and Resilience Plan are coming to the fore. It has been confirmed that significant changes occurred also in social entrepreneurship, the sustainability and competitiveness of social enterprises. On the basis of facts and data obtained from the Register of Social Enterprises, we clarified the concepts of social enterprise and social entrepreneurship. Based on the activities of registered social enterprises, we elaborated a model of a social enterprise that could withstand competition pressures and become sustainable. The operation and sustainability of social entrepreneurship is not possible without state aid provision. Environmental aspects and maximal social impact were confirmed in the process of retention and stabilization of social enterprises on the market.

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MODERN ECONOMIC POLICY. PRACTICAL CONSIDERATIONS: CASE OF LATVIA

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Abstract. *This scientific paper pays special attention to the impact of the post-soviet mindset effects lasting since regaining independence in 1991. Such influence is very controversial, as the former communist elite was allowed to be involved in the new liberal power structures - it made and still makes it difficult for the new generation to benefit from economic innovation processes. The change of post-soviet mindset as a part of innovation culture is touched and seen as an essential component for driving economic progress. The authors discuss the cultural influences of the innovation processes in Latvia, analyzing the relationship between innovation and entrepreneurship policies. It identifies the probable interrelationships between the old soviet mindset and the current entrepreneurial economy, including the talent density, technology absorption readiness, and performance of local innovation ecosystems.*

Keywords: economic policy, innovation, talent, post-soviet mindset

JEL Classification: *O3, P2, P23*

1. INTRODUCTION

This paper makes initial assessments of the specific role of the post-soviet consequence on economic growth in Latvia. After the fall of the Soviet Union, researchers began to assess the impact of external factors on the innovation processes. Such external factors included partners, clients, institutions, local culture, the legislative environment, and the available external knowledge sources. In some regions or local urban areas, enterprises were more motivated to innovate than others (Florida, 2002). The development of new technologies and technology transfer, knowledge institutions and workers, and knowledge transfer gradually became critical, highlighting the importance of expertise and intangible knowledge. The concept of innovation has evolved into a systemic approach, reflected in several growth theories related to innovation processes. The impact of societal and business culture as a critical growth factor was analyzed less, especially for transition economies. The research methods include literature and global trend analysis, synthesis, and comparative analytics of available data.

Currently, entrepreneurship is perceived as the fourth main factor of production (in addition to capital, physical infrastructure, and labor). The 'small' state could be characterized as:

1) Its resources (talent, labor, infrastructure, and funding) are limited.
2) Local economic policies and foreseeing matters could be locally focused and determined by national social partner interests (often based on historical and cultural circumstances).
3) Weak performance in exploring opportunities offered by significant science and technology infrastructure facilities may result in a substantial brain drain for small countries.

The above leads us to the "innovation ecosystem" as a network of institutions in public and private sectors whose activities and interactions initiate, develop, modify, and commercialize new technologies. The main factors of an innovation system are an interactive collaboration between all actors, artifacts that describe the technologies and techniques used, innovation culture in institutions, new technology adoption ability, and readiness for innovative change.

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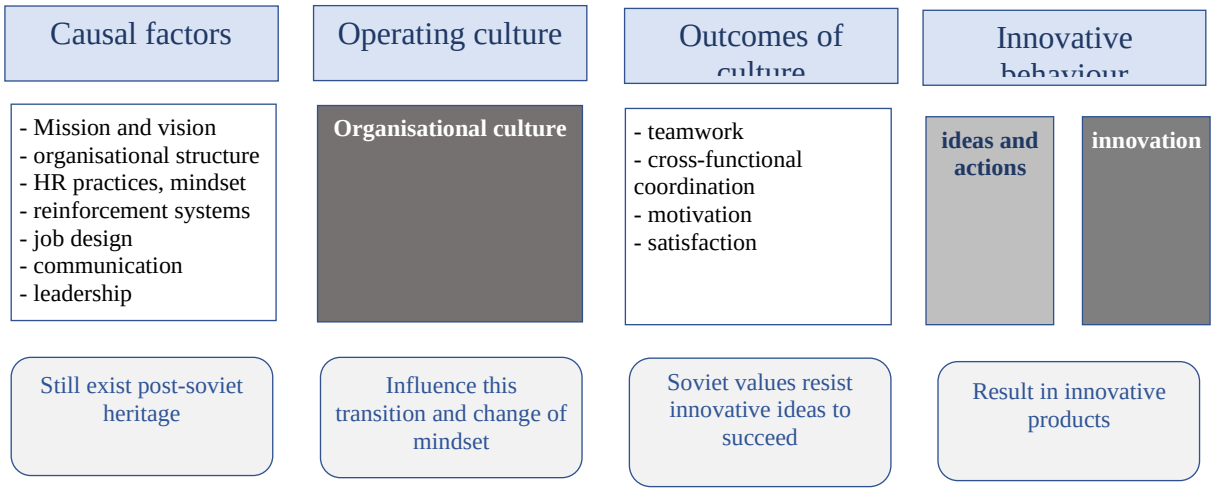
Literature analysis showed that there is a lack of papers analyzing the impact of innovation culture in institutions towards their strategic policies and growth.

2. THE LACK OF AN INNOVATION CULTURE

Culture is essential for successful organizational change and maximizing the value of human capital. Schein proposes that organizational culture becomes more important for strategic product and process innovations [Schein, 1985]. The new concept of "innovation culture" emerged at the boundary of technology and culture. *An innovation culture means an environment that supports creative thinking and advances efforts to extract economic and social value from the knowledge and, in doing so, generates new or improved products, services, or processes* [MaRS, 2022].

Figure 1: Culture model: a cause-effect line and post-soviet heritage factors



Source: Adopted by authors from Cooke, 2016

The influence of the Soviet heritage is a fact. This legacy across all CIS countries was uniform and continues to be a major common cultural phenomenon. Following thirty years of independence, the Soviet legacy still confirms not only the cultural and psychological values but also the societal structures and the economic situation in which the new EU member states lag behind.

A variety of scientists have analyzed innovation culture in firms. It includes a robust managerial will, strategy, openness, employee motivation, increasing investments into R&D, and evaluation of the effectiveness of work results. R.Cooke has developed a model of 'how culture works' (Cooke, 2016) (see also Figure 1). This model outlines the organizational attributes that cause culture and what the outcomes of culture are. We may restructure the model by introducing a cause-effect line and post-soviet heritage factors. Another post-soviet legacy, internal freedom and focus on innovative products, has been ignored. The precondition for high performance is developing an innovation culture.

A more detailed literature analysis outlined that the most frequently interrelated cultural classifications across variables were leadership, openness, collaboration, experimentation, motivation, and communication (Zemmer, 2018). These conclusions mostly agree with the ones analyzing the effective use of large-scale research facilities internationally and locally. Mindset from variables' list and openness, cross-discipline collaboration, and leadership (governance) play a crucial role in innovation culture and innovation ecosystem (Timofejevs,

2019). We may also confirm that motivation and satisfaction are outcomes of organizational culture to innovate as critical variables and part of culture itself (see Figure 1).

The economic downturn that began in 2008 set back Latvia's economic development. The sharp cut of wages, loss of savings, a higher burden of taxes, limited access to real estate loans, and decreasing financing to education and research totaled with lowered trust in the political system, an uncompetitive labor tax system, and its ability to achieve sustainable and predictable development. Since 2021 we have seen this continuing in the Covid-19 pandemic and war in Ukraine, fuelled by rapidly growing energy costs.

3. THE CONSEQUENCES OF THE POST-SOVIET MINDSET

Innovation culture has played the most crucial role in the country's competitiveness. A common feature of the states of the former Soviet bloc is the post-soviet mindset value system. 'Homo Sovieticus' carrying soviet mindset values is the prototype of a person influenced by a soviet totalitarian regime. Post-homo Sovieticus is a person whose operation, ability, will, and value system is heavily affected by the Homo-Sovieticus mindset (value system) (Mudrakov, 2020).

The long-awaited return to the European Common House (also entering NATO) took place smoothly. Most people in the Baltic States knew it was also a matter of security and survival. Consequently, measurable structural changes: economic, legislative, public administration, education, and science reforms were successful and with public awareness. Simultaneously, there was going unmeasurable social change to approach the societal norms in western countries. Meeting formal requirements and joining the EU was easier than fundamentally altering social culture and mentality. In 2004, Latvia was neither economically nor socially prepared to join the EU on equivalent terms.

'Homo Sovieticus' occurs when living in an environment where the law does not work, where the law is merely an instrument in the hands of an 'apparatchik,' and where the only criterion is the effectiveness of action. Ideological devotion and cooperation create seeming existential security. "*Various manners, habits, notions, and opinions among the society constitute its character of mind. This term includes what people do (their conduct), what they think (their mentality), and what they are expected to do and think (their culture and civilization). These three levels of human experience and habits determines their behaviour in a new environment of transition economy*" (Sztompka, 1993). When applied to post-communist society, this approach resulted in accounts of "socialist mentality" and "Homo Sovieticus." From 1988 to 1991, the Eastern Block community discovered that people lived better and differently in the west, yet it was difficult for people to change their post-soviet mentality. Globalization and integration in the EU deformed the expected national values borders. Imperial rule stifled the decision-making capability at the local level. The collective psyche was focused on social security and risk-avoiding. During the transition economy and after it, a revival of the soviet mindset values took place (Sztompka, 1993):

1) Liberal economic policy in East European countries failed, where the government did not interfere in market processes and privatization, which allowed the former elite and old nomenklatura to keep property redistribution in the hands of limited social groups.
2) Life under communism produced a unique legacy, a unique set of values, rules, norms, codes, and standards. It has an in-built negative attitude against any power and unpredicted revolution experiments against democratic reform.
3) The state is held responsible for not providing welfare and blamed for all personal failures. The government is seen as an environment of conspiracy, cynicism, greediness, stupidity, and inefficiency. Evading public regulations, rules, and laws is a widely recognized virtue.

4) Many become involved in illicit trading, smuggling, tax, and duty evasion. In most CEEC countries, there is still widespread support for the relatively egalitarian distribution of the wealth thus created and for a substantial welfare value.

Post-soviet mindset has been given very little and insufficient attention as an affecting factor, contributing to the ineffectiveness of several national programs and reforms. In the next chapter, we will look at Latvia's economic development over the last 20 years compared to the two Baltic neighbors - Estonia and Lithuania.

4. LATVIA'S ECONOMIC AND INNOVATION PERFORMANCE DURING THE LAST 20 YEARS

The start of transition economic reforms in the early 1990s for all Baltic States was relatively equal, with insignificant disparities until 2000, when a functioning market economy was in place. Since 2000, and especially after the Baltic States joined the EU, the development of the Baltic States has started to vary. Each country chose its path, and economic growth policies and policy measures generally were not harmonized. It increased Latvia's backwardness, first from Estonia and then from Lithuania. We compiled critical indicators in Table 1 for economic and innovation growth over the 20 years for all Baltic States. The analysis allows us to draw up significant conclusions:

1. The fastest GDP per capita growth since 2000 has been seen in Estonia and the lowest in Latvia. Latvia joined the EU as an emerging country with low productivity, low export volumes, and a share of innovative products, resulting in value added per capita well below the EU average.
2. Latvia spent the least on R&D (from GDP) among the Baltic states in 2000; also, in 2020, the increase in this indicator is the lowest – almost twice as low as in Lithuania and nearly three times lower than in Estonia. The years of backwardness in higher education and science funding have so far depleted the sector's performance and, after obtaining a doctorate, pushed young talented students to seek further career opportunities in leading science centers in developed countries at best.
3. Lithuania has grown exports by more than 34%, ranking first among the Baltic States in 2020. Although Latvia's exports have increased more rapidly than Estonia's, Latvia still shows the lowest rate among the Baltic States. Although Latvia shows a sharp increase in exports of goods from high-tech industries, given the small total export volume, high-tech goods and services are also small.
4. Compared to the EU average, Latvia and Lithuania show below average, while Estonia ranks among the strong innovators. Lithuania has grown more rapidly during the period – by 27.8 percentage points compared to Latvia's 23.3 percentage points. As an EU member, Latvia has received solid structural fund allocations in pre-accession and three following planning periods (e.g., 2004-2006, 2007-2013, and 2014-2020).
5. Since 2000 the population has shrunk at the fastest rate in Lithuania (20.1%, from 3,51 to 2,81 mill. people), but less than in Latvia (19.7%, 2,38 to 1,88) and Estonia (4.8%, 1,40 to 1,33). Estonia is the only country with a positive net migration level, and Lithuania is in the worst position (Eurostat, 2022).
6. Table 1 shows that Latvia is also lagging in digital development, largely due to the long-term backwardness of Latvian universities from leading Estonian universities and in recent years, from Lithuania's HEIs.
7. A two-community society in Latvia also contributed to preserving post-soviet mentalities and values. It took the form of non-compliance with legislative requirements, tax evasion, corruption, substantial public administration, etc.

Estonia's most successful reforms and the more stable and rapid development in the last 20 years provide 30-40% higher wages and opportunities to compete for growing and well-paid jobs. Tallinn offers a more dynamic quality of life between the administrative centers of the Baltic States, better career development opportunities, and housing opportunities. The average salary in Riga City was EUR 971 in 2021, EUR 1388 in Tallinn, and EUR 1106 (Reddit, 2021), respectively, in Vilnius. If the gap in living standards is widening, after one programming period, we will already lag behind Estonian and Lithuanian levels of income approximately by one generation. Latvia's skilled labor emigration to Tartu or Tallinn is already increasing. Why is Latvia lagging behind the rest of the Baltic States?

Table 1: Growing economic disparities between Latvia and other Baltic states

Indicator, source	**Year**	**Estonia**	**Latvia**	**Lithuania**
R&D expenses, % of GDP	2000	0,60	0,43	0,60
	2020	1,79	**0,71**	1,16
GDP per capita, % of EU-27	2000	41,8	36,3	38,2
	2021	85,1	**71,0**	87,7
Exports of goods and services, % of GDP	2000	61,6	36,8	38,6
	2021	78,3	**64,1**	80,4
High-technology exports, % of manufactured exports, WB	2007	11,8	7,5	11,5
	2020	20,4	20,0	**12,0**
Global Innovation Index ranking (WIPO)	2007	#31	#50	#47
	2021	#21	#38	**#39**
Corruption perceptions index, ranking	2000	#27	#57-58	#43-47
	2021	#13-17	**#36-38**	#34-35
World Digital Competitiveness Ranking	2014	#30	#35	#34
	2021	#25	**#37**	#30
Hourly labor unit costs in manufacturing, EUR	2000	2,8€	1,5€	2,6€
	2021	13,5€	**10,3€**	11,0€
Trust in government, %	2000	44,2	29,1	**20,6**
	2006	51,9	**29,5**	30,4
World University Rankings (Times Higher Education)	2016	#351–400 UT	#601–800 UoL	#601–800 VU
	2022	#251–300 UT	#501-600 RSU	**#601–800 LUHS**

Source: Eurostat, The World Bank, Global Innovation Index, Transparency, IMD, OECD, The Times Higher Education. Notes: av. = average; UT – University of Tartu; UoL – University of Latvia, LUHS – Lithuanian University of Health Sciences, VU – Vilnius University; RSU – Riga Stradins University. Letters in white represent the lowest value among the three Baltic states.

Estonia and Latvia had historically received many arrivals whose co-branded Soviet culture heated the pre-war local Baltic German business culture. In Latvia, this effect was most significant than in Estonia and Lithuania. Latvia was an industrially developed republic and had more desirable properties. In the 1990s, while regaining independence, nomenklatura, retired militants, KGB employees, and 'apparatchik' partly converged with the political leaders of the Latvian National Awakening and the representatives of the diaspora from the western world. The young, consolidated elite was sucked up as leeches by lawyers, post-soviet bankers, advisers, and experts loyal to the political elite, thinking about where to cut, redistribute, and privatize steel. They subordinated the business environment to their interests by distorting the market and preventing new competitive companies from developing. It is inevitable that in Latvia, the reallocation of available resources in favor of the new consolidated political elite became the priority over creating new globally competitive companies. The creation of legislation took 3-4 years, and it allowed a rapid and politically

lobbied reallocation of resources. Over the transitional period, Latvia redistributed more properties than Estonia and Lithuania (Valmieras zinas, 2021).

We can also assess the innovation culture as a method for how effectively we have been able to use the limited resources available. Tartu University was more democratic and free-thinking in the Soviet era. Thirty years after the restoration of independence, Latvians still lived in the "Soviet" information room, which strengthened nostalgia for Homo Sovieticus values and the Russian people's earlier privileges, thus promoting the restart of the post-soviet mindset.

The redeployment of Soviet resources and efforts to reallocate EU structural funds or, worst case, writ-offs remains significant, mainly when €15 billion will be available by 2027. Successful political intervention can earn more with grants than business in a competitive environment. But the country isn't getting richer by redistributing the resources available. Notorious in Latvia is an insolvency administrator institution whose primary function is to deprive the entrepreneur of everything he has done in his business career. It's a reallocation. However, any entrepreneur with assets will act more intelligently than the best insolvency administrator or official for which it is not a profit but a reallocation. Homo Sovieticus won't invest money in science with long-term returns. Since the 1990 s, public funds have been invested in concrete because it is traditionally easier to avoid paying taxes in the construction sector, to cut off some of the funding as a corruption payment (so-called '*otkats'*), or to steal directly.

The strategy of allowing money laundering and profiting on a growing stream of energy and cargo trade and transit was a mistake. Other strategies were not implemented. Science was not required. Latvian gross product is 25-30 percent lower than in Estonia and Lithuania. The neighbors' aggressive marketing, self-confidence, and policymakers' ability to take risks were rewarded.

The current situation requires a change in cultural values that sets higher ambitions, another strategy for entering foreign markets, and the introduction of innovative products or services that are risky and difficult. Stagnating business creates too many uncompetitive SMEs - zombie companies [Delfi, 2018], surviving by regular injections of all kinds of grants from the EU Structural Funds. Zombie companies can only stay at the expense of state aid, they create economic stagnation in the country and reduce the competitiveness of productive businesses (Baltijas Balss, 2021).

In general, it should be concluded that the current inflow of the EU structural funds, the Covid recovery funds, and other available financial resources only reinforce and increase divergence trends and Latvia's backwardness from Estonia and Lithuania. The reason for the backwardness is more significant corruption and the shadow economy. Political leaders who came to power in Estonia in the early 90 s were far more people of European civilization, optimistic visionaries. Politically powerful, bluster entrepreneurs acted in Lithuania and Estonia, but their influence was more decisive in Latvia. The inability to alleviate the shadow economy for years is one of the obstacles to growth. Sectors to look for a shadow economy are well known. The actual cause of the problem is the Soviet values system.

The main strategy paper in Latvia is the National Development Plan. It includes sector-specific forecasts and plans. The National Development Plan's objectives were ambitious, although none of the four target indicators were achieved. Yet the numbers are disappointing (Table 1).

The quality of education requires significant improvement. Preferences of Riga as the capital of the Baltic economy, the largest agglomeration, should be capitalized.

CONCLUSIONS

In summary, the authors initially conclude that future national economic policies should be focused on the new generation. Entrepreneurs ought to be free from the post-soviet mindset by investing in new knowledge and technologies and Latvian companies' readiness to adapt them creatively and innovatively. Post-soviet mindset factors and their impact on economic policy should be studied in more detail.

The Soviet mindset is a critical factor influencing the national innovation ecosystem, society, policy decision-makers activities, the education system's quality, and the various economic processes. The authors will study further the impact of the Soviet mindset on the development of digital industries, analyze the effect of this factor on national innovation culture, and deliver causal analyses.

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THE LABOUR SUPPLY TO THE GROWING DIGITAL ECOSYSTEM: THE CHALLENGE TO LATVIA

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Abstract: *This article aims to analyze overcoming labor supply shortages in the Digital ecosystem and demand structure according to the innovation performance and value proposition designed by local IT enterprises. The authors have designed a simple metric based on the value added generated by local IT firms, categorizing firms into one of three models: destructive, stagnating, and productive. The factors influencing the performance of the IT ecosystem were analyzed. This article pays special attention to the impact of digital literacy and artificial intelligence on economic development, comparing the situation in all three Baltic states. The article discusses the support for the digital ecosystem concerning domestic innovation and entrepreneurship policies and identifies the latest proven policy measures to overcome weaknesses. Reforms have been carried out, but they do not result in an increased number of "productive companies," and over 30 years since the collapse of the USSR, brain drain and fundamental systematic issues are still critical. The change of the post-soviet mindset as a part of innovation culture is analyzed.*

Keywords: *economic policy, innovation, talent, post-soviet mindset, information and communication technologies*

JEL Classification: *O3, P2, P23*

1. INTRODUCTION

This article assesses the role of the post-soviet impact on ICT industries in Latvia over the last 50 years. The ICT sector has experienced substantial development leading to the change in entrepreneurial and societal habits, customs, norms, and culture. ICT development has influenced macroeconomic outcomes. The growth of the internet, broadband networks, PCs, smartphones, and wireless technologies changed the landscape. The transition economies, with their comparatively low living standard, centralized planning of isolated command economy with undeveloped infrastructure, soviet standards-based education system, and continuous reforms towards a free market economy, left ICT development unprepared. The EU transition economies have passed rapid liberalization, stabilization, mass privatization, and the creation of harmonization with the EU legal framework processes (Remeikiene, 2021). The minimal availability of natural resources in a small open economy provides opportunities to lower resource consumption industries. ICT in its current state is new. It started rapid growth in software in the early 1990s. Emerging technologies, in combination with talented personnel, is a combination that facilitates new services and business development opportunities with lower expenses at the development stage. Moreover, ICTs grant access to high-quality learning materials (Beardsley, 2010).

The success of digital service marketplace development has been new data-driven artificial intelligence, machine learning, and simulation applications.

ICTs growth will have a triple positive macroeconomic impact (United Nations, 2011):

1) Growth and higher productivity of the ICT sector itself.
2) Long-term impact on higher labor productivity.

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3) Contribution of ICTs to new business sectors, innovations, and overall efficiency.

This study uses the literature and statistical data analysis from the last twenty years addressing the role of innovation culture with a specific focus on the post-soviet mindset in ICT development in Latvia.

2. PRODUCTIVE AND NON-PRODUCTIVE ENTERPRISES

Activities entrepreneurs create value might be distinguished as "positive" and referred to as productive entrepreneurship. Baumol defines productive entrepreneurship as "any activity that contributes directly or indirectly to the net output of the economy or to the capacity to produce additional output" (Baumol, 1993). A weak legal environment, enforcing institutions, and social values might encourage entrepreneurial activities which are not desirable by society. Such forms as illegal and shadow activities, rent-seeking, corruption, and governmental intervention or installment of administrative barriers to the free market could be profitable but lack economic benefits to society (Sauka, 2010).

Rent-seeking describes the "acquisition of some of the monopoly profit or the economic rents currently generated or potentially available in the economy" (Baumol, 1993; Dallago, 1997). Rent seeking involves granting exclusive licenses or enacting laws, such as litigation, takeovers, tax evasion, and avoidance, and acquiring a monopoly (Sauka, 2007). Rent-seeking creates the biggest obstacle to productive entrepreneurship (Baumol, 1993).

Several studies outline that legal and illegal activities coexist in transition economies, and most new and small firms are involved at the same time in value-adding and rent-seeking activities ([Smallbone, 2001; Sauka, 2010; Smallbone, 2006). Illegal entrepreneurial activities include the production and distribution of illegal drugs, racketeering, and blackmail, having a destructive effect on the economy (Baumol, 1993). Most studies tend to regard a new firm as a success story or as a failure or business churn (Davidson, 2001). The border between both might be blurry, and outputs with opposite meanings. The productive business could be with low performance, but unproductive firms can lead to the positive societal output. Transition countries possess deviations from accepted societies of developed countries' business norms (Warren, 2003). The above includes access to external capital, frequent changes in legislation (Avotins, 2000), particular attitude towards entrepreneurs, corruption, regular tax inspections, avoidance of taxpaying and offering labor contracts, and various required informal payments to officials to ensure permissions, licenses, and orders. The firm's performance also increases by the involvement of values of personal networks or "blats." Blat as a factor comes from soviet time as a part of the soviet culture and "refers more to gaining societal or commercial advantage from friends and people with whom entrepreneurs have good personal contact" (usually with top-level decision makers among government officials and civil servants) (Sauka, 2010). Blat resembles lobbying at the political level.

Understanding the nature of activities and analyzing their outcomes is essential. These include profit making, achievement of personal satisfaction (personal goals), positive or negative value creation, and societal effects. A positive outcome can be created at all levels – productive, unproductive, and destructive entrepreneurship, if it contributes to venture performance and to the economy's growth. Some of them might lead to the harmful societal effect. Many authors also outline the impact of Homo Sovieticus or soviet mindset, often transferred to new generations as neo-soviet business culture or post-soviet mindset (Ozols, 2022). The authors' improved classification of deviant activities is presented in Table 1.

Sauka et al. the research does not provide a clear understanding of the differences between unproductive and destructive entrepreneurship. Therefore, the authors supplemented Sauka's approach to the analysis of business differences in transition economy countries with an additional section - differences from Western countries that are allowed by legislation and

accepted by society, as well as the section 'unethical behavior' was renamed to 'soviet mentality embedded activity, which in our opinion better describes the nature and causes of such a difference (see Table 1).

Table 1: Negative and positive entrepreneurial value creation activities in Latvia, deviant from developed countries

Fair free market activity	Soviet mentality embedded activity	'Rent seeking' activity	Illegal activity
Profit making for personal goals, not society	Nomenclature and elite's business	Litigation	Racketeering
Legally allowed competition versus honest competition	*Blat*, friends, favoritism, and nepotism	Lobbying	Prostitution
Written agreements versus oral agreements	Order self-generation activity	Takeover	Illegal drug dealing
Poor or non-existent quality and safety standards	Squeezing out of the market	Different forms of tax evasion and avoiding efforts	Various shapes and kinds of unofficial payments for corruption
Limited trust	Post-soviet business culture (blackmail, cheating, dishonesty, falsity, inertness	Concealing actual salary (envelope wages), underreporting	Non-contract employment
Centralized and authoritarian management	Pocket-firms (a firm provides cash and comfort for the founder)	Zombie firms live and survive off the grants it receives	blackmail
Risk capital investors require control stake	Low perceptions about contribution to society	Innovation is not on the priority list	
		Acquiring monopoly profit	

Source: Authors, based on Sauka, 2007

Transition economies regard entrepreneurial behavior and activities should be treated individually, not as a unified entity, because of different starting points, previous experience, and entrepreneurial culture (Smallbone, 2001; Sauka, 2008).

The analysis of business goals leads to four groups of companies (Stratos, 1990):

1) Growth-oriented firms are younger, more petite, willing to take risks, and have global ambitions with a focus on high growth or, e.g., growth firms, often called Startups.
2) Exit firms tend to be sizeable, primarily representing manufacturing sectors owned by serial entrepreneurs.
3) Control-orientated firms in the majority are family-owned companies in traditional sectors. If personal targets prevail over business ones, such companies may turn into, e.g., 'pocket firms,' mainly operating to create an expected level of welfare and amenities for owners.
4) Survival-oriented firms demonstrate poor performance and a lack of will to take risks. They usually are saved by obtained grants, subsidies, donations, or 'political orders. These are named zombie firms.

Transitioning to free market rules requires a change of both formal and informal rules and specific enforcement power as a motivating factor. North wrote: "Changing the formal rules will produce the desired results only when the informal norms are complementary to the rule

change, and enforcement is either perfect or at least consistent with the expectations of those altering the rules" (North, 1997).

3. POST-SOVIET CULTURE INFLUENCE ON THE ICT SECTOR IN LATVIA

Innovation culture is one of the most critical factors determining the company's competitiveness. All states of the former Soviet bloc have a shared history of centralized and authoritarian economies and communist ideology by decades planted in societies as the soviet mindset values system. Without a more profound understanding, it will not be possible to change the nature, coverage, viability, and perceptions of the value system that interferes with democracy and the market economy. Homo Sovieticus carrying soviet mindset values, is the portrait of a person born in and taught by a Soviet totalitarian regime. Post-homo Sovieticus is a person born during independence time after the collapse of the Soviet Union whose operation, ability, will, and value system are heavily affected by the Homo Sovieticus mindset (value system) [Mudrakov, 2020], [Sztompka, 1993]. Globalization and integration in the EU and NATO deformed the expected national values borders. Imperial rule stifled the decision-making capability at the local level, as almost all were decided in Moscow.

ICT is one of the fastest-growing sectors in Latvia. Over the last decade, key indicators significantly increased (see Table 2) - turnover (+109,4 %) and the number of employees (+102,1%) doubled, profit figures (+162,4%) and added value (+166,6 %) increased by more than 1, 6 times, while staff expenses raised more than four times (+405%). These figures demonstrate rapid growth of the sector and strong demand for new talents, and access to technologies to sustain further growth. Most ICT companies provide IT services and software development services. Foreign companies saw Latvia as a source of well-trained and cheap labor [Nissinen, 2002]. However, this has changed as more product-oriented companies and startups have gained traction. For example Infogram Ltd, Giraffe Visualisation Group Ltd, Anatomy Next (anatomy.app), TestDevLabs, and many others.

Latvian biggest well-performing companies- TET and LMT- first and second place accordingly to Labs of Latvia (Labs of Latvia, 2022) are partly owned by the government. Many SMEs are working on state-issued tenders where good relations with customer project managers are beneficial. The other statistical data in Table 2 demonstrate rapid ICT sector growth driven by foreign enterprise investments and collaboration at the international level.

Table 2: Latvian ICT sector statistic data, in euros.

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Turnover, mill EUR	2067	2275	2897	3099	3063	3497	3471	3617	3851	4102	4329
Number of employees	17316	18337	21449	23305	26522	29203	31801	33990	37300	37112	38456
Number of companies	3151	3373	4390	5064	5432	6133	6567	6559	6900	7021	7096
Profit, mill	178	152	205	206	221	247	290	275	395	445	467
Income Tax, mill EUR	29	25	21	35	38	42	47	39	16	43	51
Staff expenses, mill EUR	181	248	314	359	410	472	541	613	732	829	914
Added value, mill EUR	572	602	686	767	791	903	1018	1122	1263	1462	1525

Source: Official Statistics Portal (2022)

Socio-cultural aspects also determine the collaboration to a large extent. It can even be attributed to a country level where accumulated socio-cultural elements are manifested. Suppose we refer to G. Hofstede's dimensions. In that case, we can operate with six following influencing factors: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus individuality, time focus, and society's willingness to enjoy life (see also Table 3) (Hofstede Centre, 2015).

A significant impact here can also be observed on power distance. Countries with larger power distance will need more support from the management to enhance collaboration. Countries with the highest P.D. are Russia, with lowest Scandinavian countries (Achim, 2016)

Countries with a larger collectivism index will find it much easier to establish contacts and develop cooperation teams and networks. It is relevant both at the organizational as well as country levels. The highest score for IDV is for the USA, Australia, U.K., and the lowest is for Latin-American countries

The most Masculine societies are Slovakia, Japan, Hungary, and Austria. The most feminine ones are Sweden, Norway, and Latvia.

The highest score for U.A. is in Greece, Portugal, Guatemala, Uruguay, and Belgium, and the lowest scores for U.A. are for Singapore, Jamaica, Denmark, Sweden, and Hong Kong, promoting innovative ideas.

The highest LTOs are for South Korea, China, Japan, Germany, Belgium, Lithuania, and Estonia, while STO orientation is for Honduras, Nigeria, and Ghana.

IND is high for Venezuela, Malaysia, El Salvador, and Angola, while low impulse control is in Egypt, Latvia, Lithuania, Albania, and Hong Kong, nations with more restrained actions and manifestations of pessimism and cynicism.

In post-communist countries, people prefer conservative values to preserve their political past (soviet system) in terms of well-established policies; focus on redistribution is reflected in the balance of liberal fiscal and social policies on the one hand, with austerity and tighter budgets on the other [Barni, 2016]. The recent rapid move to remote work caused by the global COVID-19 outbreak demonstrated a clear need to apply modern digital/remote work methods at various scales. Such processes depend on trust instead of control; more developed in Scandinavia, Germany, and Anglo-Saxonian countries, Romanic language and CEEC countries dominate control, and managers here prefer office work instead of remote work (Beno, 2021).

Table 3: Hofstede introduced a five-dimensional measure system of culture

Factor	Explanation	Specificity for CEEC	Reports on Latvia
Power distance (P.D.) or social inequality	The extent to which "the less powerful members of a society accept and expect that power is distributed unequally" [the Hofstede Centre, 2015] Cultural context tolerance for inequality and hierarchy [Barni, 2016] High P.D. promotes entrepreneurial activity [Busenitz, 1996]	Higher social inequality led to higher corruption. Large distance of P.D. means hierarchical order where superiors provide favor and nepotism to subordinates in return for their loyalty. To a certain degree, inequalities in power, influence, wealth, and prestige are seen as illegitimate [Barni, 2016]	The percentage of people in Latvia who indicated that freedom is more important than equality was in 1990 ~54%, and in 2008 – 50%, while respective figures for Estonia (75% and 60%) and Lithuania (75% and 64%) also demonstrated critical assessment of the economic situation. The freedom index and Fraser Institute Index confirm the importance of individualism as a dominant attitude in all CEECs from 1995 to 2013. [Gruszewska, 2014]. Lithuania has a comparatively high P.D. index [Radavicius, 2016]
Attitude towards unknown - uncertainty avoidance (U.A.)	"The degree to which the members of a society feel uncomfortable with uncertainty and ambiguity" [the Hofstede Centre, 2015]	Corruption is a mechanism to reduce uncertainty to obtain predictable results; "in cultures ranking high on U.A., members are likely to feel uncomfortable in unstructured (i.e. novel, unknown, surprising) situations, such people prefer to minimize uncertainty through strict rules and laws, formal structures, as well as safety and security measures", they avoid risk-taking [the Hofstede Centre, 2015]	L.T. has a low tolerance to uncertainty [Radavičius, 2016]
Attitude towards community - Individualism versus collectivism (IDV)	Pertains to societies where the ties between individuals are loose: everyone is expected to look after themselves and their immediate family, person's self-image is defined between "I" or "we," e.g., individual or group or family [the Hofstede Centre, 2015] Refers to the degree to which cultures encourage people to act as individuals rather than as members of groups [Barni, 2016]	In a collectivistic society, people are inclined to violate the law to support their group based on unquestioning loyalty. "IDV refers to the degree to which individuals consider themselves autonomous, different from others, and independent from social groups; in individualistic societies, people value freedom, autonomy, and individual interests, and are more committed to entrepreneurship" [the Hofstede Centre, 2015]	Trompenaar found that Czechoslovakia and the CIS countries were high on individualism and low on collectivism [Luthans, 1995]. Till 2013 value of individualism increased. Trust in other people gradually increased in Latvia (from 19% in 1990 to 26% in 2008) [Gruszewska, 2014]
Attitude towards success – Masculinity versus femininity	MAS dimension refers to the concern of society for achievement, heroism, assertiveness, and material rewards	Motivation to become wealthy – male-based values - high earnings, titles, recognition, advancement, challenges, and other material or status rewards enhance the level of	Latvia is the most masculinized state in Baltics – index 9 against L.T. 19 and EE-30 [Beno, 2021]

(MAS)	(masculinity) or cooperation, modesty, caring for the weak, and quality of life (femininity) [the Hofstede Centre, 2015]	corruption; masculine society "expects man to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life" [Hofstede, 1998], entrepreneurship is perceived to require "traits such as independence, aggressiveness, autonomy, and courage, frequently associated with a man"[Gupta, 2009]	
Attitude towards passage of time - long-term orientation (LTO)	Refers to long-term versus short-term exposure toward the future; "how every society has to maintain some links with its past while dealing with the challenges of the present and future" [the Hofstede Centre, 2015]	LTO – "persistence, ordering relationships by status, thrift and having a sense of shame," STO – "personal steadiness, protecting the face, respect for tradition, reciprocation of greetings, favors, and gifts" [the Hofstede Centre, 2015]	Transition countries have demonstrated a decrease in traditionalism, while Latvia, Hungary, and Estonia exhibited growth in the importance of traditionalistic (national) values [Gruszewska, 2014]; consistently, the East Asian students in TIMSS[49] test in math outperform all other students, performance in math correlate with LTO, performance in science did not [Hofstede, 2001], [Hofstede, 2010], L.T. traditions (tribal, family, religious) dominate over rational values (societal, institutional) [Radavičius, 2016]
Attitude towards control of one's desires or indulgence (IND) and restraint	"Refers to the presence of a society to allow relatively free gratification of basic and natural human drives to enjoy life, in contrast to suppressing the gratification of needs and regulating it utilizing strict social norms" [the Hofstede Centre, 2015]	A high indulgence score means a society willing to enjoy life and have fun. This society highly values leisure time and spending a lot of money. In a restrained society, people are restricted by social norms, and to break them, they agree to some illicit private payments [Achim, 2016]	

Source: Hofstede (1980, 2001)

[49] TIMSS – Trends in International Mathematics and Science Study, an international comparative test of mathematics and science performance taken every four years in now more than 50 countries on all continents

Does Latvia's ICT sector grow or stagnate?

Latvia's ICT sector example demonstrates that after the economic crisis in 2009, GDP dropped by 18% [Official Statistics Portal, 2022] and most national market ICT projects where either cancel or significantly reduced is beginning of a new era. This time might be considered the end of the post-soviet way of doing business where personal connections were more important than products, quality, and competitiveness. Operations in the global marketplace and technical expertise demand soft skills like communication culture, attitude, planning, and executing work. International group companies usually share the same subsidiary organization structure with little or no localization. Teams are assembled from all continents with in-house and external employees, which means that competition takes place on all levels starting from continental (EU vs. ASIA vs. US), country, and company and concluding with individual freelancers or employees.

To put Table 4 figures into context, the authors have used theWorld Digital Competitiveness Ranking from 2015-2022 created by IMD (IMD, 2015-2022). This rating is based on three pillars – knowledge, technology, and future readiness with corresponding sub-factors. Ratings are computed on statistical or complex data and surveys.

Table 4: Digital competitiveness rankings Latvia

Factors	2015	2016	2017	2018	2019	2020
Overall	34	33	35	35	36	38
Knowledge	**32**	**33**	**34**	**34**	**36**	**36**
Talent	30	28	29	28	32	27
Training & Education	14	12	20	28	27	27
Scientific concentration	49	48	47	46	47	49
Technology	**32**	**33**	**32**	**32**	**23**	**34**
Regulatory framework	37	35	34	31	30	37
Capital	39	45	31	36	35	50
Technological framework	29	23	24	26	14	13
Future readiness	**37**	**39**	**41**	**39**	**45**	**42**
Adaptive attitudes	35	38	46	52	52	51
Business agility	43	46	41	41	47	45
I.T. integration	34	38	36	37	44	37

.Source: IMD (2015, 2016, 2017, 2018, 2020). Note: number '1' means the best rank.

IMD World Digital Competitiveness Ranking, i.e., criteria for 24 index-forming factors and compare Latvia's results with those of other similar size countries, such as Ireland and Singapore [IMD, 2015-2022]. The results indicate Latvia's backwardness in competencies and skills. From the first parameter block, only the second factor for Latvia can be assessed as developed – digital and technological knowledge. Latvia is characterised by developed ICT and broadband infrastructure in the second block but weak integration. In the innovation and business change block, Latvia is lagging far behind in all the parameters of the bloc, as well as in the digital literacy of society and the ability to grasp new opportunities. Latvia lags behind its nearest neighbors (Lithuania and Estonia) at all levels of education, including the introduction of robots in training. Data show that even if we earn a lot more, we are losing competitiveness, which might have significant negative consequences in the long term. The aforementioned drives us to questions. Why is this happening, what is the root cause and how to change this situation for the better? Is it caused by post-soviet culture in the top management of state and mature companies? Is it caused by insufficient entrepreneurial skills for a lack of understanding that excellent and world-class ICT infrastructure without decent human capital investment will not work at its full potential?

Let us summarize the possible causes of stagnation:

1) Latvia is no longer competitive in terms of cheaper costs in the ICT sector. The level of wages provided by the Investment and Development Agency of Latvia in the IKT. sector [LIAA fact sheet, 2022] suggests that Latvia is only slightly behind the other Baltic States and Western Europe in terms of wages.
2) The second cause could be a low growth rate (Table 2). We had almost the same starting point as Estonia and Lithuania; in the 2008 and Covid-19 pandemic crises, the shrinkage of Latvia's economy was more significant. However, turnover and export volumes show the opposite.
3) The quality of the education system, the number of graduates, and the science concentration are behind neighboring countries. The demand for employees is so high that talented students are engaged in the labor market from 1st years studies, and many do not finish their studies (Table 2).
4) Latvia has high administrative barriers, labor taxes, and corruption levels.
5) Another reason could be the worst performance of the government and the lowest skill to show their achievements compared with Estonia and Lithuania.

CONCLUSIONS

The fundamental problem is one of the measurements of success. Whereas Latvia demonstrates success in all essential indicators of the ICT sector, the IMD World Digital Competitiveness Ranking shows a decline. The growth stimulated by direct foreign investments and global demand for trained professionals does not directly correlate with IMD World Digital Competitiveness Ranking, and deeper analysis is required. The post-soviet mindset is changing, but too slowly. The lack of sufficient talent needs to be addressed through the education system and ICT investment programs. In the short term, talent is available outside Latvia. This should be attracted by good marketing and reduction of red tape. An increased supply of human capital, talent, and ICT sector services is required across all business sectors. Further studies should be conducted assessing the impact of the academic sector's quality, talent concentration, and availability of top-level ICT infrastructure.

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THE COLLAPSE OF THE LABOR MARKET IN 2026 - A MANAGERIAL PERSPECTIVE

Ľuboš POLAKOVIČ

Abstract: *The cyclical-energetic model (Kopčaj's fish) describes well the development of social systems. In 2026, the cycle of our technical epoch lasting 242 years will end and at the same time a block of cycles - the development of man as a social being, which lasted 3820 years. The world will change rapidly and enormously. A permanent decline awaits us or we will start a transition to a higher level of a new cycle. For example, in terms of management, social relations and their management will be dominant in the new cycle. One of the consequences will be the demise of the labor market as we know it. Other parameters of the new cycle will be discussed.*

Key words: *social system management, entropy, syntropy,labour economics*

JEL Classification: J010

1. SOCIAL SYSTEMS CYCLES

Any social system consists from two parts.One is following thermodynamic rules. It includes knowledge, skills and technology and can be measure by entropy. Other part brings energy for existence and evaluation. This is living part – human beeings. It is managed by non-linear thermodynamics and can by measured by syntropy.

Relationship and their role in social system development you can find at [1].An accurate social systems development model was developed including biology, stability systems science and turbulent environment. Application on Euro-atlantic civilisation confirms a very good fit to the historical data.

Fig.1 Kopčaj cycle for our cycle

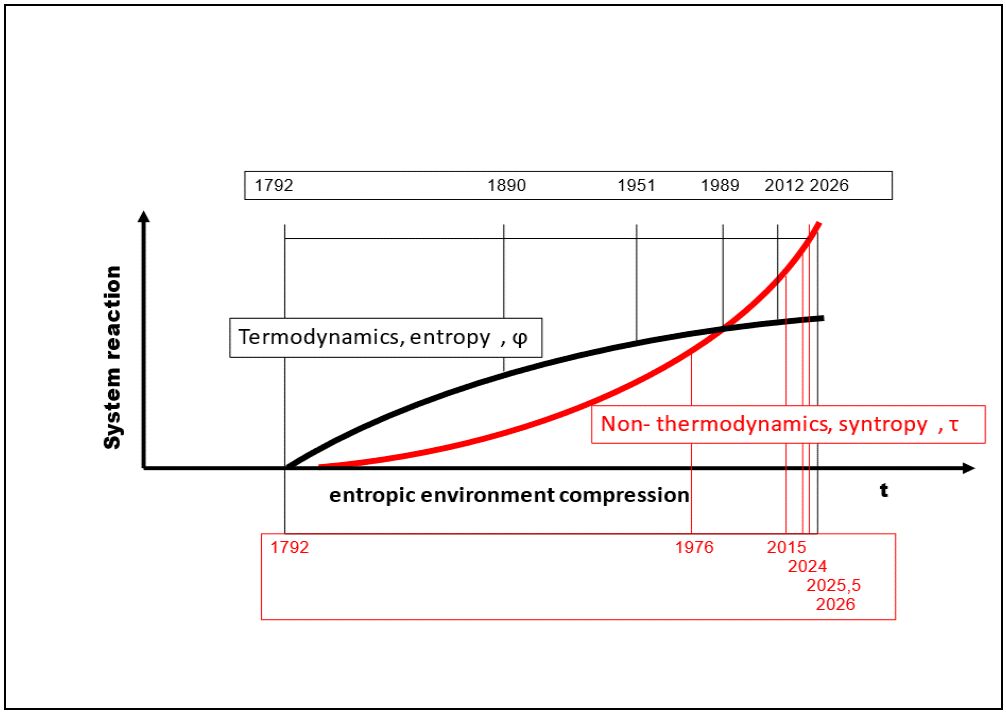
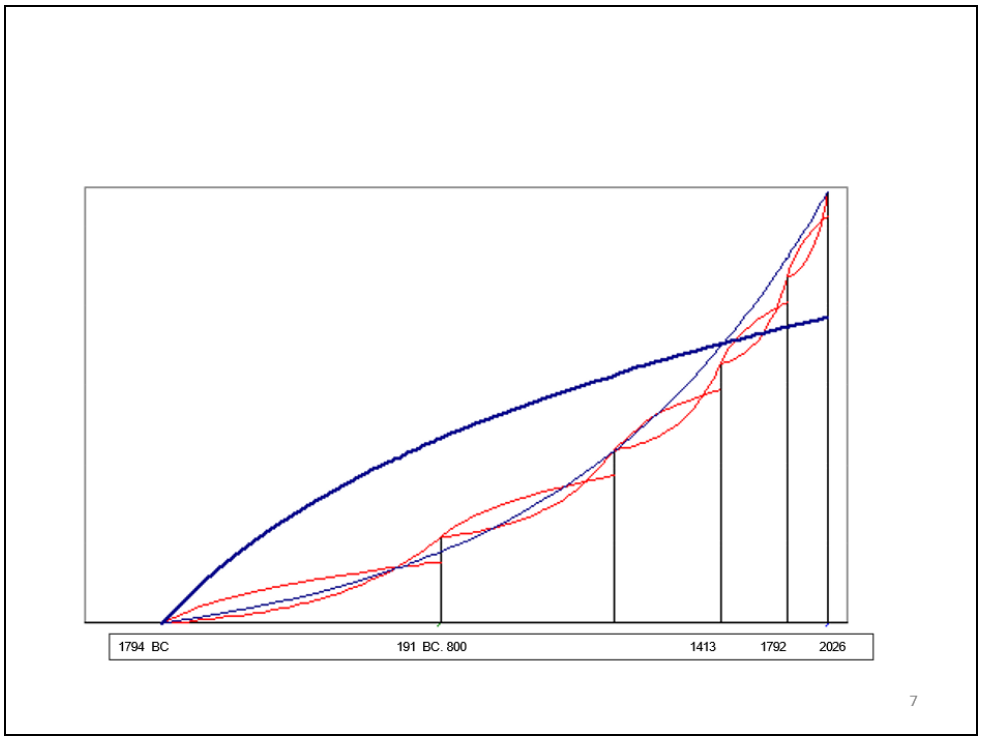


Fig. 2 Euro-atlantic civilisation in Kopčaj cycles



Our cycle (1792 to 2026 lasts 234 years) and blok of cycles (1794 B.C. to 2026 lasts 3820 years) both finished at 2026. End of the cycle is characterized by chaos. We live in very chaotic era now. Chaos of our cycle and chaos of block of cycles will come together. Two social cunami in one time. Such big changes occurs before 3 816 years ! Two solutions come from theory of chaos. Strong degradation of our social system or jump to the new cyle on higher level.

2. NEW CYCLE PARAMETERS

Every new cycle is characterized by higher energy consumption, higher energy effectivity, disruptive technology and new information level. All other parametrs can be derived from these four parametres according the point of view.

The labour market is our point of interests. Last power vertical hierarchy layer will disappear. This meens vertical relationship between the employer and employee will be transferred to horizontal cooperation. The demand for work is typical for vertical relation. The employee must act as a tool and behave as thermodynamic system. The result is that he must problems and trouble making. This is second thermodynamic law valid for all universe. The employy can act as the living (non linear thermodynamic) system with much higher energy production. The labor market wil be transformed to acceptance of empoyer goals and creative potential market.

Management will change significanly also. Today is management focused on technology and economy. Empoleys are simply forced do follow instructions. Tommorow managers will be responsible for how much energy and what quality company received from employee. Managers must manage social system in the company as the dominant goal. They have useful tools but it is necessary to apply them on the social system now. And social oriented organizations must accept the social system has to be managed in result oriented way.

3. CONCLUSION

New model of social systems evolution so called Kopčaj cycles, gives us an powerful tool to understand human history but also to predict future. There will be an strong impact on labour market also. To analyse labor market past is beneficial off course. Any prediction using extrapolation will fail because of the disruptive change in society around the 2026. New approach to education and company management will be needed.

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JOBS WITHOUT THE THREAT OF AUTOMATION IN THE SLOVAK REPUBLIC

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Abstract: *The aim of the article is to examine the impact of innovation on human resources from the opposite point of view. Domestic and foreign research predicts that the Slovak Republic will automate jobs at the level of 60%, which should result in the loss of a significant part of employees (including studies by the Organization for Economic Co-operation and Development. However, jobs that should not be threat by automation are an unexplored area. In our research, we focused on the theoretical basis for the replacement of the workforce by technologies in the past and the expected effects of automation in the future. Based on the findings of Arntz et al. (2016), when examining the effects of automation on jobs, we applied an approach focused on the scope of work of individual jobs. Seven specific skills/competencies have been identified that will be difficult to replace with machines in the near future. These were subsequently linked to national occupation standards, which are a systematic description of employers' requirements for employment in the Slovak Republic. By linking the identified jobs to the national job classification SK ISCO-08, the share of jobs with a low risk of automation in the total number of employees in the Slovak Republic, the structure of education of these employees and their classification into individual main classes of the SK ISCO-08 classification were calculated. The main result of solving this problem is the finding that the share of jobs in the Slovak Republic with a low risk of automation is at the level of 24%.*

Key words: *job automation, digital skills, labor market, economic productivity*

JEL Classification: *E24, J21, J24*

1. INTRODUCTION

The labor market, both nationally and internationally, has long been affected by processes that change its character and that affect its most important component - human resources. Over the past decades, the nature of work has been influenced by several socio-economic changes such as globalization and migration, labor market disparities, population aging, long-term unemployment and youth unemployment. The COVID-19 pandemic and the military conflict in Ukraine are currently affecting the labor market.

A key theme that has a significant impact on employment, job creation and structure is Industry 4.0, which can be loosely defined as introducing technological and innovation trends into production processes to increase economic productivity, facilitate market transactions and create goods and services with almost zero marginal costs. In this context, we consider the automation of two thirds of jobs, of which 33% are assumed to be highly automated and 31% endangered by a change in the way work is performed, to be a significant problem predicted by the Slovak economy (SR). Many foreign studies on the share of automated positions in the Organization for Economic Co-operation and Development (OECD) countries rate the countries of Eastern and Southern Europe as being significantly threatened by job automation (Nedelkoska et al., 2018). But automation, on the other hand, can help create new jobs. However, according to the European Commission's report „it requires significant investment in adapting to new labor market demands that require new and more advanced types of skills and qualifications. Only 33% of Slovaks currently have higher than basic digital skills“ (Európska Komisia, 2019a, s. 38).

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2. PROBLEM FORMULATION AND METHODOLOGY

The paper aims to identify the share of jobs with a low risk of automation in the Slovak Republic in connection with the impact of Industry 4.0. For this reason, selected theoretical research of foreign authors in the field of job automation was applied to the conditions of the labor market in the Slovak Republic. For this purpose, it was necessary to work with several follow-up research methods.

The method of analysis allowed us to examine the impact of Industry 4.0 and technological changes on the labor market. Through the method of theoretical analysis, we aimed to summarize from various relevant sources the socio-economic trends affecting the national economy of the Slovak Republic. Using the method of theoretical analysis, we searched for and identified the previous approaches of several authors concerning the influence of Industry 4.0 on job automation. The degree of their threat is interpreted at different levels depending on the approach taken by the author. We used the logical-historical method to summarize and process relevant foreign studies, to examine the impact of innovative technologies on human resources in recent decades, and the starting point for our research was the results of the work of Arntz et al. (2016). The authors recommend examining the degree of threat to jobs due to automation by evaluating the individual work tasks of employees who have different degrees of automation. We applied their findings in the conditions of the Slovak Republic and examined individual jobs in terms of whether the employee needs to use a skill that is in the coming period with a low risk of automation. The set of such jobs has provided an insight into how much of the jobs will not be jeopardized in the coming years due to the introduction of innovative technologies.

Calculation of the share of jobs with a low risk of automation in the total employment of the Slovak Republic: in examining the theoretical basis, we have identified a set of seven key competencies that appear to be difficult to automate, based on the results of research by foreign authors, representatives of relevant institutions and our own discretion based on practical experience replaceable by machines in the coming period:

- Work organization and planning;
- Ability to make decisions and take responsibility;
- Talent;
- Creativity;
- Critical thinking;
- Strategic and conceptual thinking;
- Leadership.

In the form of analysis, we decided to find out the share of jobs in the Slovak Republic where employees need the above competencies at the highest level (marked as „high level“). The only relevant and most extensive source of data in this area in the Slovak Republic is the National System of Occupations, which is defined by Act No. 5/2004 Coll. on employment services as amended as „a comprehensive information system describing the standard demands of the labor market for individual jobs.“ Based on one of the many goals of the National Project Sector-Driven Innovation towards an efficient labor market „monitoring developments in sectors with an emphasis on changes in the required skills, knowledge and competencies of employees in specific jobs“ we worked with a competency model database for all guaranteed national occupation standard (NOS). This unique data set provides a wide range of information describing employers' requirements for individual jobs.

We consider this to be the most important information for every NOS:

- Recommended level of education;
- Slovak Qualifications Framework (SKKR);
- Regulations;
- Certificates and other written certificates;
- Professional experience;

- Statistical classification of occupations SK ISCO-08 (classification SK ISCO-08);
- European classification of skills / competences, qualifications and occupations ESCO;
- Statistical classification of economic activities SK NACE Rev. 2;
- Competences:
    - general key competencies,
    - specific key competencies,
    - professional knowledge,
    - professional skills.

Specific key competencies „they form competencies and dispositions / talents that are only necessary for certain jobs, at one of three levels (elementary, advanced and high).“ The information system of the National Project of Sector-Driven Innovations for an Effective Labor Market, in which more than 900 experts from the Slovak Republic work, contains the opportunity to choose from a total of 11 items when creating the NOS, including the seven key competencies we have for the purpose of our research. they chose. During the evaluation, we worked with the following range of selected jobs:

Table 1: Number of NOS in which one of the above competencies is required at a high level

Selected specific key competence	Count NOS
Ability to make decisions and take responsibility	669
Work organization and planning	503
Strategic and conceptual thinking	486
Creativity	266
Leadership	231
Critical thinking	149
Talent	63

Source: Information system of the National Project Sector-driven innovations for an efficient labor market, author's processing

We subsequently supplemented the exported data on NOS, whose competence model contains at least one of the seven examined specific key competencies, with the data of the job classification SK ISCO-08, which is assigned to each NOS. In this way, we achieved a direct link between NOS, in which experts from sector councils identified a high need for competence with a low risk of automation, which is not easily replaceable by machines, and at the same time a link to an important job classification that offers a large number of opportunities for further research.

2.1 Link with the national classification of occupations SK ISCO-08

The SK ISCO-08 classification is the national classification of occupations, which is issued by the Decree of the Statistical Office of the Slovak Republic no. 449/2020 Coll. as amended. „By linking the NMS with the SK ISCO-08 classification, each job can be supplemented with a qualitative aspect consisting of standard labor market demands and a quantitative aspect consisting of determining employment and the structure of workers performing the job tasks of the given job in any breakdowns.“ (Trexima Bratislava, 2019b, p. 303). Each of the examined NOS contains the SK ISCO-08 classification determined by an expert. Based on the interconnection of NMS (only those who need a competence / skill with a low risk of automation) to perform the job) and at the same time the classification of SK ISCO-08 as a unique identifier for each job, the opportunity arose to analyze these jobs in terms of their

number. For this purpose, we used data from the Labor Price Survey (ISCP). This finding, which „systematically provides and evaluates data on employee remuneration broken down by occupation, gender, education, age, qualification and other characteristics“ (Trexima Bratislava, 2017, p. 2). It is one of the most extensive statistical surveys conducted in the Slovak Republic, as evidenced by the following data on collected intelligence units and employees for the period under review 3Q 2021:

- 9 154 reporting units in the SR,
- 1 084 962 processed employees in the SR.

Using these data, we were able to identify the number of employees (and consequently their share in total employment in the Slovak Republic), who should not be potentially endangered by automation and machine replacement so significantly. In addition, we assessed these jobs in terms of the educational structure of employees who work in the given positions in the Slovak Republic and we also tried to evaluate the representation of these jobs in terms of the main classes of the SK ISCO-08 classification. With these findings it was possible to identify what share of jobs in the Slovak Republic will not be significantly endangered by automation, what education employees working in these jobs have and in which main classes of the SK ISCO-08 classification they work.

2.2 Theoretical background of the researched issues

The results of a survey of several foreign authors dealing with the topic of automation and workforce replacement provide the findings that are the basis of our research. Automation and the replacement of the workforce by technology alone do not necessarily mean job losses. A historical examination of previous innovation trends has shown that in several cases the workload of employees has changed with new tasks and competencies that they did not know before, resp. did not control.

From the findings of foreign authors, we have summarized information that speaks mainly about specific tasks, competencies and skills, which today and in the coming years will not be threatened by automation. These are an important basis for us to be able to identify jobs that may not be automated in the coming period, respectively. replaced by machines in full. In table no. 1, these findings are summarized according to the authors, resp. of those studies.

Table 2: Summary of the most important findings of foreign approaches to the replacement of employees by technology

NAME OF THE STUDY	FINDINGS
David H. Autor (2015)	Automation does not have to reduce overall employment, it can only result in a reduction in labor requirements and **creating space for new competencies and tasks of employees.**
	Polanyi's paradox - there are activities that require specific skills, such as**senzomotorika, critical thinking, judgment, intuition, creativity, spoken word, etc. These features cannot be programmed by programmers and therefore automated.**
Frey a Osborne (2013)	Based on the available literature and research of Oxford University, the authors identified three categories of tasks **that cannot be replaced by technologies**. These are the tasks that require: - **creative intelligence** (According to the authors, any psychological process that is the basis of human creativity can be included within the creative intelligence, e.g. creativity), - **social intelligence,** - **perception and manipulation.**
	Robots cannot recognize human emotions in real time.
Arntz et al. (2016)	**Physically demanding, repetitive, dangerous and monotonous work declined in the observed decades (1980-2010).**

NAME OF THE STUDY	FINDINGS
	The authors replaced the approach based on the assessment of the professions as a whole with **an approach focused on the tasks needed to perform the professions** (international assessment of the key competencies of the PIAAC). According to the authors, applying a task-based approach leads to a much lower risk of automation compared to a profession-based approach. PIAAC data is a unique source of data that contains micro-level indicators of socio-economic characteristics, skills, work-related information, job tasks and competencies. While Frey and Osborne found that 47% of jobs are automated, research by Arntz et al. (2016) yielded 9% for the same country.
	An important controversy in the Frey and Osborne (2013) approach is that their results are taken over by other authors and implemented in other countries, while **the competencies for the performance of these professions and the set of tasks can vary significantly between countries.**
	Whole jobs are not exposed to automation, but only specific work tasks.
World Economic Forum – The Future of Jobs report 2020	**Tasks that cannot be replaced by machines** and can only be performed by people **are decision-making, consulting, communication, reasoning or management.**
	Skills, that employers expect to grow the most by 2025: **critical thinking and analysis, the ability to solve problems, the ability to organize work and time correctly, working with people.**
Deloitte - Employee preparedness for the digital revolution	**Low-skilled employees can be at risk** – The research found that employees with lower education are more skeptical about technology, as opposed to employees with a university degree who see new technologies as an opportunity to acquire new skills.

Source: author's processing

2.3 Analysis of selected key competencies with low risk of automation in the conditions of the Slovak Republic

Following the above findings, we have developed a list of seven specific key competencies that are considered difficult to replace by machines in the above studies. It is a set of the above-mentioned competencies above and subsequently divided into table no.1.

The determination of these competencies as well as their selection was based on the mentioned foreign research and at the same time these competencies had to be chosen so that they were compatible with the available data in the conditions of the Slovak Republic. For this purpose, the competencies based on these researches were linked to the National System of Occupations, which is defined by Act no. 5/2004 Coll. on employment services, as amended „a comprehensive information system describing the standard demands of the labor market for individual jobs. The national system of professions determines the requirements for professional knowledge, skills and abilities necessary to perform work activities in jobs on the labor market.“ Its center is the Employment Register made up of national occupation standard (hereinafter referred to as „NOS“), which describe employers' requirements for qualified employment. The register of jobs consists of 1 915 NOS, which, among other things, contain a part " specific key competencies“. Through this information, it is possible to select only those NMS that in the competency model contain at least one of the above competencies, which according to foreign research will be in the near future with a low risk of automation. In addition, each NOS contains a section „classification“, within which information on the assignment of NOS to:

- classification SK ISCO-08,
- statistical classification of economic activities SK NACE Rev. 2,
- European classification of skills, competences and employment ESCO.

Assignment of NOS to a specific 7-digit code of the SK ISCO-08 classification brings the possibility of detailed examination of jobs at the national level in terms of competencies that are necessary for the performance of jobs. It is a unique way to examine the impact of automation and technological innovation on employment in direct relation to the findings of

Arntz et al. (2016). They recommend analyzing individual competencies directly within national jobs and their job tasks.

Within the database of the National Project Sector-Driven Innovations for an Effective Labor Market, all NMS were exported, in which at least one of the seven monitored competencies at the highest level appeared within the competence model (level high). Subsequently, the classification codes of employees from the SK ISCO-08 classification at the lowest level were attached to these NOS. The database created in this way was used for further work in evaluating their risk of automation. Based on the assignment of the SK ISCO-08 classification code, it was possible to analyze these jobs in terms of the number of employees in the Slovak Republic and the educational structure.

The total share of employees with at least one of the seven competencies examined at a high required level is approximately 24%. Following the findings of foreign authors, we can say that these employees will not be in terms of automation, respectively substitutions by technologies are significantly endangered, as their work requires a high level of such competencies, which today and in the near future will not be possible to replace with machines. It is possible to assume that in the performance of their work, innovations, technologies and automation of certain processes will be a complementary element that will help to increase the efficiency and quality of the work performed. At the same time, there may be a situation where there is a high increase in unemployment and the number of unemployed who can and will be willing to work but are not suitable for them.

Table 3: Share of employees in the total number of employees in the Slovak Republic who use selected specific key competencies at a high level

Name of the specific key competence	The share of employees using a specific competence in the total number of employees in the Slovak Republic (3Q 2021)[52]
Ability to make decisions and take responsibility	11,93 %
Work organization and planning	11,52 %
Leadership	8,93 %
Strategic and conceptual thinking	8,37 %
Creativity	4,55 %
Critical thinking	2,98 %
Talent	0,51 %

Source: National project Sector-driven innovations for an efficient labor market, author's processing

3. RESULTS

The results of a survey of several foreign authors on the topic of automation and workforce replacement brought findings that became the basis of our further research. Automation and the replacement of the workforce by technology alone do not necessarily mean job losses. From the findings, we summarized the information that speaks mainly about specific tasks, competencies and skills, which today and in the coming years will not be threatened by automation. These are an important basis for us to be able to identify jobs that may not be automated in the coming period, respectively. replaced by machines in full.

[52] Individual jobs can occur more than once in the seven monitored skills / competencies. The share of employees is declared only by the relevant percentage of employees using the skill / competence in question.

Within the database of the National Project Sector-Driven Innovations for an Effective Labor Market, all NMS were exported, in which at least one of the seven monitored competencies at the highest level (high level) appeared within the competence model. Subsequently, the classification codes of employees from the SK ISCO-08 classification at the lowest level were attached to these NMS. The database created in this way was used for further work in evaluating their risk of automation. Based on the assignment of the SK ISCO-08 classification code, it was possible to analyze these jobs in terms of the number of employees in the Slovak Republic and the educational structure.

The theory of human capital has become the basis of education policy in many developed countries in recent decades. However, scholarly discussions often underestimate the research findings and developments related to this theory that since the 1970s it has been steadily enriching the understanding of how human capital contributes to the personal well-being and socio-economic development of society as a whole. (Kuzminov Ya., Sorokin P., Froumin I., 2019).

Following the findings of foreign authors, it can be stated in the conditions of the Slovak Republic that employees with at least one high competence will not be in terms of automation, respectively. substitutions by technologies are significantly endangered, as their work requires a high level of such competencies, which today and in the near future will not be possible to replace with machines. It follows that this group of employees is not primarily at risk in the coming period due to automation. With this calculation, we confirmed our statement, in which we claim: A quarter of employees in the Slovak Republic need skills with a low risk of automation in the coming period to perform their job.

This research provides a different view of the impact of innovation trends. While most studies and analyzes address the expected proportion of jobs at risk, in our research we evaluated jobs with a low risk of automation. Based on the connection of data with the Statistical Survey on the Price of Labor (ISCP), we have identified jobs with a low risk of automation in total employment and evaluated in terms of level of education. We are based on the findings of several authors listed in Tab. 1. who consider educated employees to be less at risk. This statement has become a precondition for us to establish a second examination, where jobs with a low risk of automation are in most cases qualified positions with a need for higher education.

We also managed to verify this assumption with a positive statement. We found that a significant majority of employees who need at least one of the selected competencies with a low risk of automation to perform their job have a university degree. In this way, we have also fulfilled the assumption that innovation trends will not be a threat to those employees who are more qualified. In addition, another fact related to jobs at risk has been confirmed to us in the context of our examination of hard-to-replace competences. We also evaluated the jobs for which we identified the need to use competencies with a low risk of automation threat in terms of their representation in the main classes of the SK ISCO-08 classification. This confirms the expectation of experts that skilled jobs, represented mainly in management and specialized classes, will be at very low risk over the coming years. A large part of the jobs we examined, which we evaluated as jobs with a low risk of automation, represent the main classes 1 - Legislators, managers, 2 - Specialists and 3 - Technicians and professionals. Thus, our research also confirmed the fact of domestic and foreign studies that skilled jobs do not suffer from the introduction of automation.

Competence „Ability to make decisions and take responsibility": Of all employees who need competence according to the NSP to perform their work „Ability to make decisions and take responsibility" has up to 60% university degree. Employees in need of this competence work mainly as Legislators, managers; Specialists; Technicians and professionals. This follows from the analysis of labor cost statistical survey (ISCP) data for the period 3Q 2021.

Competence „Work organization and planning": Even in this case, it is possible to observe a significant dominance of university-educated employees who need the competence of high-level organization and planning to perform their jobs. Their share in the total number of employees in the Slovak Republic who need this competence is 60%. Example of jobs with a high proportion of employees in which there is a requirement for a high level of competence examined: Chief Accountant; Project specialist (project manager); Business manager (sales director); Executive Director; Site manager.

Competence „Leadership": Competence is at a high level required of employees, who in most cases have a university degree. Leadership skills are mostly used in positions held by 74% of the monitored group of employees. Almost two-thirds of all staff requiring leadership skills work at a high level in major classes 1 (Legislators, Managers) and 2 (Specialists).

Competence „Strategic and conceptual thinking": More than 8% of all employees in the Slovak Republic are employees who need strategic and conceptual thinking at a high level at work. Almost 70% of them have a university degree. Most of the employees who need strategic and conceptual thinking to perform their jobs work in positions classified in the main class 2 - Specialists.

Competence „Creativity": More than two thirds of employees who need Creativity have a university degree. Of all employees who need a high level of creativity in their work, more than a third work in jobs classified in the main class 2 - Specialists.

Competence „Critical Thinking": Employees with a university degree in particular need critical thinking at a high level. Compared to all employees using the competence in question, they represent a dominant share at the level of 74%. Almost all employees working in jobs where Critical Thinking is required are included in the first three main classes of the SK ISCO-08 classification (Legislators, Managers, Specialists; Technicians and Professionals).

Competence „Talent": Employees with a secondary education make up one third of all employees in the Slovak Republic who need Talent to perform their jobs. A high proportion of employees in this group have a university degree - specifically at the level of 57%. More than half of the employees who need Talent to perform their jobs work in the main class 2 jobs - Specialists. One-fifth of the employees in this group work in the main class 1 - Legislators, managers. Demonstration of jobs with a high proportion of employees, in which there is a requirement for a high level of Critical Thinking: Primary school teacher; Conservatory teacher; Orchestra member; An actor; Dramaturg; Cameraman.

4. CONCLUSION

One of the central socio-economic impacts on the labor market is the impact of Industry 4.0. New technologies and their implementation bring with them the fear of replacing work with machines. These concerns are supported by many domestic and foreign studies, which the Slovak Republic perceives as one of the most endangered countries in terms of labor replacement by automation. These studies point to the fact that the structure of our domestic labor market consists in many cases of employment, for the performance of which it is sufficient to routinely master selected skills. These are the ones that are easily replaced by new technologies.

One of the major studies by Frey and Osborne (2013) estimates the degree of automation for the US labor market. At the same time, they use 702 jobs, which, in cooperation with experts, determine the potential for automation. Their results are then taken over by other authors and applied to European countries. The starting point of our research is the controversy of Arntz et al. (2016) to the results of Frey and Osborne (2013). Their main approach to examining the impact of innovation is not based on evaluating the professions as a whole, but focuses on the tasks needed to carry out specific professions. According to the authors, applying an approach

based on the tasks of a specific job leads to a much lower risk of automation compared to an approach based on automation of the whole profession.

The main purpose of our research was to identify the share of employees with a low risk of automation in the conditions of the Slovak Republic. For this purpose, we based on the findings of the authors listed in the theoretical part, who identified selected skills with the assumption of their irreplaceability of machines. Based on our research, these findings and our practical experience with the issue, we have developed a list of seven specific competencies for which their replacement by machines cannot be expected in the coming years.

Through these competencies, we have identified specific jobs for these competencies in the NMS, in the performance of which employees are required to have at least one of these seven high-level skills / competencies. By identifying these jobs, linking them to the SK ISCO-08 classification and subsequently analyzing the data from the Labor Price Information System (ISCP) statistical survey, we came to the following findings: approximately 24% of jobs in the Slovak Republic will be at low risk of automation. These are primarily employees with a university degree and employment, which is included in the first three main classes within the SK ISCO-08 classification (Legislators and managers, Specialists and Technicians and specialists).

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VPLYV DEMOGRAFICKÉHO VÝVOJA NA PONUKU PRACOVNEJ SILY V SR

IMPACT OF DEMOGRAPHIC DEVELOPMENT ON LABOUR SUPPLY IN SLOVAK REPUBLIC

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Abstrakt: *Početnosť a dominantné postavenie jednotlivých generačných skupín zohráva významnú úlohu na trhu práce. Z dostupných štatistických údajov vieme, že veľkostné zloženie generácií sa postupne zmenšuje. To znamená, že odchádzajúcu pracovnú silu z trhu práce nová nastupujúca generácia nedokáže v plnom rozsahu nahradiť a tým vznikne nedostatok pracovnej sily. V súčasnosti na trhu práce v rámci ponuky vystupujú štyri generačné skupiny – Boomers, X, Y a Z. Štúdia sa venuje analyzovaniu generačných zmien na trh práce a rozdielmi medzi vybranými generačnými skupinami, pretože tieto faktory ovplyvňujú trh práce a ponuku na tomto trhu. Aktuálne na strane ponuky na trhu práce dochádza k preskupeniu generácií, čo znamená, že dochádza k zmene dominantného postavenia generácie X. Novou dominantnou generáciu sa stáva generácia Y a súbežne na trh práce vstupujú prvý ľudia zaradený do generácie Z. Pre udržanie si potrebného počtu zamestnancov musia zamestnávatelia reagovať na túto skutočnosť, pretože medzi každou generáciou dochádza k určitému vývoju, ktorý ovplyvňuje ich správanie a potreby v súkromnom i v pracovnom živote. Na základe zistení z analýzy generačných zmien na trhu práce v SR odporúčame zamestnávateľom zmeniť prístup k pracovnej sile vo viacerých aspektoch.*

Kľúčové slová: *pracovná sila, ponuka, demografické zmeny, generačné skupiny, generácia y, generácia x, generačné rozdiely*

Abstract: *The multiplicity and dominance of different generational groups plays an important role in the labour market. We know from available statistical data that the size composition of generations is gradually shrinking. This means that the new incoming generation will not be able to fully replace the labour force leaving the labour market, thus creating a labour shortage. There are currently four generational groups in the labour market supply - Boomers, X, Y and Z. This study analyzes the generational changes in the labor market and the differences between the selected generational groups as these factors affect the labor market and the supply in this market. Currently, on the supply side of the labor market, there is a realignment of generations, which means that there is a change in the dominance of Generation X. Generation Y is becoming the new dominant generation and, in parallel, the first people in Generation Z are entering the labour market. To retain the necessary number of employees, employers need to respond to this fact, as there is a certain evolution among each generation that affects their behaviour and needs in both their private and working lives. Based on the findings of the analysis of generational changes in the labour market in the Slovak Republic, we recommend that employers change their approach to the workforce in several aspects.*

Keywords*:* *labour force, labour market supply, demographic changes, generational groups, generation y, generation x, generational differences, analysis of employed in Slovakia*

JEL Clasification: *J100, J110, J210*

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ÚVOD

Na trhu práce sa stretáva ponuka práce s dopytom po pracovnej sile. Obidva tieto faktory sú veľmi dynamické veličiny, ktoré reagujú na meniace sa vonkajšie podmienky. Zloženie pracovnej sily na trhu práce na Slovensku sa postupom rokov mení a najvýraznejšie zmeny spôsobuje najmä výmena a nástup nových generačných skupín, ako aj požiadavky na kvalifikačnú úroveň pracovnej sily v dôsledku technologických zmien. V súčasnosti sa na Slovensku nachádza 5,447 milióna obyvateľov (worldbank.org, 2022). Tento celkový počet obyvateľstva vieme ďalej rozdeliť do jednotlivých generačných skupín. V modernom svete vieme identifikovať najmenej 5 generačných skupín (Cilliers, 2017). Každú zo skupín formovali určité sociálne, politické, ekonomické či technologické zmeny. Členenie generácií je nasledovné: Sillent generácia (1928 – 1944), generácia Baby Boomers alebo len Boomers (1945 – 1965), generácia X (1965 – 1979), generácia Y (1980 – 1995), generácia Z (1995 – 2010) a aktuálne generácia Alfa (Alpha) (2011-súčastnosť). Presná zhoda medzi rôznymi autormi vo vekovom rozpätí neexistuje a môžu byť v rôznych publikáciách menšie rozdiely. Na trhu práce súbežne koexistujú viaceré generácie a medzi týmito skupinami dochádza ku generačnému stretu najmä v otázkach hodnotovej orientácie, spôsobe výkonu práce, nadobudnutým zručnostiam a digitálnej gramotnosti.

Každú generačnú skupinu ovplyvňujú určité pozitívne alebo negatívne sociálno-ekonomické a vedecko-technologické zmeny. Tichá generácia bola vychovaná k rešpektu a disciplíne, čo sa prenieslo aj do pracovného života. Ľudia z tejto generácie pracovali tvrdo, rešpektovali autority, obetovali sa a povinnosti mali prednosť pred „zábavou“ a súkromným životom. Presadzovali formálnu komunikáciu a mali nutnosť cítiť sa potrebnými, boli trpezliví, lojálni a pracovali radšej individuálne. Generačná skupina Baby Boomers je vychovaná tichou generáciou a určité črty sú podobné. V práci sú angažovaní a pomerne lojálni. Sú viac optimistickejší, pracujú efektívne a začína sa objavovať pri nich pojem workoholizmus. V osobnom živote nemajú veľký balans a žijú pre prácu. Generácia X je oproti predchádzajúcej generácií viac skeptická, práca je pre nich výzva a povinnosť. Začínajú hľadať balans medzi prácou a rodinou. Radšej sú samostatní a vyžadujú priamu štruktúru v riadení. Generácia Y alebo aj miléniali sú považovaní za realistov, sú sebavedomejší a viac sa socializujú. V pracovnom živote sú cieľavedomí, orientujú sa na cieľ a pri tejto generácií sa začína používať pojem multitasking. Rovnováha medzi pracovným a súkromným životom hrá ešte väčšiu rolu ako pri generácií X (Bejtkovsky J., 2016). Generácia Z je označovaná aj ako igenerácia, generácia sociálnych sieti alebo klikači. Súvisí to s tým aké majú technologické možnosti. Dávajú prednosť súkromnému životu ako pracovnému a začína sa využívať pojem „work life balence“. Oproti predchádzajúcim generáciám majú najväčšie možnosti, čo sa týka otvorenosti sveta. Ovládajú jazyky a môžu žiť a pracovať kdekoľvek chcú. Z toho dôvodu sú menej lojálni a pokiaľ nie sú v práci spokojní, tak si nájdu nové zamestnanie (Egerova, D., 2021).

CIEĽ A METODOLÓGIA

Demografiu môžeme považovať za významy faktor, ktorý ovplyvňuje ponuku pracovnej sily po kvantitatívnej ale aj kvalitatívnej stránke. Cieľom predkladanej štúdie je analyzovať rýchlosť generačnej výmeny na trhu práce a dopadov na tvorbu stratégií v oblasti personálnych politík. Pre dosiahnutie stanoveného cieľa sme použili dostupné údaje zo štatistického úradu, ktoré sme analyzovali pomocou popisných štatistických metód ako je analýza a komparácia. Okrem toho sme využívali matematicko-štatistické metódy a to konkrétne prognózy, kde sme na základe matematických výsledkov doterajšieho vývoja počtu zamestnaných na trhu práce odhadovali pravdepodobný vývoj medzi generáciou X a Y. Pomocou tejto metódy sme dokázali stanoviť obdobie kedy dochádza v ponuke pracovnej sily na trhu práce k zmene, a kedy dôjde k výmene dominantného postavenia generácie Y za generáciu X.

VÝSLEDKY ŠTÚDIE

Zloženie jednotlivých generácií ako aj ich početnosť ovplyvňuje kvantitatívnu aj kvalitatívnu ponuku práce na trhu práce. V tabuľke č.1 môžeme vidieť aktuálne zloženie jednotlivých generačných skupín na Slovensku v roku 2021

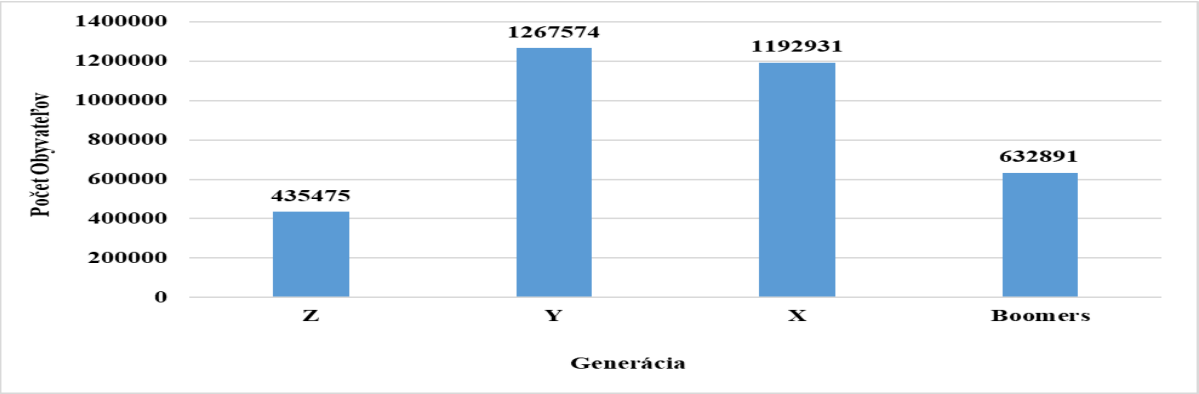
Tabuľka 1: Zloženie jednotlivých generačných skupín na Slovensku v roku 2021

Generácia	Obdobie	Aktuálny vek	Muži	Ženy	Spolu	% podiel
Alpha	2010 - súčasnosť	0 až 11	359890	343514	703404	12,94
Z	1996 - 2009	12 až 25	391974	372571	764545	14,07
Y	1980 - 1995	26 až 41	651093	616481	1267574	23,32
X	1965 - 1979	42 až 56	605211	587720	1192931	21,95
Boomers	1946 - 1964	57 až 75	547703	651943	1199646	22,07
Silent	1924 - 1945	76 až 97	102032	204580	306612	5,64

Zdroj: ŠUSR, vlastné spracovanie

Aktuálne sa obyvateľstvo Slovenska delí do šiestich generačných skupín. Posledná najmenej početná generácia označovaná aj ako „tichá generácia“ vymiera a jej percentuálny podiel v rámci celého obyvateľstva Slovenska predstavuje iba 5,64 percent. Na druhej strane najpočetnejšou generáciou je aktuálne generácia Y, ktorá je označovaná aj ako miléniali alebo stratená generácia. Počet obyvateľov v tejto generácií je približne 1,27 milióna, čo predstavuje podľa percentuálneho podielu skoro celú štvrtinu obyvateľstva krajiny. Generácia Boomers predstavuje ľudí vo veku 57 až 75 rokov. To znamená, že táto generácie, čo sa týka aktívneho zapojenia sa na trh práce pomaly ustupuje do úzadia, pričom veľká časť z tejto generácie sa nachádza už v dôchodkovom veku, a teda nezapájajú sa do pracovného života. Ďalšou generáciou z pohľadu ďalšieho demografického vývoja, ktorá bude na ústupe je generácia X. Celkový percentuálny podiel obyvateľov tejto generácie na Slovensku predstavuje približne 22 percent. Ide o pomerne veľkú generačnú skupinu, ktorá približne o 10 rokov začne z trhu práce odchádzať. Tieto ustupujúce generácie nahradia postupne generácie Z a Aplha. Generácia Z označovaná hovorovo aj ako Zoomeri aktuálne začína vstupovať na trh práce a ide o ľudí vo veku 12 až 25 rokov. V porovnaní s ostatnými generačnými skupinami je táto generácia, čo sa týka počtu obyvateľov pomerne slabá. Podiel z celkového počtu obyvateľstva Slovenska v roku 2021 predstavuje iba 14 percent. Čo je v porovnaní s veľkosťami predchádzajúcich generačných skupín výrazne nižšia početnosť. Generácia Alpha predstavuje obyvateľov resp. deti, ktoré sú narodené po roku 2009 a táto generácia aktuálne ešte narastá. Ide o ľudí vo veku 0 až 11 rokov a ako môžeme vidieť je pomerne veľký predpoklad, že táto generácia bude mierne početnejšia v porovnaní s predchádzajúcou generáciou Z. Avšak v porovnaní s ostatnými generáciami ide stále o nízky prírastok. Táto skutočnosť môže do budúcna predstavovať potencionálny problém, pretože môže dôjsť ku kolapsu sociálneho a zdravotného systému krajiny. Čo je však pozitívne, tak v generácií Alpha v porovnaní s predchádzajúcou generáciou Z sú prírastky obyvateľov mierne vyššie. Priemerný ročný prírastok v generácií Z predstavoval 54 tisíc ľudí a v generácií Alpha je ročný prírastok zatiaľ na úrovni približne 59 tisíc ľudí.

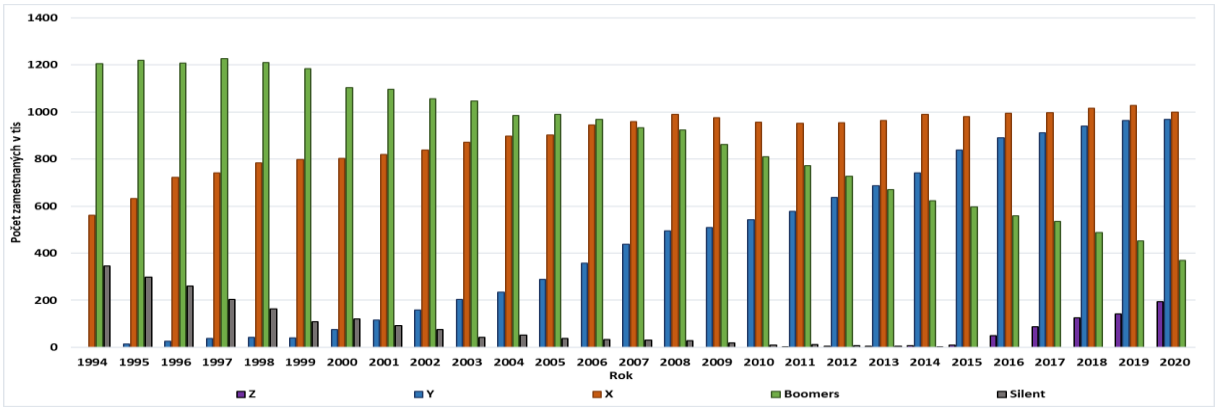
Obrázok 1: Generačný potenciál na TP - celková početnosť ľudí v jednotlivých generačných skupinách, ktoré môžu pôsobiť na trhu práce v roku 2021



Zdroj: ŠUSR, vlastné spracovanie

V grafe je znázornená početnosť ľudí v jednotlivých generačných skupinách. Údaje sú zo Štatistického úradu SR a pri spracovaní grafu sme vychádzali z predpokladu, že ľudia, ktorí môžu pôsobiť na trhu práce sú vo veku od 18 do 65 rokov. To znamená, že na trhu práce v rámci generácie Z ešte nie sú všetci ľudia a postupne, tak nastupujú na trh práce ďalší z tejto generácie. Generácia Y prestavuje dominantnú skupinu ľudí v populácií Slovenska a ich počet je približne 1,27 milióna. Predchodca tejto skupiny, a teda generácia X je čo sa týka početnosti na pomyslenom druhom mieste. Čo je zaujímavé, tak na trhu práce aj napriek mierne nižšiemu počtu ľudí prevládala generácia X, avšak podľa predpokladov sa táto dominancia postupne zmení (viď. Graf 2). Počet obyvateľov grafe pri generácií Boomers a Z nie je úplný, pretože vychádzame z predpokladu, že na trhu práce sa zúčastňujú iba ľudia vo veku 18 – 65 rokov. Počet ľudí, ktorý by mohli pracovať z generácie Boomers je 632 tisíc, čo je v porovnaní s celkovým počtom tejto skupiny približne 50 percent. Ako môžeme vidieť, tak generačná skupina Boomers je v rámci trhu práce na ústupe a v priebehu najbližších rokov môžeme očakávať, už iba minimálne zapojenie sa na trhu práce zo strany tejto generačnej skupiny. Vzhľadom k početnosti skupín „starších“ generácií v porovnaní s „novými alebo mladými“ generáciami môžeme predpokladať, že okrem extrémneho zaťaženia sociálneho a zdravotného systému krajiny dôjde na trhu práce k situácií, kedy bude pracovnej sily nedostatok.

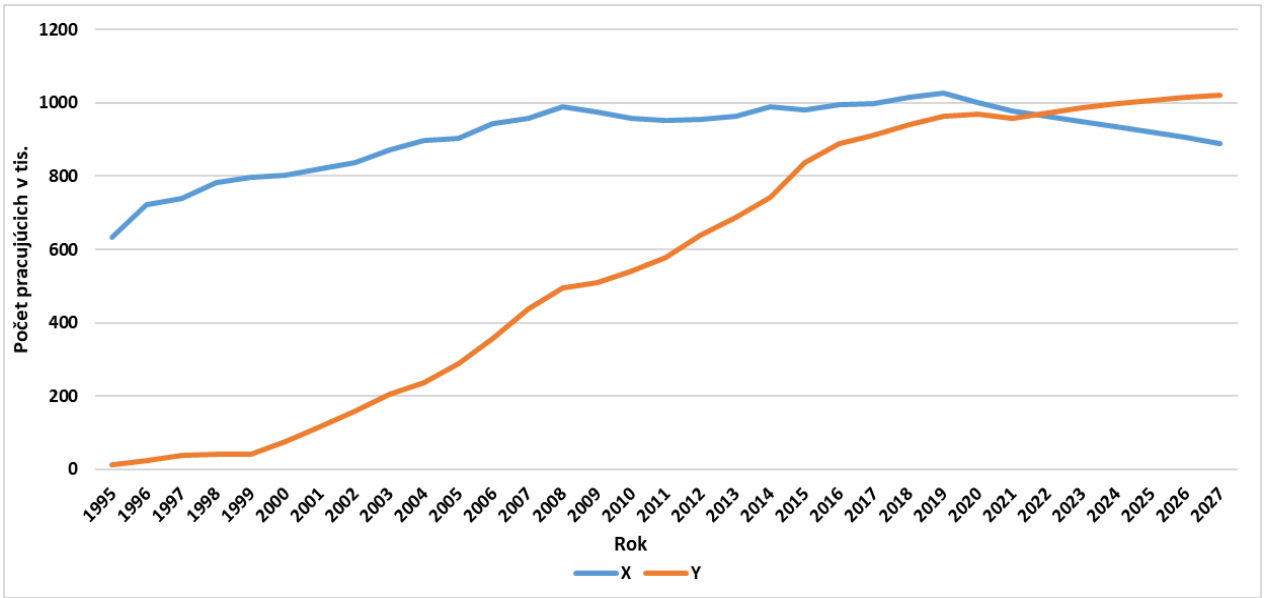
Obrázok 2: Vývoj počtu zamestnaných v jednotlivých generačných skupinách na Slovensku od roku 1994 po rok 2020



Zdroj: ŠUSR, vlastné spracovanie

Vývoj počtu zamestnaných ľudí v jednotlivých generáciách vychádzajúc z predpokladu štatistickej metodiky, že zamestnaný sú ľudia vo veku od 15 do 65 rokov. Údaje sú iba orientačné, pretože do štatistiky vstupuje viacero faktorov ako sú počty migrujúcich ľudí, počty absolventov, počty vysokoškolákov, počty ľudí na starobnom dôchodku a pod. Pri vypracovaní vychádzame z demografických štatistík dostupných na ŠUSR a analyzujeme údaje z počtu zamestnaných osôb podľa vekových skupín. Ako môžeme vidieť na začiatku sledovaného obdobia, a teda v roku 1994 je výrazne dominantnou generáciou Boomers. Vrchol tejto generácie, kedy pôsobilo na trhu práce najviac ľudí bol v rok 1997, kedy na trhu práce bolo v rámci tejto generačnej skupiny 1,23 milióna ľudí. Spolu s generáciou Boomers môžeme vidieť v roku 1994 ešte tichú generáciu a generáciu X. Tichá generácia postupne počas sledovaného obdobia klesá a približne v roku 2010 z trhu práce odišla úplne. Takýto postup sa očakáva v najbližších rokoch pri generácií Boomers. Generácia X od začiatku sledovaného obdobia rástla a v roku 2007 sa stala na trhu práce dominantnou, a toto postavenie si drží až do konca sledovaného obdobia. Generácia Y mala na trh práce nástup približne v roku 1995, pričom môžeme sledovať stabilný nárast počtu zamestnaných z tejto generácia. Na konci sledovaného obdobia sa dostáva na hranicu dominantného postavenie v rámci ponuky na trhu práce. Okrem spomínaných generačných skupín do grafu vstupuje aj generácia Z, ktorá nastupuje postupne na trh práce od roku 2015, no zatiaľ je vývoj príliš krátky pre ďalšie analyzovanie. Čo však bude zaujímavé sledovať je to, či, ako a kedy záujme dominantné postavenie táto generácia, pretože jej počty oproti predchádzajúcim sú výrazne menšie.

Obrázok 3: Vývoj počtu zamestnaných v generácií X a Y s prognózou pravdepodobného vývoja



Zdroj: ŠUSR, vlastné spracovanie

Vývoj a prognóza vývoja počtu zamestnaných obyvateľov aktuálne dominujúcej generácie X spolu v porovnaní s vývojom a prognózou vývoja nastupujúcej dominantnej generácie Y. Vývoj sledujeme od roku 1995 po rok 2020. Po roku 2020 do konca sledovaného obdobia, teda po rok 2027 sledujeme pravdepodobnú prognózu vývoja počtu zamestnaných ľudí v jednotlivých generáciách. Prognóza vychádza na základe dostupných dát z celkového vývoja a ide iba o čisto matematicko-štatistický odhad. Ako môžeme vidieť, tak generácia Y by podľa prognózy mala byť dominantnou skupinou na trhu práce už v tomto roku, teda v roku 2022. Generácia X začne v priebehu ďalších rokov postupne klesať. Tento pokles je

spôsobený vyšším vekom obyvateľov v tejto skupine, a teda odchodom na starobný dôchodok. Okrem toho, je tu však aj zvýšená miera úmrtnosti, ktorá súvisí už práve spomínaným rastúcim vekom.

ZÁVER

Z výsledkov našej štúdie vyplýva, že dominantné postavenie na trhu práce sa medzi generáciami X a Y v roku 2022 mení a zároveň na tento trh nastupuje nová generácia Z. Hlavným problémom, ktorý môžeme očakávať je ten, že s poklesom počtu ľudí v generačných skupinách, je pravdepodobné, že dôjde k nedostatku pracovnej sily na trhu práce. Preto musia zamestnávatelia reagovať a musia zmeniť svoju personálnu politiku vo vzťahu k zamestnávaniu ľudí, tak aby si pracovnú silu udržali (age management), ale taktiež dokázali prilákať nové generácie.

Zmeny, ktoré budú musieť zamestnávatelia zvážiť pre udržanie si a získanie pracovnej sily by mohli zahŕňať nasledovné možnosti. Pri tvorbe nových pracovný miest zavádzať najmä moderné technológie a pracovné miesto vytvárať tak, aby sa práca mohla uskutočňovať čo najviac flexibilne. Novým generáciám záleží čím ďalej tým viac na svojom súkromnom živote a záleží im, aby mali určitý balans medzi prácou a súkromím. Dôležité je budovať silnú značku a dobré meno podniku. V súčasnom svete je neuveriteľne jednoduché dopracovať sa najmä pomocou internetu k rôznym informáciám. Generácia Z je označovaná aj ako „klikači" a pre ľudí, z nových generácií je dôležité pracovať v podniku, ktorý má dobré meno. S tvorbou dobrého mena súvisí aj vnímanie z pohľadu riešenia klimatických zmien a celkovej spoločenskej zodpovednosti. Nastupujúce generácie viac ako ktorékoľvek iné vnímajú veľmi vážne klimatické zmeny a táto problematika ich nesmierne zaujíma. Preto by sa zamestnávateľ – podnik mal zameriavať napríklad na čo najviac ekologické podnikanie, využívanie obnoviteľných zdrojov a pod. Poskytovať benefity nie len finančné, ale aj nefinančné, ktoré sú navyše oproti iným podnikom. Napríklad hybridná či flexibilná pracovná doba, ale aj ďalšie možnosti rozvíjania a vzdelávania v podobe školení a kurzov. V rámci ďalších benefitov by mohlo byť na základe prieskumu Deloitte poskytnutie pomoci pri ubytovaní zamestnancov. Dôležité je zavedenie individualizovaného prístupu k zamestnancom. Čoraz viac ľudí dáva prednosť priaznivému pracovnému prostrediu a duševnej pohode pred výškou platu. Mladí ľudia – nové generácie radi pracujú v tímoch, a preto je pre nich dôležité, aby na pracovisku boli pozitívne vzťahy. Pri dôležitých rozhodnutiach podniku by sa mali dávať aspoň čiastočné informácie aj zamestnancom, tak aby mali pocit, že sú zapojení a angažovaní. Staršie generácie pracovali bez otázok zatiaľ čo nové generácie si vyžadujú viac informácií a najmä odpovede na otázky, ktoré súvisia s cieľmi práce. Problematika generačnej výmeny sa stáva vysoko aktuálnou a nikdy pred tým v celej histórií trhu práce neobsahovala toľko otázok, na ktoré nie je možné dosť dobre odpovedať. V prvom rade nevieme aké pracovné miesta budú vznikať, to súvisí s výrazným technologickým pokrokom, ktorý sa neustále zrýchľuje a nevieme ani aké zručnosti a znalosti budú od pracovnej sily vyžadované. Vážna otázka, ktorá trápi mladé generácie je otázka spoločenskej zodpovednosti firiem najmä vo vzťahu k životnému prostrediu. Problematikou, ktorou sme sa zaoberali v našej štúdii považujeme za vysoko aktuálnu a preto sa jej v našej výskumnej práci budeme naďalej venovať.

Dodatok

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STARNUTIE AKO PRÍLEŽITOSŤ PRE HOSPODÁRSKY RAST A INOVÁCIE V SLOVENSKEJ REPUBLIKE

AGING AS AN OPPORTUNITY FOR ECONOMIC GROWTH AND INNOVATION IN THE SLOVAK REPUBLIC

Peter SIKA[56]

Abstrakt: *Jednou z najväčších výziev pre krajiny Európskej únie predstavuje starnutie obyvateľstva, nakoľko predstavuje hrozbu z pohľadu negatívnych dopadov na mnohé sféry spoločnosti. Európska komisia v Zelenej knihe o starnutí z roku 2021 vyzýva na diskusiu o nových a inovatívnych možnostiach a príležitostiach pre starnúcu európsku spoločnosť. Prognózovaný rast počtu starých ľudí a pokles ekonomicky aktívnych je vnímaný nielen ako ekonomická, ale aj sociálna hrozba, avšak je potrebné si uvedomiť, že starší ľudia sú schopní významne prispievať k vytváraniu sociálnej a hospodárskej hodnoty v našej spoločnosti. Z toho dôvodu je nevyhnutné posunúť negatívne vnímanie procesu starnutia ako záťaže verejných financií k vnímaniu starnutia ako príležitosti pre udržateľný hospodársky rast. Staršia populácia tvorí dôležitú a čo je podstatné rastúcu skupinu spotrebiteľov. Finančná situácia seniorov sa postupne stabilizuje, nakoľko drvivá väčšina z nich už nemá záväzky, vlastné bývanie má splatené a deti sú už zabezpečené. Slovenská republika sa v súčasnosti nazerá na demografický vývoj z pohľadu výdavkov na sociálny a zdravotný systém, avšak abstrahuje od prieniku starnutia do ostatných oblastí a nereflektuje na možné príležitosti zabezpečenia hospodárskeho rastu so starnutia populácie. V príspevku sme si stanovili za cieľ identifikovať vybrané sektory pre socio-ekonomické výzvy a príležitosti súvisiace so starnutím obyvateľstva a načrtnúť opatrenia pre zabezpečenie hospodárskeho rastu a inovácií s využitím potenciálu rozrastajúcej sa skupiny striebornej generácie v Slovenskej republike.*

Kľúčové slová: *hospodársky rast, inovácie, príležitosti, starnutie, strieborná generácia*

Abstract: *One of the biggest challenges for the countries of the European Union is the aging of the population, as it poses a threat from the point of view of negative impacts on many spheres of society. In the 2021 Green Paper on Aging, the European Commission calls for a discussion on new and innovative options and opportunities for an aging European society. The projected increase in the number of old people and the decrease of economically active people is perceived not only as an economic but also a social threat, but it is necessary to realize that older people are able to significantly contribute to the creation of social and economic value in our society. For this reason, it is necessary to shift the negative perception of the aging process as a burden on public finances to the perception of aging as an opportunity for sustainable economic growth. The elderly population constitutes an important and, importantly, a growing group of consumers. The financial situation of seniors is gradually stabilizing, as the vast majority of them no longer have obligations, their housing has been paid off and their children are already provided for. The Slovak Republic currently looks at the demographic development from the perspective of spending on the social and health system, but it abstracts from the penetration of aging into other areas and does not reflect on the possible opportunities to ensure economic growth due to the aging of the population. In the contribution, we set ourselves the goal of identifying selected sectors for socio-economic challenges and opportunities related to the aging of the population and outline measures to ensure economic growth and innovation using the potential of the growing group of the silver generation in the Slovak Republic.*

Key words: *economic growth, innovation, opportunities, aging, silver generation*

JEL Classification: *E60, F43, H55, O35*

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1. ÚVOD

Krajiny Európskej únie akcentujú výrazné starnutie populácie, ktorého dôsledky sa prejavujú na ekonomike a zvyšujú tlak na udržateľnosť verejných výdavkov, najmä na sociálne a zdravotné systémy. Populačné starnutie mení vekovú skladbu v prospech starých a v neprospech mladých, čo predstavuje už dnes jednu z najväčších výziev, ktorá bude mať vplyv na všetky oblasti spoločnosti. Zvyšujúci sa počet starších ľudí vynára množstvo nových výziev, ktorých potenciál a riešenia sa hľadajú iba postupne. Podľa Eurostatu bude Slovensko do roku 2070 druhou najrýchlejšie starnúcou ekonomikou v EÚ, zatiaľ čo v súčasnosti na základe pomeru populácie vo veku nad 64 rokov k populácii 20-64 rokov sme jednou z najmladších ekonomík Európskej únie. Nízka fertilita a predlžujúca sa stredná dĺžka života významnou mierou zmenia vekovú štruktúru slovenskej populácie, ale aj ekonomiku ako takú.

Zatiaľ čo v roku 2019 pripadali na jedného človeka staršieho ako 64 rokov takmer 4 ľudia v produktívnom veku (20-64 rokov), v roku 2070 ich bude už len 1,6. Starnutie slovenskej spoločnosti je dlhodobí proces, nakoľko od začiatku 90. rokov dochádza v Slovenskej republike k predlžovaniu života ľudí, čo je spôsobené najmä stagnáciou úmrtnostných pomerov. Vo veku 65 rokov sa stredná dĺžka života predĺžila u mužov z necelých 13 rokov na viac ako 15 rokov. U žien to bolo z necelých 16,4 roka na 18,8 roka.

Bleha & Šprocha (2018) uvádzajú, že do roku 2060 by sa stredná dĺžka života vo veku 65 rokov mala predĺžiť u mužov o 22 rokov a u žien o viac ako 24 rokov. Uvedená skutočnosť bude zapríčinená najmä zlepšovaním úmrtnostných pomerov vo vyššom veku. Najrýchlejšie starnutie bude medzi rokmi 2040 a 2060, nakoľko v tomto období sa do poproduktívneho veku dostanú ročníky narodené v 70-tych až 80-tych rokoch minulého storočia.

Napriek tomu, že starnutie populácie sa považuje za prirodzený fyziologický proces, ktorý sa nedá ničím zastaviť, dá sa však naň pripraviť účinnými verejnými politikami orientovanými na podporu všetkých vekových kategórií. Európska komisia v Zelenej knihe o starnutí z roku 2021 vyzýva na diskusiu o výzvach a príležitostiach starnúcej európskej spoločnosti. Na základe uvedených skutočností, je preto nevyhnutné sústrediť sa na skúmanie procesu starnutia, nie ako problému, ale ako procesu s novými možnosťami a príležitosťami pre zabezpečenie hospodárskeho rastu a inovácie. Starnutie obyvateľstva vedie k vzniku tzv. striebornej ekonomiky, ktorú Európska komisia definuje ako ekonomické príležitosti vyplývajúce z verejných a spotrebiteľských výdavkov súvisiacich so starnutím populácie a konkrétnymi potrebami obyvateľstva nad 50 rokov (Európska komisia, 2015) Seniori budú vytvárať trh, nakoľko sa stanú neodmysliteľnou skupinou klientov, pacientov, zákazníkov, užívateľov služieb. Preto je čoraz dôležitejšie vyvíjať nové koncepty, ktoré podporujú nové moderné chápanie procesu starnutia.

2. CIEĽ A METODOLÓGIA

Napriek tomu, že starnutie slovenskej spoločnosti považujeme za nezvratný proces, musíme sa naň pripraviť ako na výzvu budúceho ekonomického rastu. Sektory ekonomiky potrebujú reformy s rešpektovaním novej podoby staroby.

Cieľom príspevku je v tejto súvislosti načrtnúť vybrané sektory príležitostí pre zabezpečenie ekonomického rastu a inovácií s využitím potenciálu rozrastajúcej sa skupiny striebornej generácie v Slovenskej republike.

V súlade so stanoveným cieľom bola zvolená metodológia príspevku. Príspevok bol spracovaný pomocou metód analýzy sekundárnych a primárnach zdrojov, syntézy poznatkov, indukcie a komparácie. Zároveň sme na odôvodnenie jednotlivých záverov využili metódu dedukcie. Zo sekundárnych zdrojov boli analyzované vedecké a odborné články z jednotlivých databáz.

3. TEORETICKÉ VÝCHODISKÁ

Podľa Pavlík a Kalibová (2005) môžeme začiatok demografického starnutia pozorovať už v demografickej revolúcii počas ktorej došlo k prechodu od pomerne vysokých hodnôt mier úmrtnosti a plodnosti na ich relatívne nízku úroveň. (Pavlík a Kalibová, 2005) Medzi hlavné príčiny zmeneného demografického vývoja jednotlivých ukazovateľov zaraďujeme najmä pokrok v medicíne, technologický a vedecký pokrok, rast produktivity, snaha o zvýšenú životnú úroveň, kríza inštitúcie manželstva, vzdelanostná úroveň, zmeny na trhu práce a pod. (European Commission, 2021; Pastor, 2015; Hvozdíková, 2012; Dovaľová, 2011) Starnutie ovplyvní konkurencieschopnosť, ekonomický rast a zamestnanosť. Mládek a Káčerová (2008) považuje demografický vývoj za dej, ktorý neprebieha izolovanie od spoločenského vývoja, ale je úzko spojený s geografickými, ekonomickými, politickými a sociálnymi podmienkami.

Vplyv starnutia sa bude postupne premietať do národného hospodárstva, a to v kontexte zmien v ponuke a dopyte po službách, výrobkoch, pracovnej sile, na čo bude musieť ekonomika a podnikateľské subjekty reagovať svojimi riešeniami. (Sika, 2020) Podľa Matušovičovej (2016) staršia generácia má v súčasnosti o značnú mieru vyššie príjmy ako v minulosti a je ochotná ich spotrebovať. Demografické zmeny ponúkajú príležitosti pre ekonomický rast, ale iba vtedy pokiaľ sú aj podporované politikou. (Feng-Mason, 2005) S vysokou pravdepodobnosťou sa nepodarí zvrátiť proces starnutia a z toho dôvodu je potrebné posunúť vnímanie starnutia ako záťaže k starnutiu ako pokroku civilizácie a príležitosti, tak pre samotného občana ako aj pre zabezpečenie udržateľného hospodárskeho rastu. (Baláž, 2013) Nevyužitie príležitostí a nereagovanie na výzvy, ktoré demografická zmena prináša, môže viesť k neefektívnym politikám a nesenzitívnym službám, ktoré nevyužívajú potenciál a nezohľadňujú potreby a ašpirácie rastúceho podielu a počtu starších ľudí.

4. VÝSLEDKY

V doterajšej histórii trh do značnej miery opomína skupinu seniorov z odôvodnením, že je to nezaujímavý segment spotrebiteľov. Táto skutočnosť je pri rozrastajúcej sa skupine seniorov do istej miery prekvapujúca, nakoľko za ostatných 16 rokov došlo k nárastu počtu poberateľov starobných a predčasných starobných dôchodkov o takmer 20 %. V roku 2005 predstavoval počet dôchodcov poberajúcich starobný a predčasný starobný dôchodok 924 285. V roku 2021 ich počet narástol na úroveň 1 096 225 poberateľov starobných a predčasných starobných dôchodcov.

Podľa projekcie obyvateľstva SR do roku 2200 (Vaňo, 2015) sa očakáva dramatický nárast obyvateľov vo veku 65 a viac rokov o viac ako 90 % do roku 2065, čo spôsobí zmenu podielov vekových skupín na hodnotách 20 % (deti a mládež), 50 % (produktívny vek) a 30 % (seniori). V súčasnosti podiel osôb v poproduktívnom veku dosahuje úroveň 17,39 % (STARdat, 2022). Z uvedeného vyplýva významný potenciál tejto cieľovej skupiny a očakávame, že sa seniori presunú z okrajovej na rovnocennú skupinu zákazníkov, čo vytvorí dostatočný predpoklad pre ekonomický rast. Pôjde o vzdelanejších ľudí s inými nárokmi na trávenie voľného času ako mali ich predchodcovia. Výzvou je, aby sa podnikateľské subjekty sústredili na inovovanie svojich produktov a služieb prispôsobených individuálnym potrebám a požiadavkám, čo je v súlade s prijatou koncepciou Spoločnosti 5.0, ktorá je zameraná na človeka a takmer všetky priemyselné odvetvia a aj iné oblasti spoločnosti využívajú inovácie a ďalšie inovatívne technológie, čo dokáže podporovať hospodársky rozvoj a vznik nových pracovných miest. Spoločnosti musia brať ohľad na to, aby inovované produkty boli prispôsobené seniorom, čo znamená, že majú byť ľahko ovládateľné, kvalitné, bezpečné a mali by mať dlhšiu životnosť, nakoľko seniorská generácia je menej náchylná na časté výmeny tovarov. Zároveň musia spoločnosti zakomponovať túto skupinu zákazníkov do

svojich marketingových plánov, čím si môžu vytvoriť konkurenčnú výhodu oproti konkurencii.

Demografické procesy zasahujú aj do dopytu na trhu práce, keďže odchádzajúce kohorty z trhu práce sú o približne 50 % vyššie ako prichádzajúce kohorty, čo vytvára tlak na predlžovanie veku odchodu do dôchodku. Starnutie má vplyv aj na štruktúru pracovnej sily, ktorej nedostatok v niektorých profesiách pociťujeme už dnes (špecialisti v zdravotníctve a ošetrovateľstve, sociálni pracovníci). Nedostatkovosť pracovnej sily je kompenzovaná automatizáciou s cieľom udržania produktivity. V roku 2050 bude na Slovensku podľa Národného programu aktívneho starnutia chýbať až 21% pracovnej sily. (MPSVaR SR, 2021) Podľa Lednárovej (2021) sa starnutie populácie prejaví na trhu práce v plnej sile po roku 2040 a spoločnosť sa musí vyrovnať s vyššími verejnými výdavkami, zároveň hľadať možnosti, ako predĺžiť pracovnú kariéru ľudí, riadiť migráciu alebo reštrukturalizovať ekonomiku. Je potrebné prijať opatrenia na podporu väčšieho zapojenia vybraných skupín obyvateľstva na trhu práce. Zmena vekovej štruktúry obyvateľstva Slovenskej republiky významnou mierou ovplyvní trh práce, čo pre zamestnávateľov bude znamenať nutnosť prispôsobiť procesy tejto zmene a nasmerovať ich na špecifiká potrieb staršej pracovnej sily. Podpora tejto zmeny zo strany štátu predpokladá efektívnu politiku age-managementu. Uplatniteľnosť starších na pracovnom trhu bude vytvárať tlak na prispôsobovanie pracovných podmienok ich špecifickým podmienkam a zdravotnému stavu ako aj daňovo-odvodovým bariéram ich pracovnej činnosti. Najvyšší počet osôb vo veku 60 a viac rokov je zamestnaných vo vzdelávaní, priemysle a zdravotníctve. Z toho dôvodu v týchto odvetviach bude zohrávať významnú úlohu náhrada pracovných síl. Rast zamestnanosti v priemysle neočakávame, avšak zo zdrojov pracovných síl v podmienkach SR nebude schopný uspokojiť ani nahradzujúci dopyt. Veľmi podobná situácia je aj v oblasti vzdelávanie, v ktorom je druhý najvyšší priemerný vek zamestnancov na úrovni 48,3 roka. Do roka 2040 budú prichádzať na trh práce početne najslabšie ročníky, preto sa musí stať prioritou v akej oblasti pracovné sily vyštudujú a v akej sa zamestnajú. Starší pracovníci môžu byť v porovnaní s mladšou generáciou pre zamestnávateľov prínosom v dôsledku dlhoročných pracovných skúseností, zrelosti a nižšej fluktuácii. (Páleník a kol., 2012)

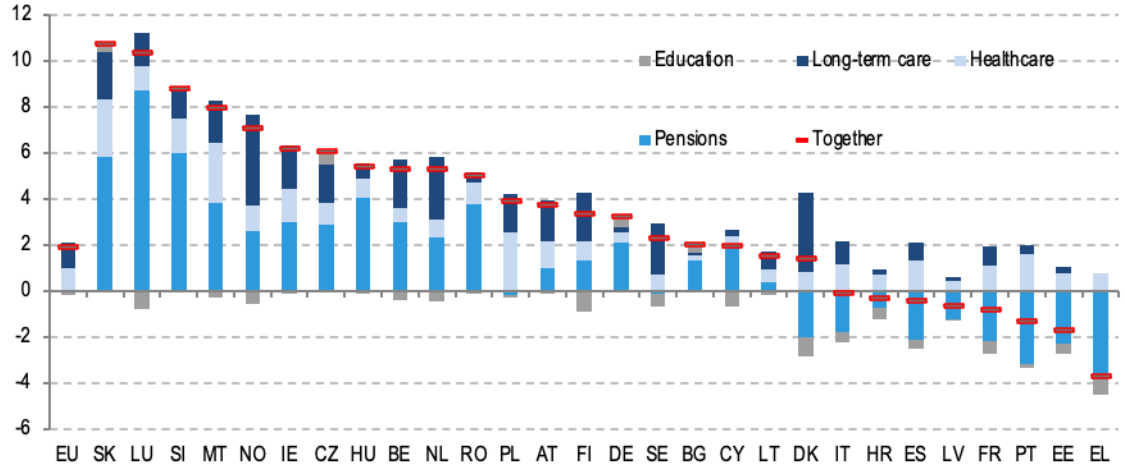
Tabuľka 1: Priemerný vek v odvetviach ekonomických činností

Odvetvia ekonomických činností	Priemerný vek
Činnosti v oblasti nehnuteľností	48,9
Vzdelávanie	48,3
Poľnohospodárstvo, lesníctvo a rybolov	48,2
Dodávka vody; čistenie a odvod odpadových vôd, odpady a služby	47,9
Ťažba a dobývanie	47,4
Dodávka elektriny, plynu, pary a studeného vzduchu	47,4
Ostatné činnosti	46,7
Zdravotníctvo a sociálna pomoc	46,7
Stavebníctvo	46,6
Verejná správa a obrana; povinné sociálne zabezpečenie	45,7
Doprava a skladovanie	45,7
Umenie, zábava a rekreácia	45,7
Administratívne a podporné služby	43,6
Priemyselná výroba	43,4
Odborné, vedecké a technické činnosti	43,3
Veľkoobchod a maloobchod; oprava motorových vozidiel a motocyklov	42,8
Ubytovacie a stravovacie služby	41,8
Finančné a poisťovacie činnosti	40,9
Informácie a komunikácia	40,2

Zdroj: vlastné spracovanie na základe údajov TREXIMA Bratislava.

Úlohou štátu je v súvislosti so starnutím zabezpečenie stability systémov dôchodkového zabezpečenia, sociálnej a zdravotnej starostlivosti, vzdelávania a bývania. Slovenská republika bude jednou z piatich krajín Európskej únie, v ktorej dôjde do roku 2070 k nárastu všetkých výdavkoch citlivých na starnutie. Z uvedeného dôvodu bude musieť Slovenská republika pristúpiť k reformným opatreniam nadväzujúcim na očakávané demografické trendy.

Obrázok 1: Nárast výdavkov citlivých na starnutie medzi rokmi 2019 a 2070 (v % HDP)



Zdroj: Inštitút finančnej politiky, 2021.

Počet dôchodcov bude v roku 2030 predstavovať v Slovenskej republike 1,2 milióna, čo bude predstavovať priemerne 0,6 dôchodcu na 1 pracujúceho. Z uvedeného vyvstáva otázka adekvátneho zabezpečenia na starobu a zároveň udržateľnosti dôchodkového systému. Výdavky na dôchodkové dávky sa za ostatných 15 rokov viac ako strojnásobili, čo má vplyv na udržateľnosť dôchodkového systému a vytvára pnutie medzi generáciami, nakoľko sa zvyšuje tlak na zníženie miery solidarity v poistných systémoch a zvýšenie miery subsidiarity. Prognózovaný rast počtu starých ľudí a pokles platiteľov daní je vnímaný v spoločnosti ako demografická časovaná bomba. Dopady starnutia populácie na dôchodkové systémy sa budú líšiť podľa toho, či bude hlavným príjmom v starobe dôchodok z verejných zdrojov alebo súkromný dôchodok. (Sika-Vidová, 2022) V záujme posilnenia finančnej udržateľnosti verejného dôchodkového systému bude musieť SR zapracovať tzv. automatické stabilizátory, čo však spôsobí zníženie miery náhrady a následne to bude mať negatívny dopad na životnú úroveň slovenských dôchodcov. Miera náhrady z verejného piliera dosiahla v roku 2021 úroveň 41,76 %, avšak v roku 2070 sa podľa Inštitútu finančnej politiky (2018) očakáva úroveň len 38,4 %. Kompenzáciou má byť súkromný dôchodkový systém, ktorý počas sporiacej fázy prostriedky akumuluje a zhodnocuje. Ku koncu decembra 2021 bolo v starobnom dôchodkovom sporení zapojených 1 680 220 sporiteľov a výška spravovaného majetku v dôchodkových fondoch predstavovala takmer 12 miliárd eur.

Zníženie miery náhrady môže v budúcnosti vytvoriť dodatočný tlak na zvýšenie verejných výdavkov na dlhodobú starostlivosť, po ktorej bude dopyt vplyvom starnutia rásť. O sociálne služby odkázanosti na pomoci inej osoby medzi ktoré zaraďujeme poskytovanie opatrovateľskej služby a sociálnych služieb v zariadeniach bude dopyt vplyvom starnutia rásť. V súčasnosti Slovenská republika vykazuje ich fyzickú a finančnú nedostupnosť a z toho dôvodu podporuje proces deinštitucionalizácie sociálnych služieb, ktorá je však vplyvom procesných a finančných prekážok výrazne pomalá. Napriek tomu, že sa v roku 2014 legislatívne obmedzil vznik veľkokapacitných zariadení, nedošlo však k adekvátnemu rozvoju

komunitných služieb. V roku 2020 bolo 6 863 žiadateľov o zabezpečenie poskytovania sociálnych služieb v zariadení pre seniorov z čoho vyplýva, že za ostatné štyri roky došlo k prudkému navýšeniu žiadateľov o 24% a zároveň k prudkému rastu čakateľov na poskytnutie sociálnej služby. Proces deinštitucionalizácie otvára priestor na zvýšenie kvality poskytovaných sociálnych služieb ako aj na tvorbu pracovných miest. Opatrovateľskú službu v roku 2020 poskytovalo 5 760 zamestnancov miest a obcí a neverejní poskytovatelia zamestnávali 1 723 opatrovateľov. V súvislosti s rastúcim počtom žiadateľov je nevyhnutné zvýšiť počet špecializovaného personálnu, zaviesť nové typy komunitnej starostlivosti a zabezpečiť regionálnu dostupnosť služieb, čo povedie k zvýšeniu zamestnanosti a zníženiu chudoby v menej rozvinutých regiónoch Slovenska.

Výmena generácií je hybnou silou súčasného úbytku ľudských zdrojov na trhu práce. Generácia narodená v rokoch 1950 až 1955 už odišla do dôchodku. Táto generácia disponovala najmä základným a nižším stredným vzdelaním. Ďalšia silná generácia, ktorá opustí trh práce bude najmä po roku 2040. Táto generácia už disponuje vyšším vzdelaním prevažne s maturitou. V tejto súvislosti sú dôležité aj zistenia týkajúce sa digitálnej gramotnosti starších ľudí a zvládania moderných komunikačných prostriedkov a technológií v digitalizovanej ére. Digitálna gramotnosť na vyššej ako základnej úrovni je na Slovensku u osôb do 74 rokov porovnateľná s priemerom EÚ28, zaostávanie je prítomné až u osôb 75+. Absencia digitálnej gramotnosti starších ľudí pritom môže znižovať ich prístup k verejným zdrojom a službám, k potrebným informáciám a nástrojom spoločenskej participácie. (MPSVaR SR, 2021) Príležitosťou je aj kultivácia ľudského potenciálu vytvorením možností celoživotného vzdelávania prispôsobeného seniorskému veku. Je to nevyhnutný prvok pre zlepšovanie ich sociálnej adaptácie a osobného blahobytu. Celoživotné vzdelávanie spolu s odbornou prípravou je aj príležitosť na lepšiu integráciu starších ľudí do digitálneho sveta. Nadobúdanie digitálnych zručnosti staršími ľuďmi je prostriedkom k online vzdelávaniu, taktiež k zlepšeniu ich prístupu k zdravotnej starostlivosti, či iným digitálnym službám. Otvárajú predpoklad pre aktívnu prácu na skrátený úväzok, resp. na prácu z domu, čo prispeje k uprednostňovaniu nezávislého života.

5. ZÁVERY

Starnutie populácie predstavuje jednu z najvýznamnejších zmien, ktorá zaručene príde a prejaví sa dramatickými, no predvídateľnými spôsobmi. Spoločnosť pri príprave svojich dlhodobých zámerov by nemala abstrahovať od tejto skutočnosti a mala by zaradiť politiku starnutia do svojich priorít. Starší ľudia sú schopní významne prispievať k vytváraniu sociálnej a hospodárskej hodnoty v našej spoločnosti. Staršia populácia tvorí dôležitú a čo je podstatné rastúcu skupinu spotrebiteľov. Finančná situácia seniorov sa postupne stabilizuje, nakoľko drvivá väčšina z nich už nemá záväzky, vlastné bývanie má splatené a deti sú už zabezpečené.

Slovenská republika spája demografický vývoj najmä s výdavkami na sociálny a zdravotný systém, avšak zatiaľ abstrahuje od prieniku starnutia do ostatných oblastí a nereflektuje na možné príležitosti zabezpečenia ekonomického rastu so starnutia populácie. Je nevyhnutné si uvedomiť, že aj spoločnosť vplyvom starnutia bude fungovať inak. Rastúce výdavky na sociálny a zdravotný systém vyvolajú potrebu prehodnotenia týchto systémov. Rozsiahle zavádzanie sociálnych a technologických inovácií, ako je elektronické zdravotníctvo, mobilné zdravotníctvo, starostlivosť na diaľku, integrovaná starostlivosť, by mohlo zlepšiť efektívnosť systémov zdravotnej a dlhodobej starostlivosti. Meniaca sa skladba populácie vyvolá tlak na reformy trhov práce. Predlžujúca sa dĺžka života otvorí nové podnikateľské príležitosti v dopyte po tovaroch a službách, čo by mali spoločnosti zohľadniť vo svojich predajných plánoch. Pre podnikateľský sektor môže byť táto skupina spotrebiteľov zaujímavá najmä preto, že, disponuje značnou kúpnou silou a ochotou využívať naakumulované úspory na udržanie alebo zvyšovanie svojej spotreby aj vo vyššom veku. Prispôsobené riešenia v oblasti

bývania a inteligentné domácnosti so senzormi môžu zvýšiť bezpečnosť starších ľudí, ktorí žijú sami. Početnosť a vzdelanostná úroveň seniorov mení pohľad na aktívnu starobu, vzdelávací systém, spotrebiteľské správanie skrátka otvára priestor inováciám a hospodárskemu rastu. Nevyhnutným predpokladom zvládnutia prienikov starnutia do mnohých oblastí hospodárstva a využitia tejto príležitosti pre hospodársky rast je systematická koordinácia a koherencia jednotlivých politík aplikovaných na rozličných úrovniach a sektoroch.

Starnutie slovenskej spoločnosti však nie je len o hospodárskom raste a prijatých sociálnych opatreniach. Ide najmä o spoločnosť ako celok a o to, akú máme vzájomnú interakciu medzi generáciami. Musíme si uvedomiť, že seniori sú plnohodnotnými členmi spoločnosti a nemôžeme preferovať iba názor, ktorý preferuje kult mladosti. Súbežne musíme diskutovať aj o tom, ako zabezpečiť, aby sa na živote našej spoločnosti zúčastňovali všetci, čo predpokladá zapojenie do diskusie všetky vrstvy spoločnosti.

Dodatok

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HUMAN RESOURCES AND DIGITAL TRANSFORMATION IN COMPANIES

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Abstract: *The authors emphasized the relevance of synthetic intelligence and virtual technologies in HR management; highlighted three main instructions of the impact of virtual technology on the sphere of HR control: digital workforce (introduction of latest management methods, practical talents that contribute to the advent of a new community organization), virtual workplace (design of the working environment, which provides performance, using modern verbal exchange equipment), virtual HR control (the use of virtual tools and programs for answers, experimentation, and innovation); showed traits in HR management in the virtual economy and necessitated modifications within the discipline of HR management. The authors assessed the extent of digitalization of HR control technology in companies, offered examples of their successful use, and diagnosed the main issues of enforcing virtual technology in domestic practice, along with: point and fragmentary solutions affecting simplest individual HR processes rather than a scientific approach; the objective complexity of digitalization of HR control capabilities and processes because of their multidimensionality; the participation of diverse categories of staff; the lifestyles of regulations on digitalization imposed, inter alia, by using the regulation on the protection of private data; under-prepared HR personnel to the practical use of digital technology, as properly as inadequate funding for his or her implementation. The authors highlighted the conditions that make certain fulfillment of the digital transformation of HR control, along with the want for cultural changes that have to take area in companies.*

Keywords: *Human resource management, Standardization, Digitization, Artificial intelligence, digital technologies, digital transformation, human capital, HR management.*

JEL Classification: *O15, O32, L26*

INTRODUCTION

As one of the most important components of business control, the human aid management (known as HRM hereinafter) performs an crucial role in the enterprise operation and long-term development. In recent years, new digital technologies such as big records and cloud computing, etc. Are emerging, which has delivered demanding situations to the conventional HRM model. How to combine the standards of digitization and standardization with HRM and how will the HR departments find a proper manner to perform reform, trade the conventional commercial enterprise version, optimize the enterprise frame, create the digital working environment and finally set up the present day HRM version have become common problems facing each enterprise. Aimed at solving all the conflicts and difficulties inside the system of digitization and standardization of present day HRM, this paper has explored issues and positioned forward some suggestions, which optimistically will improve company's control stage and efficiency and contribute lots to the national monetary development.

The intention of virtual transformation in HR may be multifold:

- To automate techniques and decrease the time spent on repetitive tasks.
- To maximize the worker experience.
- To use the freed-up time to strategize and in the end advantage the enterprise backside line.

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HR digital transformation is the transformation in the way HR functions, the usage of statistics to guide all regions of HR: payroll, benefits, overall performance management, learning and development, rewards and recognition, and hiring.

The position of HR groups in virtual transformation is twofold:

- It is responsible for its very own transformation – using automation and virtual, statistics-led tactics.
- In collaboration with the IT department, HR is now being asked to lead corporations closer to virtual transformation and help its continual digital evolution. This entails empowering personnel with a virtual mindset to improve workforce approaches and beautify productivity.

The development of artificial intelligence, digital transformation and ubiquitous automation, which today is called the Fourth Industrial Revolution, creates real opportunities for companies to concentrate in their activities on core competence while simultaneously withdrawing everything that does not concern this core competency in the so-called ecosystems - clouds, networks, platforms. A company under the conditions of the fourth industrial revolution is a mobile company, rapidly developing, capable of quickly developing and bringing products to the market with a flexible structure. To achieve these targets, companies are required to make radical changes in the way they conduct business, restructuring business strategies and business models.

Conflicts and Problems of HR Reform in the Digital Transformation

There are some traits of the present day HRM such as increasingly diverse organization structures, larger span of control inside the actual operation, more common glide of talented humans within an employer and among companies, and better necessities of the amount demanded and promptness of employee's basic statistics. Therefore, agencies urgently need to establish a exceptionally green HRM model so one can enhance the linkage of HR records, moderately use the scientific dealing with equipment, standardize the HRM procedure, and to offer notable service to business enterprise's development approach.

So a long way, a majority of organizations have found out office automation, web primarily based provider of financial fund management, long-distance carrier of challenge management and different styles of informational reform, and have developed in the route of group business centralization. However, due to the fact of organization's complex employee's structure, enforced policy of HRM work, and the diversity of professional capabilities of HR practitioners, the statistics creation of HRM falls a ways at the back of that of other parts. Specifically speaking, the modern-day reform of HRM digitization and standardization is now facing issues resulted from the subsequent aspects.

It is considered the principle traits of control in the digital economic system, necessitating changes in the subject of HR control.

1.The formation of a new virtual commercial enterprise thinking, the variation of the corporation's enterprise strategy and commercial enterprise processes to economy digitalization requires the hunt and implementation of recent virtual models for HR management that meet the necessities of performance, innovation, speed and adaptability (Konovalova, 2017; Obeidat, 2015).

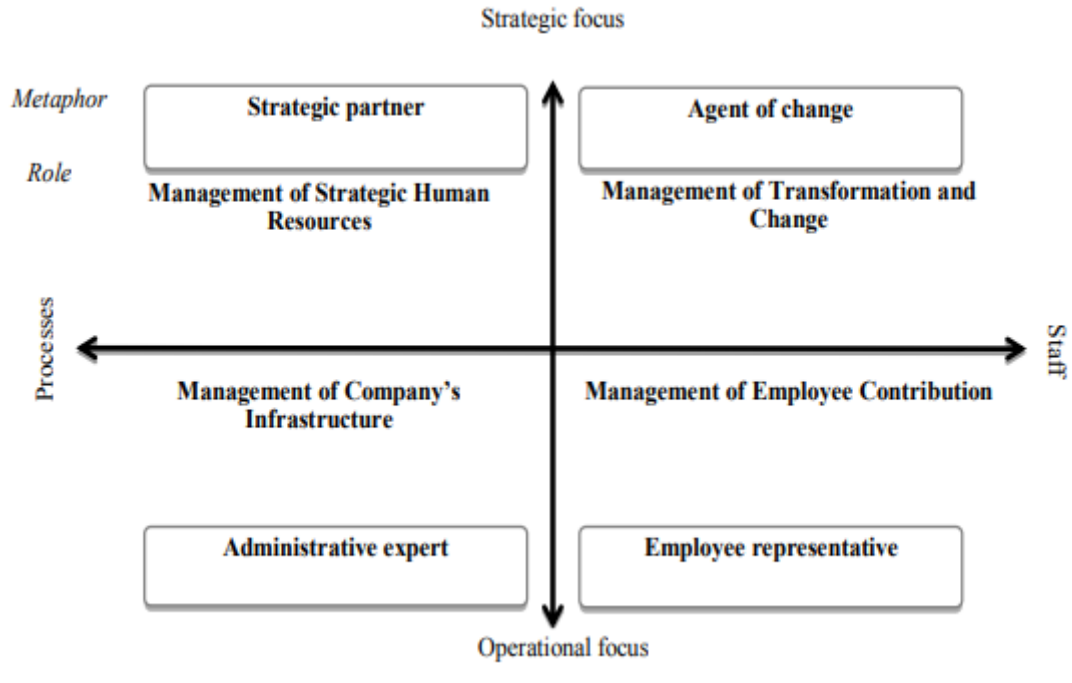
2. New commercial enterprise conditions form the brand new position of HR control as an actual enterprise partner (Figure 01).

3. HR control should be included into the business enterprise's business approaches externally (each process / HR management function have to be subordinated to two business targets: to offer the employer with people quantitatively and qualitatively; to make sure high labor

productivity, and internally all processes / functions of HR management must be included with every other, connected to an unmarried system.

4. In order to survive and develop inside the modern "turbulent" world, under conditions of uncertainty and instability of the digital era, human beings, companies in general want to emerge as agile. Agility is the first-class of a person, a set of humans, a company as a whole, which permits them to operate efficiently and succeed inside the risky environment (Zhu, 2016). HR management requires the formation of a philosophy of agility, which permits quickly adapting to the dynamically changing conditions of the internal and outside environment.
5. An critical issue contributing to the want for digitalization of HR control is the rapid boom in the number (up to 40% of the full exertions force of advanced countries by 2020) of the so-referred to as Millennials or era Y - human beings born after 1981 who met the new millennium inside the young a long time characterized in most cases by means of deep involvement in digital technologies. The ideology of this era is the ideology of freedom in the shape of achieving the suitable stability among professional and private life, which requires the advent of fashions of work and HR management corresponding to this ideology (digital jobs, bendy employment, freelancing, etc.).
6. The swiftly growing records flows vital for effective management requires new intelligent virtual equipment for storing, processing and reading this information. Staff statistics need to be an automated part of the digital HR management platform that offers managers with the important real-time statistics and affords executives with real-time evaluation, reducing time spent on reports, and growing time to analyze facts and solve issues.

The combination of the above-referred to time calls decide the transition to a essentially new idea of a technologically advanced, included, and based totally on the analysis of HR management facts, called "HR 3.0".



Positioning Deviation

For a protracted time, "focusing on manufacturing, yet neglecting control" happening in companies have not been absolutely solved, so issues of inactive mechanism and non-fashionable management at the moment are facing corporations. Although the enterprise scale is expanding, the financial benefit continues to be in stagnation due to these issues, which has

emerged as the inner component that restricts enterprises' development. For now, the site of HRM gadget digitization of some organizations continues to be confined to the electronization of present day enterprise workflow, but not located on the real contents of HRM, which is to systematically collect, accumulate and examine the human aid facts through management below the historic history of massive data, and to deeply act on strategic path making plans of human aid, optimization of company structural creation, projects' leading crew establishment, specific positioning of elites, making plans and development of employees' career, and management of employees' training facts, etc. Because of the indistinct positioning, the modern human useful resource facts machine doesn't have enough assisting data. The device only serves because the operational software program of HRM department, but now not interacts with the carefully associated financial data and manufacturing management machine, which has prompted that groups may have a tendency to act in the back of closed doors inside the limited studying potential of the device. Meanwhile, manager at distinctive levels cannot deal with the workplace work flow, manufacturing and control procedure, and human aid service procedure at the equal running platform, so senior handling leaders will abandon all sorts of decision support system consisting of human resource data system. Although the facts construction is now under constant improvement, nonetheless there exists offline paintings flow a few of the senior leaders, which will increase the workload and price whilst decreases running efficiency.

Poor Integration

In the conventional management version and statistics device, there are problems like decentralized inner system, poor horizontal integration, and stagnant longitudinal interconnection. Therefore, the "lonely island" and "chimney" within the current digital facts machine severely impacts the company's uniform control efforts. The fragmented enterprise device reasons inefficient information, lack of overall data making plans and failure to be incorporated into the whole management data platform. Separation from employees planning to real production, from annual budge to financial management, from human useful resource to other enterprise systems outcomes in that the relationship between one of a kind businesses or even the different works of identical enterprise is more often than not independent, fragmented and segmentary, and difficult to recognize the facts sharing. Management personnel of various tiers have difficulties in being informed of the complete every day human aid circumstance of the fundamental units. Basic statistics are in want of green integration and has a lower stage of standardization, further to which, it lacks the organization and company-degree statistics and working general and widespread business flow. Therefore, facts coding isn't unified with a couple of definitions, and it's hard to recognize the interconnection and healthy between records. Besides, the low degree of the supply and integration effects within the poorer portability of some brilliant subsystems, which causes the failure to understand the mixing and promoting of commercial enterprise or to efficaciously help company's business analysis.

Significance of the Standardization Reform of HR in the Digital Transformation

The look of digitization is very vital to the business transformation at present. In the beyond, it was a dependency for HR to use the trends over past years to be expecting the destiny adjustment, which changed into modern optimization. However influenced by means of the digital transformation, the complete enterprise version has changed, and the limitless imaginary area of HR makes it capable of rapidly carry on innovation and exploration. In the face of future exploration, HR desires to consider the device innovation from aspects of two primary disciplines. The first one is fee creation, because of this measures taken in HR should create higher commercial enterprise fee; the other one is effectiveness improvement - if the

new HR measures can help organization to enhance benefits." The HR virtual management statistics platform is a fixed of centralized information device, and company's control procedure may be organically linked with information technology, which can assist to comprehend personnel's entire existence cycle management from on-boarding procedure approval, daily employees and profits dispatching management to leaving the employer; besides, it may also understand the entire operational system control from employees management, income control, talent training management, real time finances manage and price control, etc. By clarifying responsibilities, the commercial enterprise procedure may be ordinary and standard; with the aid of making use of the flexible and effective workflow technology, fixed commercial enterprise process can be followed and inner manipulate and warning can be realized, which facilitates to provide the idea for the efficient manipulate of various control levels, to restrict the arbitrariness and to strengthen the agency's inner manipulate. At the identical time, changing employee's running mode, thoughts and behavior conduct may assist people eliminate tedious paintings to do creative work, and to boom working efficiency, acquire scientific decision and improve business enterprise's complete efficiency.

HR's Role in Business-Wide Digital Transformation

As HR takes obligation for its own digital transformation, it is also expected to take the lead in allowing the transformation of the rest of the organization. While IT takes care of the digital thing, HR's role is extra orientated to the human factor – assisting exchange the attitude and helping create the culture. Simply put, because the custodian of the human enjoy within the workplace, HR is at the center of permitting digital transformation.

Employees love consumer-grade experiences in their non-public lives, like talking to a chatbot to complain approximately the overdue transport of their meals order. But in the workplace, they will fear the same chatbot for a number of reasons. For example, they'll worry that the statistics they share with those chatbots may be used in opposition to them, that this automated device will take their task from them, or actually believe that this trend might not last.

"Behavior alternate is a vital issue when enforcing new technology. In the end, it's the human beings that make an enterprise successful".

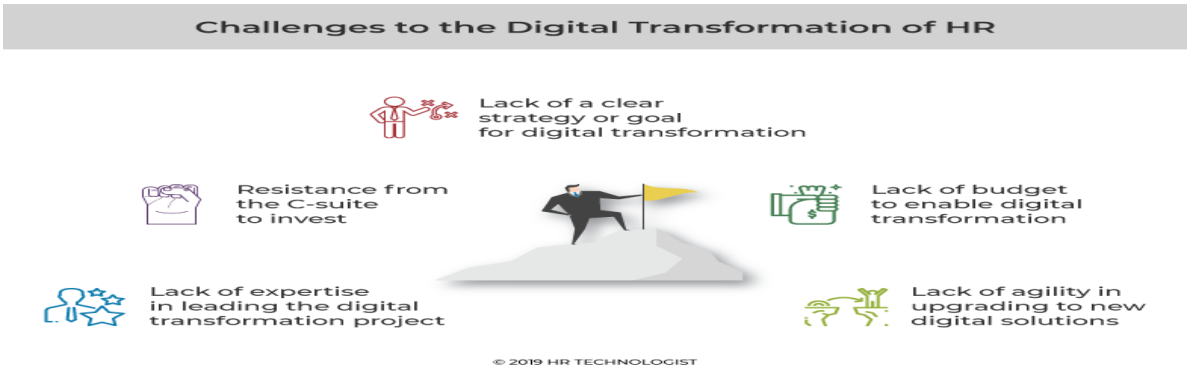
Is recommended particular approaches to get personnel on board when implementing a digital transformation project. "HR can assist to provide getting to know reports of different kinds for employees to make learning fun, enticing and effective".

For example, in getting personnel to apply AI-powered tools, you could tell them that it is AI that auto-generates a playlist for them to concentrate to on Spotify based on their preferences. This can open up their mind to the positive functions of AI, and they may be more likely to include it as a useful tool.

Some of the other benefits you can highlight are:

1. **Quickness:** How easily a digital solution will improve the speed at which employees work.
2. **Simplicity:** How easy it is to use the solution.
3. **Freedom from repetitive tasks:** How it frees up time to do more creative tasks.
4. **Anonymity:** How, while data collection is the norm, in some areas (such as in engagement surveys), the data is collected anonymously to help identify an organization-wide trend only.

In addition, "By providing learning both on-demand and through multiple channels in everyday activities, your employees can learn efficiently in real time and actual context. It's also essential to make learning highly immersive, interactive and self-paced, so employees can practice tasks specific to their daily activities in the context of their jobs and at the rate of change they are comfortable with.



Improving Companies' Crisis Control, and Reducing Operating Costs

The HR digital management facts platform improves the consistency of data and realizes the simultaneity of logistics, capital go with the flow and facts glide through the mixing of a wide variety of inner and outside business. By integrating the overall production process, the gadget collects personnel, fund, substances and other critical resources to realize the cooperative manufacturing paintings and on-call for manufacturing, improve efficiency and useful resource integration, keep away from wasting and to minimize companies' operational crisis. The real time information evaluation is also capable of assist to integrate, modernize, standardize and automate company's operational methods in elements of HRM, income management, reports and statistics, and abilities improvement and management. Besides, thanks to the real time information analysis, the constant increase in the quantity of facts and records can timely and efficiently provide data, based on which corporations are capable of make the pleasant choice and to face up to the periodic crisis.

Standardizing Operation Process, and Improving Enterprising Management Model

There are some urgent tasks like optimizing enterprising control model, integrating data utility and informatization management innovation, and the HR virtual management records platform is an integrated management model that combines the superior management thoughts with management methods, the inner useful resource with outside environmental information. Based on the actual condition, this platform integrates and optimizes the business method and company useful resource allocation, and breaks the long-established management version, all of which are beneficial to offer an integrated, effective and fairly efficient facts control system. The business process may be more affordable and decrease the rehandling. Meanwhile, the HR digital management information platform is capable to carry out flow manipulate and facts verification, so as soon as an mistakes in the manage scale occurs, the machine will automatically create verifying facts, keep away from low-degree human errors and improve the control performance with a clear direction. Therefore, the necessity to carry on the HR digitization and standardization reform has been highlighted, and becomes the development course and inevitable desire of the cutting-edge HRM.

Suggestions about the HR Standardization Reform in the Digital Transformation

In the digitization and standardization reform, the adjustment and change of the human resource will become very rapid. In order to efficaciously improve enterprises' overall aggressive forces and sustainable improvement levels, the strategy wanted is to assemble the management model and design machine blueprint to standardize the relevant commercial enterprise manner based totally on the actual enterprise scenario and evaluations of procedures. At the identical time, on the idea of making sure the modularization, standardization and functionization of the device construction, reduce personnel's workload, decorate the functions of statistics batch penetration, extraction, integration and processing, simplify the enterprise operational manner of HRM, and timely expand multi-running platform, make certain the facts is dependable and researchable based totally on the integrated gadget, clear up all the problems inside the reform process via taking all the powerful measures and enhance the very last results.

RESEARCH METHODS

Currently, packages with elements of artificial intelligence (Artificial intelligence (AI)) are capable of solve almost the entire range of tasks going through HR managers: from deciding on a candidate to reading the emotional nation of an employee (Jesuthasan, 2017; Larkin, 2017). Similar answers are offered by means of massive developers - Microsoft (MSFT, NASDAQ), SAP (SAP, NYSE), IBM (IBM, NASDAQ), quite small developers, for example, Workday (WDAY, NYSE). For example, the software SAP Resume Matcher from the SAP SE developer (SAP, NYSE) is able to examine information about job duties and capabilities on a particular position, analyze facts from thousands of resumes furnished by means of the HR department, and rank candidates. The fabricated from Entelo Inc. Is able to investigate publicly available statistics about 300 million capability applicants and pick appropriate ones for the agency's requirements. Chat bot is a program this is designed to simulate human behavior when communicating with one or more interlocutors, Firstjob Mya can eliminate up to 75% of the questions asked by way of people in the recruiting process, the Wade and Wendy bot chats with candidates and enables them understand the organizations' culture, employment possibilities and recruitment process, etc. (Sharapova, Sharapova, & Shvetsova, 2017). New employee training systems are the fastest developing segment in IT technology costs. Relatively recently, companies were content material with creating virtual universities and on-line course catalogs, today corporate schooling is considered as a fairly strategic business place targeted on innovation and leadership improvement, presenting world-class gaining knowledge of enjoy, long-term career improvement, integrating multi-functional teams for integration and teamwork. The development of interdisciplinary talents is crucial because these capabilities are steady with the corporation's transition to a community of groups. Corporate schooling departments are gradually remodeling from carriers and training organizers into content material curators and revel in facilitators, growing innovative structures that turn mastering and improvement into a self-regulating lesson, helping employees "learn" (Zakharova, 2013; Nagibina & Shchukina, 2017). At the identical time, personnel have to be taken into consideration as internal clients involved in fantastic independent learning, improvement in their professional capabilities as a condition for a a success career. There is an extreme shift in cognizance from inner corporate applications aimed at developing people, to structures that can increase people. The presence of mobile gadgets makes learning potentially available to each person and at any time. Companies either create their own mastering structures or use ready-made offers, trying to seamlessly integrate internal and outside content. For example, GE launched the Brilliant U online video-learning platform that is actively used by organization personnel (last year, according to agency statistics, approximately 30% of personnel downloaded their training content for other employees). Currently, a new set of modern-day merchandise has entered the studying device

market (for example, Pathgather, Degreed, SAP Jam, Oracle's Video Learning, Workday Learning, Skillsoft's new gaining knowledge of platform), which are fundamentally distinct from traditional LMS (Learning Management System) and provide education materials, video and mobile learning answers, micro-studying and new ways to integrate and use the growing library of external MOOCs (Massive Open Online Courses) of such suppliers as Coursera, Udacity, EdX, Udemy and many others available on the Internet, and even allow personnel to interact on line with experts in exactly those areas of examine in which they want it, and at a time this is convenient for them.

One of the key factors contributing to the intensive development of workforce analytics (alongside with competitive pressure) is the development of virtual technologies (analytical information can be received using most ERP structures and talent control structures, observe tools, text and semantic analysis modules, software program recruitment management structures and team of workers schooling). 86% of Fortune 1000 companies are going to introduce outside records tactics into their day by day practice (Konovalova, 2017). The fundamental trends within the use of HR analytics consist of the following (Sekhar et al., 2016; Shah, Irani, & Sharif, 2017): intent for medium-time period HR strategies; strategic staff planning; managers have the opportunity to independently (without the mediation of the HR service) use the analytical information on troubles of interest to them; agencies amplify the insurance of big information analysis (statistics furnished through candidates and personnel are supplemented through external data from social networks (along with Facebook and Linkedin) and available information on human pastime at the Internet).

CASE STUDIES

As studies show, when introducing digital technologies and elements of artificial intelligence in HR management, domestic companies face the following problems:

1. Fragmentation, precision, and now not systematic use of digital technologies in HR management. Separate HR management functions (selection, improvement, evaluation, etc.) are executed in isolation from each other, no longer coordinating with others. Processes, criteria, technology fluctuate in different capabilities of HR management, as a result of which staff orientation closer to results for commercial enterprise is lost. In Belarus, the majority of these involved in automating HR strategies makes use of factor solutions (63%). More than half of the organizations develop or three HR strategies, with the main areas of automation workforce recruitment and inner communications, and more attention has been paid to employee assessment and training. And every fifth corporation started the use of an internal immediate messaging application and / or their personal social network. The percentage of employers who have implemented a unified device of automation of HR control does no longer exceed 35%.

2. The technology used are inseparable from HR control functions and strategies. Therefore, it's miles not possible to talk about the usage of tools primarily based on artificial intelligence, digital technology, while no longer all current HR management capabilities are implemented in our domestic agencies. Today, simplest 7% of corporations use cellular technologies for coaching, 10% for performance management, 8% for time planning, 13% for recruiting and candidate control, and 21% for vacation planning.

3. The introduction of digital technology in workforce work is complex with the aid of the fact that HR control approaches are pretty complex, heterogeneous and diverse. They involve now not handiest HR personnel, but also line managers, regular personnel. The hobby of HR requires attention of numerous aspects, which includes labor regulation, the perspectives of change unions, the state of affairs at the labor marketplace, etc. There also are direct restrictions at the sports of HR, together with the law on non-public facts, the want to respect

the confidentiality of statistics relating to wages. In addition, these processes concern people with their particular private and professional quality, and therefore difficult to formalize.

4. The Law on Personal Data, in particular, the circumstance that non-public records of Belarusian citizens cannot be stored outside the Belarus, makes it impossible to use some of contemporary foreign virtual technologies, since they're cloudy and have statistics processing facilities abroad.

5. In Belarusian companies, an awareness of the significance of digitalization of HR management is handiest emerging. According to experts, the Belarusian market lags behind the western one inside the development of virtual technology in the subject of HR control for 5-7 years, consisting of due to insufficient funding (simplest 18% of organizations have a budget for HR automation, every other 37% have a tangible want for such a price range; among those 57 % were not engaged in automation, 57% were forced to abandon it because of lack of funds, 17 % - deserted it due to loss of time and different resources).

6. An obstacle may also be the non-availability of HR personnel to digital technology, as well as the natural worry of revolutionary adjustments, which includes worry of dropping paintings due to system automation, and resistance to change.

Considering the situations that ensure the achievement of digital transformation of HR control, specialists identify the toughest cultural adjustments that have to occur within the enterprise: modifications in thinking, management style, within the system of encouraging innovation and in adopting new enterprise models to enhance the work of the business enterprise’s employees and its customers, providers and partners. HR-Digital contradicts to established approaches of working and is a risk to traditional management practices: virtual technology allow anybody to freely exchange data; managers no longer have whole manage over the messages, targets, and cut-off dates of news and announcements.

CONCLUSION

A digital transformation pursuit to create an agile corporation that is ready to alternate as era maintains advancing. Technology will constantly be ahead of the curve as organizations try to trap up. The absence of this agility can be one of the reasons why virtual transformation strategies fail.

What you as an HR professional can do is prepare your enterprise and your team to stay engaged in this method, and adopt technology at its peak, optimally. For that, you want to be organized yourself. Stay aware, stay current, and make certain which you know what your competitors are doing inside the identical area. Radical changes in the virtual technology are changing the profile of HR management. Digital HR control isn't always just automation and digitalization of traditional HR management functions, however the redecorate of these functions based totally on new digital commercial enterprise thinking, with a focus on human beings and paintings efficiency. The virtual transformation of HR management starts with a change in thinking inside the framework of HR management, based totally on changing priorities, performing capabilities in real time, the use of platforms and cloud technologies, automation and mobility. It is essential to emphasize that the creation of artificial intelligence and automation will increase the importance of technical abilities that make certain the creation, installation and renovation of machines. The examiner of the World Economic Forum highlighted the abilities that with the aid of 2020 will become the highest precedence for employers, namely: the potential to solve complex tasks, important thinking, creativity, the potential to manage human beings, the capability to cooperate with others, emotional intelligence, prudence and decision-making, service orientation, negotiation abilities, cognitive flexibility (Gray, 2016). Introducing synthetic intelligence and digital technologies

inside the discipline of HR control, it's miles critical now not to lose an established set of human values.

In the process of HRM digitization and standardization transformation, in order to comprehensively upgrade the HRM quality, efficiently recognize the very last cause of HRM digitization and standardization, we want to observe the overall method of unified planning, top-degree design, step-with the aid of-step implementation and consistent improvement, emphasize the value, and refine the manner of relevant business and put off the individual Information Island through enterprise integration. Besides, we need to also standardize the "weighting system" of management, recognize the high-degree useful resource sharing, and gradually enlarge the application variety to bring the final purpose into reality.

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THE DEVELOPMENT OF SMALL AND MEDIUM-SIZED ENTERPRISES IN THE SLOVAK REPUBLIC WITH A FOCUS ON THE NEED USE OF HUMAN RESOURCES

Jana SOCHUĽÁKOVÁ[59]

Abstract: *One of the basic prerequisites for the healthy economic development of the country is the development of small and medium-sized businesses. In Slovakia, small and medium-sized enterprises play an important role in job creation, creation of added value, have a positive impact on supporting the local economy and balancing regional development differences. Since 2010, the performance of SMEs in Slovakia has increased. In 2019, SMEs recorded a positive development, but their results reached the lowest growth in the last three years, which was caused by the slowdown in the growth rate of the Slovak economy. Starting in 2020, SMEs have to cope with the effects of the coronavirus pandemic. In the contribution, we will focus on the state and development of small and medium-sized enterprises in the Slovak Republic, their development in terms of legal forms and their regional distribution. We will evaluate the structure and use of human resources and employment in small and medium-sized enterprises.*

Key words: *small and medium enterprises, employment, human resources, salary*

JEL Classification: *M21, J21*

1. INTRODUCTION

Small and medium-sized enterprises play a key role in the Slovak economy. Due to their number, they significantly influence the state and development of macroeconomic indicators. The dynamic development of small and medium-sized businesses is one of the basic prerequisites for the healthy economic development of the country.

Small and medium-sized enterprises represent the dominant form of the business organization in the Slovak Republic. They undertake mainly within the areas of activities and sectors with claims for the workforce. Their competitiveness also depends on the ability of workers to meet the new requirements for skills and qualifications. A key problem for SMEs is a need to improve their innovative capacity. (Glatz, Misota, 2016)

Small and medium-sized enterprises are mostly considered to be the main drivers of the economies of individual countries. However, at the time of the Covid-19 pandemic, it was SMEs that were more vulnerable compared to large companies, as this type of business is highly dependent on the speed of money turnover, while reduced demand during the corona crisis disrupted the cash flows of companies. (Winarsih a kol., 2021).

Small businesses are the source of innovation in the economy, because a significant number of inventions is from independent innovators or small businesses, in small businesses is less organizational constraints and more scope for individual initiative, innovation are an important condition for survival in the market, managers of small businesses are usually more involved on realization of innovation, innovation is not always advantageous in large companies“. (Zajko, 2010)

Under the conditions of the Slovak Republic, business, especially small and medium-sized business, has an irreplaceable role, primarily in the area of job creation and regional development. The business environment in its broadest sense reflects the quality of economic conditions and prerequisites for the economic activity of business entities. A high-quality business environment, which creates the conditions for achieving long-term sustainable

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economic growth, is a basic prerequisite for business development and increasing the competitiveness of the Slovak Republic on an international scale. Within developed economies, the SME sector is considered the most flexible, most efficient, most progressive, most innovative and therefore the most important element of the economy. For this reason, the countries of the European Union, as well as other developed countries of the world, pay maximum attention to the state of small and medium-sized businesses and consistently take measures for their development. In these countries, the support of small and medium-sized businesses has become an important part of the overall economic strategy in the last thirty years. Even in the case of the Slovak Republic, the development of small and medium-sized businesses is defined as one of the priorities for the further economic development of the country. A fundamental factor in the development of the SME sector in Slovakia is the creation of a suitable business environment. In practice, this means simplifying and making the legislation more transparent, reducing the administrative and tax burden, strengthening the supporting infrastructure and improving access to capital as a basic or additional source of financing.

In 2020, the Slovak economy recorded a drop in GDP due to the pandemic, for the first time since the economic crisis in 2009. The negative consequences of the pandemic also affected the sector of small and medium-sized enterprises. Due to the impact of the pandemic and the need to take anti-pandemic measures, the growth in the number of SMEs from previous years practically stopped. The coronavirus interrupted the growth trajectory of all important economic indicators of SMEs. Despite support measures to preserve jobs, small and medium-sized enterprises could not even maintain employment. The decline in SME employment occurred after the previous annual growth that had been ongoing since 2014. (SBA, 2021)

In the contribution, we will focus on the state and development of small and medium-sized enterprises in the Slovak Republic in the period 2015-2021, their development in terms of legal forms and their regional distribution. We will evaluate the structure and use of human resources and employment in small and medium-sized enterprises. We will evaluate and analyze the selected indicators based on the data of the Statistical Office of the Slovak Republic.

2. STATUS AND DEVELOPMENT OF SMALL AND MEDIUM-SIZED ENTERPRISES IN THE SR

The successful period for small and medium-sized entrepreneurs in Slovakia, which lasted practically since the end of the global financial and economic crisis, was definitively ended by the corona crisis. The pandemic of the Covid-19 virus led to a significant drop in domestic and foreign demand and the necessity of adopting a wide range of anti-pandemic measures, which fundamentally affected several sectors of the economy. The high sensitivity of the business environment to such a fundamental change in conditions manifested itself in the form of a halt in the growth of the number of small and medium-sized enterprises, which occurred in the previous decade. Small and medium-sized enterprises in Slovakia make up 99.9% of the total number of business entities. The most significant representation in the total number of active business entities has long been achieved by micro-enterprises (97.3%). A significantly lower share is achieved by small (2.1%) and medium-sized enterprises (0.5%). Compared to other EU countries, Slovakia has the highest share of micro-enterprises in the total number of business entities. The number of active SMEs in Slovakia has hardly changed year-on-year. In 2021, there was an increase of 6% compared to the previous year.

Table 1: Number of active business entities by size category

Size categories of enterprises	2015	2016	2017	2018	2019	2020	2021		Index 21/20
	Number	Number	Number	Number	Number	Number	Number	in %	
Microenterprise	515236	541719	550016	542525	577827	580940	618115	97.3	1.06
Small businesses	12984	12662	14159	14328	14601	13491	13469	2.1	0.99
Medium enterprises	2843	2741	2956	2988	2943	2740	2725	0.4	0.99
Large enterprises	666	636	662	680	671	642	655	0.1	1.02
SMEs together	531063	557122	567131	559841	595371	597171	634309	99.9	1.06
Enterprises together	531729	557758	567793	560521	596042	597813	634964	100	1.06

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

The regional structure of SMEs has long been characterized by a dominant representation of business entities based in the Bratislava region. Approximately every fifth active small and medium-sized enterprise has its headquarters in the mentioned region. In 2020 and 2021, there was a significant decrease in SMEs for most regions in the Slovak Republic. The decline of small and medium-sized enterprises in 2020 was characteristic of most regions of the Slovak Republic. The number of SMEs decreased the most in the Banská Bystrica and Trenčín regions. The pandemic did not significantly affect the number of SMEs in the Trnava, Košice and Banskobystrica regions. In the mentioned regions, the number of SMEs increased year-on-year. The highest rate of business activity is achieved in the districts of the city of Bratislava, Košice and in selected districts of northern Slovakia. The regions of western and northern Slovakia are generally characterized by a higher rate of business activity, on the contrary, a low rate of business activity is achieved in less developed regions, in eastern Slovakia and southern central Slovakia.

Table 2: Development of the number of established entities according to legal forms

Legal form of SME	2015	2016	2017	2018	2019	2020	Index 20/19
SMEs – legal entities	13630	19398	21662	22626	25139	22740	0.90
self employeds	35539	36518	40826	50938	54225	54592	1.01
Self-employed farmers	1203	1573	456	490	230	310	1.35
freelance profession	2274	1349	2460	4021	5289	5532	1.05
Total SMEs	52646	58838	65404	78075	84883	83174	0.98

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

From the point of view of legal form, the highest number of newly created business entities are self-employed. The structure of SMEs according to legal forms continues to be characterized by the predominant share of natural persons – entrepreneurs (59.4%), which increased in 2021 after the previous decline. The share of SMEs - legal entities in the total number of SMEs decreased to 40.6%.

Table 3: Development of the number of defunct entities by legal form

Legal form of SME	2015	2016	2017	2018	2019	2020	Index 20/19
SMEs – legal entities	9134	9131	9166	5442	4497	4467	0.99
self employeds	32502	43503	42255	41417	45754	39132	0.86
Self-employed farmers	424	432	560	453	328	304	0.93
freelance profession	878	812	618	4856	5518	3745	0.68
Total SMEs	42938	53599	52599	52168	56097	47648	0.85

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

In 2021, the number of active natural persons - entrepreneurs increased by 11.2%. The year-on-year growth in the number of natural persons – entrepreneurs is due to the increase in the number of self-employed persons, which increased by 12.2% after the previous decline. In the case of other legal forms of natural persons – entrepreneurs, a slight year-on-year decrease was recorded. An essential part of the successful operation of small and medium-sized enterprises on the market is their innovative activity. Innovations are currently one of the important sources of economic growth. They contribute not only to the growth of the country's competitiveness, but also to the creation of new jobs, improvement of the quality of life, environmental protection and sustainable development.

Tabuľka 4: Enterprises with innovative activity by size groups of enterprises

		2010	2012	2014	2016	2018	2020
Enterprises together	Number of businesses	2306	2496	2632	2488	2794	3204
Enterprises together	Share of the total number of enterprises in %	32.79	31.29	29.17	28.68	27.96	33.96
Small businesses	Number of businesses	1274	1585	1772	1450	1753	2053
Small businesses	Share of the total number of enterprises in %	26.69	27.23	25.86	22.78	23.29	28.78
Medium enterprises	Number of businesses	757	657	633	782	754	848
Medium enterprises	Share of the total number of enterprises in %	41.34	37.72	36.21	41.55	37.90	46.11
Large enterprises	Number of businesses	275	254	227	256	287	303
Large enterprises	Share of the total number of enterprises in %	64.25	61.35	53.92	59.67	60.40	65.49

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

When we look at enterprises with innovative activity broken down by size groups, the largest share is held by innovative enterprises in the group of large enterprises, where their share has long been above 60%, in 2020 it was 65% of large enterprises that, as part of their activities, devoted to innovative activities. In 2020, the share of innovating enterprises in the size group of medium-sized enterprises was 46%, and among small enterprises more than 33% of enterprises are engaged in innovative activities.

In 2020, the negative effects of the corona crisis on Slovakia's economy were also reflected in the development of the economic performance of the sector of small and medium-sized enterprises. In 2020, the growth trajectory of all important economic indicators of SMEs was interrupted. The effects of the pandemic were also noticeable in the area of innovative activity of companies. In particular, small and medium-sized enterprises reassessed planned innovation activities, or suspended them completely.

3. EMPLOYMENT IN SMALL AND MEDIUM-SIZED ENTERPRISES

The global market is characterized by rapidly changing conditions and increasing competitive pressures. This requires a faster and better ability of businesses to respond to variations in demand in the economic cycle. The consequences of this are also beginning to be felt in small and medium-sized enterprises. Such enterprises have the highest share in the creation of jobs in the economy of Slovakia, because they employ a decisive part of the workforce. They create employment opportunities in a variety of fields, often in labor-intensive industries that require highly skilled labor.

The factors that influenced the development of the labor market in the years 2019-2022 were mainly of a non-economic nature. The coronavirus pandemic has negatively affected employment in the national economy, including the corporate sector. After the previous

increase, in 2020 the average number of employed persons in the national economy and thus also in small and medium-sized enterprises decreased year-on-year. And this despite the support measures taken to maintain employment. This negative development continued in 2021. The decrease in employment in the SME sector thus interrupted the growth that had been ongoing since 2014.

Table 5: Number of persons employed in SMEs and the share of SMEs in the Slovak Republic's employment

	2014	2015	2016	2017	2018	2019	2020	2021
Number of employees in SMEs	1313084	1322382	1368782	1387848	1407324	1430804	1400859	1389960
The share of SMEs in employment in the Slovak Republic (%)	73.2	73.7	74.2	73.9	73.2	73.8	74.2	74.3

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

The share of small and medium-sized enterprises in employment in the Slovak Republic is maintained at 74%. Thus, small and medium-sized enterprises provide employment opportunities in the corporate economy to almost three quarters of the active workforce. Large businesses employ around a quarter of the workforce. In an international comparison, Slovakia continues to rank among countries with an above-average share of small and medium-sized enterprises in employment.

Table 6: Average monthly salary of an employee (Euro)

Size categories of enterprises	2014	2015	2016	2017	2018	2019	2020	2021
Small businesses	747.5	769	784	823.5	860	920	949.5	1011
Medium enterprises	918	942	983	1029	1099	1196	1244	1338
Large enterprises	1036	1064	1110	1173	1258	1369	1424	1528
Self employeds - estimate	595	601	608	616	635	662	653	685

Source: processed on the basis of data from the Statistical Office of the Slovak Republic

With the growth of employment in Slovakia, unemployment and the lack of free labor force, especially qualified ones, gradually decreased. This development also put pressure on the growth of employee wages. The lowest level of average wages is achieved by employees in micro-enterprises (self-employed). On the contrary, within SMEs, employees of medium-sized enterprises achieve the highest wages. In 2021, the average salary of an employee in a medium-sized enterprise was EUR 1,338. In the case of large enterprises, the average salary of an employee in a given year was at the level of EUR 1,528. The average wage increases with the growing size of enterprises.

4. CONCLUSION

Small and medium-sized enterprises are considered to be an important driving force of the economy mainly because of their contribution to job creation, added value, thereby contributing to economic growth. Their position is important in terms of job creation, creation of added value, they have a positive impact on supporting the local economy and equalizing differences in regional development. Due to their number, they significantly influence the state and development of macroeconomic indicators.

A basic prerequisite for the development of small and medium-sized enterprises is a high-quality business environment. Just as the business environment of individual countries differs,

so do the conditions for doing business at the level of lower regional units, which contribute to the uneven development of small and medium-sized businesses in Slovakia. Unfortunately, this development does not lead to the desired reduction of regional differences, quite the opposite. The growing attractiveness of the most economically developed regions of Slovakia naturally brings with it a higher concentration of business activities, resulting in even greater lagging behind the less developed regions. The spatial distribution of SMEs in Slovakia is stable over time with a high concentration in the west and north of Slovakia. From the point of view of business activity, it is the most important and attractive area of the Bratislava region, while the importance of this area is constantly increasing. Despite the adoption of several partial support measures with the intention of improving the business environment, small and medium-sized entrepreneurs in Slovakia themselves perceive the deterioration of business conditions in recent years. The decrease in the competitiveness of Slovak SMEs is mainly caused by the instability and ambiguity of laws, the high tax and levy burden on business, increasing administrative costs, the lack of qualified labor and its price.

In conclusion, we can state that, despite the possibilities, the Slovak Republic is still considered a moderate innovator both in the global and European space. In order for the company, as well as the economy itself, to survive in the current competitive struggle, they must respond flexibly to the changes that global society brings. And if the economy does not support, initiate and create suitable conditions for innovation, other economies will overtake it. Recently, the COVID-19 pandemic has slowed down and limited innovative activities in some industries. But at the same time, it created a new space and brought new challenges for the development of innovations. It is essential not to stop in the innovation process and to create, especially on the part of the state, suitable conditions for the use of the innovation potential, which the Slovak Republic undoubtedly possesses.

Acknowledgements

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TRENDY V NELEGÁLNEJ PRÁCI A NELEGÁLNOM ZAMESTNÁVANÍ

TRENDS IN UNDECLARED WORK AND ILLEGAL EMPLOYMENT

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Abstrakt: *Nelegálna práca a nelegálne zamestnávanie predstavujú skutočne vážny problém z hľadiska pracovnoprávnych vzťahov a má negatívny dopad na ekonomiku, celú spoločnosť, zamestnávateľa, ale aj samotného zamestnanca. Téma je predmetom záujmu nielen na Slovensku, ale aj v Európskej únii, ktorá uskutočnila špeciálny prieskum. V štúdii sa autori zameriavajú na problematiku nelegálnej práce a nelegálneho zamestnávania na území Slovenskej republiky. Predkladaná štúdia si kladie za cieľ analyzovať motivačné podmienky respondentov, za akých by boli ochotní nelegálne pracovať, kde vidia výhody a zároveň aj nevýhody takéhoto zamestnávania. Z analýz vyplýva, že najčastejším motívom býva snaha o dosiahnutie príjmu pri čo najmenšej miere výdavkov a zníženie administratívnej záťaže.*

Kľúčové slová: *Nelegálna práca, Nelegálne zamestnávanie, Mzda, Trh práce*

Abstract: *Illegal work and illegal employment represent a really serious problem in terms of labour relations and has a negative impact on the economy, the whole society, the employer and the employee himself. The subject is of interest not only in Slovakia, but also in the European Union, which has carried out a special survey. In the study, the authors focus on the issue of illegal work and illegal employment on the territory of the Slovak Republic. The present study aims to analyse the motivational conditions of the respondents, under which they would be willing to work illegally, where they see the advantages and disadvantages of such employment. The analyses show that the most frequent motivation is the desire to achieve an income with the least possible expenses and to reduce the administrative burden.*

Key words: *Illegal employment, Illegal work, Labour market, Wages*

JEL Classification: J61, F22

1. ÚVOD

Nelegálna práca je celospoločenský problém, o ktorom je dôležité hovoriť. Je všeobecne známe, že má negatívny dopad na sociálne zabezpečenie zamestnancov a taktiež svojím spôsobom ovplyvňuje výšku hrubého domáceho produktu.

K nelegálnej práci a nelegálnemu zamestnávaniu dochádza z ekonomických dôvod, ide najmä o úspory na daňových, sociálnych a zdravotných odvodoch. Najčastejšie na území SR sa nelegálne zamestnávajú príslušníci tretích krajín a nízkokvalifikovná pracovná sila. Organizácia pri zamestnávaní má nasledovné možnosti - zamestnať zamestnanca na určitý pracovný pomer alebo outsorcovaťdanú prácu externou firmou. V praxi sa však vyskytujú prípady, keď je práca pre firmu vykonávaná bez akéhokoľvek právneho vzťahu. Takúto prácu nazývame nelegálnou prácou, ktorá je nezákonná, ale vytvára pridanú hodnotu v ekonomike, ktorú nazývame tieňová ekonomika. Do tieňovej ekonomiky radíme všetky príjmy, aktivity či činnosti, ktoré nie je možné istým spôsobom (legálnym) štatistiky sledovať, evidovať a

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zadeľovať do zdrojov, ktoré slúžia ako základ pre podklady na zostavovanie hrubého domáceho produktu. Prácu „na čierno“ môžeme charakterizovať svojím spôsobom ako cieľavedomú činnosť vykonávanú opakovane za cieľom finančného (peňažného) zabezpečenia avšak v rozpore s legislatívou.

Nelegálna práca je na vzostupe, pokiaľ sa ekonomike vyskytuje vysoké daňové zaťaženie, vysoké odvody a vysoká miera nezamestnanosti či veľa byrokracie pri zamestnávaní cudzincov.

2. LITERÁRNA REŠERŠ

Nelegálna práca má výrazný dopad na spoločnosť. Mnoho autorov sa zaoberá touto problematikou (Bednárik a kol. 2003; Mochňacká, 2020, Williams, and Horodnic, (2017; Treľova, 2018; Otahálová, 2019) a upozorňujú, že nelegálnou prácou pracujúci na čierno odoberajú prácu nezamestnaným a tým zhoršujú ich šancu na návrat do zamestnania a zároveň veľkú časť nelegálnych prác vykonávajú nezamestnaní, takže niektorí z nich nepotrebujú sociálne dávky, pretože v skutočnosti pracujú.“ (Bednárik a kol., 2003). Novodobým trendom sa v tejto súvislosti stalo vyplácanie minimálnej mzdy na účet a zostatok mzdy „na ruku“. Inými slovami ide o dojednanie minimálnej mzdy na účet a zvyšná časť, ktorá nepodlieha dani z príjmov putuje zamestnancovi priamo.

Hlavným podnetom k nelegálnemu zamestnávaniu býva snaha o dosiahnutie príjmu pri čo najmenšej miere výdavkov. Pre zamestnávateľa je vodítkom k nelegálnemu zamestnávaniu nízka cena práce, ktorá mu umožňuje znížiť náklady a tým cenovo zvýhodniť výstupy svojej činnosti. Popri cene práce sa znižujú celkové náklady aj neplnením daňovej a odvodovej povinnosti za svojich zamestnancov (Otahálová, 2019) Ďalším motívom býva neformálnosť a s ňou spojená jednoduchosť začatia a ukončenia pracovného pomeru, a tiež aj minimum administratívnych úkonov (vedenie účtovníctva, prihlasovanie zamestnancov do poisťovní, odvádzanie preddavkov na dane a odvodov).

Medzi najčastejšie uvádzané výhody nelegálnej práce patrí napríklad príjem naviac pre zamestnanca, neplatenie odvodov a daní, možnosť ukončenia pracovného pomeru kedykoľvek, či časté využívanie ľuďmi, ktorí sú dlhodobo nezamestnaní a je pre nich lepšie pracovať nelegálne ako vôbec.

Naopak, medzi negatívami nelegálnej práce registrujeme napríklad nevyplácanie niektorých nárokov vyplývajúcich zo Zákonníka práce (napr. príspevok na stravu, odškodnenie za pracovný úraz, náhrady mzdy pri práceneschopnosti, dovolenke a pod.), tiež riziko bezdôvodného skončenia pracovného pomeru zo strany zamestnávateľa bez odstupného či vyplatenia mzdy. Pri nelegálnej práci nie je možnosť odvolávania sa na žiadne predpisy, zákony či smernice. (Kullová, 2007)

3. CIEĽ A METODOLÓGIA

Nelegálna práca je závažný celospoločenský problém, ktorý v konečnom dôsledku poškodzuje ekonomiku ako aj jednotlivca, preto je potrebné sa týmto otázkam venovať. Hlavným cieľom predkladanej štúdie bolo analyzovať podmienky, za akých by boli respondenti ochotní nelegálne pracovať v Slovenskej republike, ako aj skúsenosti, názory a postoje zo strany zamestnanca. Na získanie informácii, ktoré sme analyzovali, sme použili dotazníkovú metódu. Dotazník v elektronickej forme vyplnilo 150 respondentov. Realizoval sa v období január – máj 2022. Obsahoval 31 otázok, z toho bolo 7 identifikačných a 24 otvorených a uzatvorených otázok, ktoré boli v súlade s našou témou. Všetky dotazníky boli vyplnené a použiteľné k vyhodnoteniu. Pre potreby predkladanej štúdie sme použili iba niektoré vybrané otázky. Výsledky sme spracovali pomocou popisných štatistických metód.

3. INTERPRETÁCIA VÝSLEDKOV

Pre zistenie zaujímavých poznatkov z oblasti nelegálnej práce v SR sme sa rozhodli získať informácie pomocou dotazníka, ktorý nám vyplnilo 150 respondentov. Z nich bolo 83 žien (55,3%) a 67 mužov (44,7%), najviac zúčastnených respondentov bolo vo vekovej kategórií 15-24 rokov (49 respondentov, 33%), ďalšou skupinou bola veková kategória 25-34 rokov (44 respondentov, 29%). Veková kategória 35-44 rokov predstavovala 35 respondentov (23%), kategória 45-54 rokov 12 respondentov (8%), respondenti nad 55 rokov boli 10 (7%).

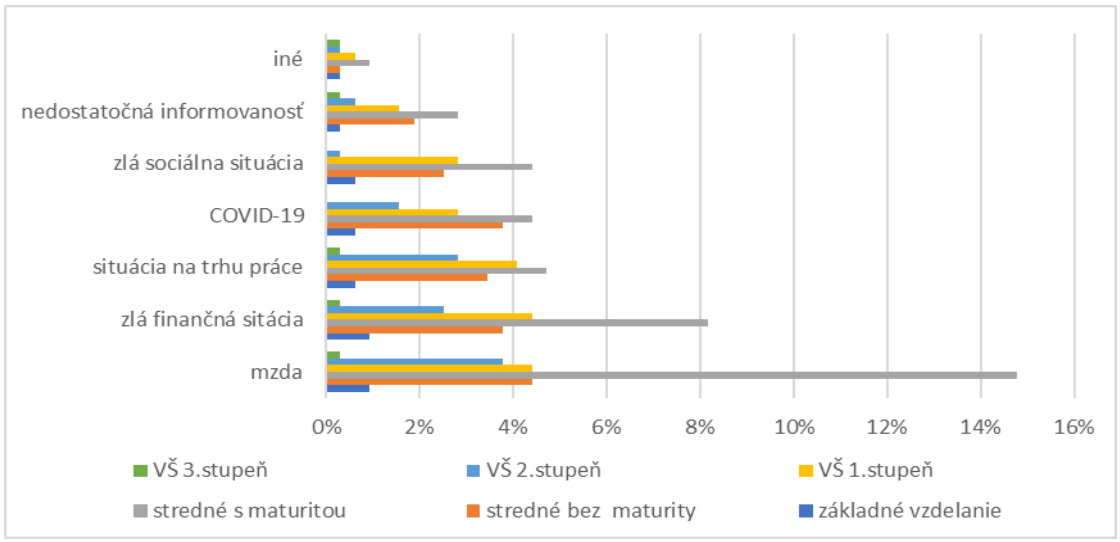
Z pohľadu vzdelania bolo najviac respondentov s úplne stredným vzdelaním s maturitou (55 respondentov, 37%). Druhá najväčšia skupina boli respondenti s vysokoškolským vzdelaním prvého stupňa (40 respondentov, 27%), s vysokoškolským vzdelaním druhého stupňa bolo 29 respondentov (19%), s nižším stredným vzdelaním bez maturity bolo 18 respondentov (12%). Skupina dosahujúca základné vzdelanie bola tvorená z piatich osôb (3%) a najmenej respondentov, boli s vysokoškolským vzdelaním tretieho stupňa, a to 3 respondentov (2%).

Pri otázke zameranej na odvetvia nelegálnej práce sme sa stretli so zaujímavým výsledkom. Až 52 respondentov (35%) nikdy nelegálne nepracovalo. Najčastejšie to boli ľudia s vysokoškolským vzdelaním druhého stupňa (52% z nich).

Analýzou sme zistili, že najviac respondentov 45 (30%) pracovalo nelegálne v ubytovacích a stravovacích službách, kde patrí gastronómia, ďalším sektorom stavebníctva, kde nelegálne pracovalo 20 respondentov (13%). Tretím najviac postihnutým sektorom boli administratívne a podporné služby, kde pracovalo 14 respondentov (9%). Štvrté najpočetnejšie odvetvie bolo poľnohospodárstvo, kde pracovalo 12 respondentov (8%), doprava a skladovanie, kde pracovalo 10 respondentov (7%), v odvetví umenie, zábava a rekreácia pracovalo nelegálne 9 respondentov (6%). Sektory v ktorých sa naši respondenti zamestnali menej často sú nasledovné: priemyselná výroba – 6 respondentov a 4%, zdravotná a sociálna pomoc – 3 respondenti a 2%, služby – 1 respondent a 0,7%, financie a poradenstvo – 1 respondent a 0,7%. Údržbárske práce, SBS, pomocné práce v servise, projektantské služby a manuálna práca pri skladaní obálok boli taktiež práce, kde pracoval vždy len jeden respondent a konkrétne tieto práce boli doplnené respondentmi ako iné. Z hľadiska vzdelania najčastejšie sa s nelegálnou prácou stretli ľudia s úplne stredným vzdelaním s maturitou (73%) a s nižším stredným vzdelaním bez maturity (61%) . Zaujímavé zistenie bolo, že až 79 respondentov (53%) sa s nelegálnou prácou stretlo pri vykonávaní študentskej brigády.

Zaujímal nás motív k nelegálnej práci. Najviac respondentov označilo, že ľudí vedie k nelegálnej práci hlavne mzda (29% všetkých odpovedí), ale aj zlá finančná situácia (20%) a tretia najčastejšia odpoveď bola zlá situácia na trhu práce v dôsledku nedostatku práce (16%). Až 13% odpovedí súviselo so situáciou následkom pandémie COVID-19, ktorá spôsobila, že ľudia berú každú prácu, ktorá je k dispozícií, teda aj prácu „načierno“. 23% odpovedí bolo, že ľudí vedie k nelegálnej práci zlá sociálna situácia. Pod možnosťou iné respondenti označili, že je to nútený stav zo strany zamestnávateľa, vysoká daň a zamestnávatelia poskytujú iba prácu „na čierno”.

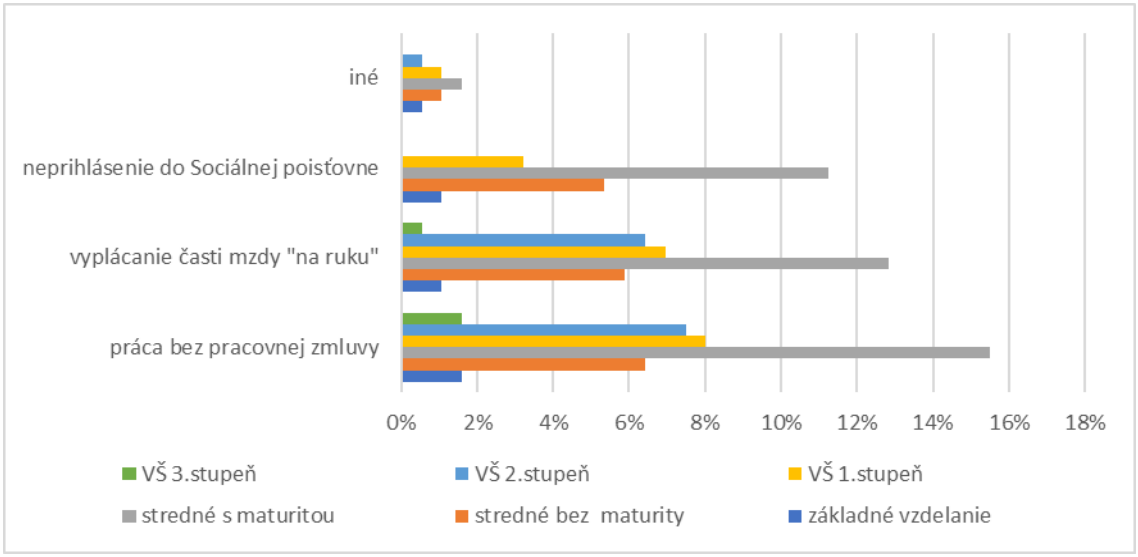
Obrázok 1: Motívy k nelegálnej práci



Zdroj: vlastné spracovanie na základe výsledkov prieskumu (2022)

Zaujímalo nás, ako respondenti nelegálne pracovali Opäť mohli označiť viacero odpovedí. Najčastejšou odpoveďou bola prác bez pracovnej zmluvy (41% odpovedí), nasledovalo vyplácanie časti mzdy "na ruku" (34% odpovedí), neprihlásenie do Sociálnej poisťovne (21% odpovedí) a iné (5% odpovedí), kde označili, že tajne pracovali počas materskej dovolenky či malé privyrobenie počas pandémie COVID-19. Odpovede sme znázornili v nasledujúcom obrázku.

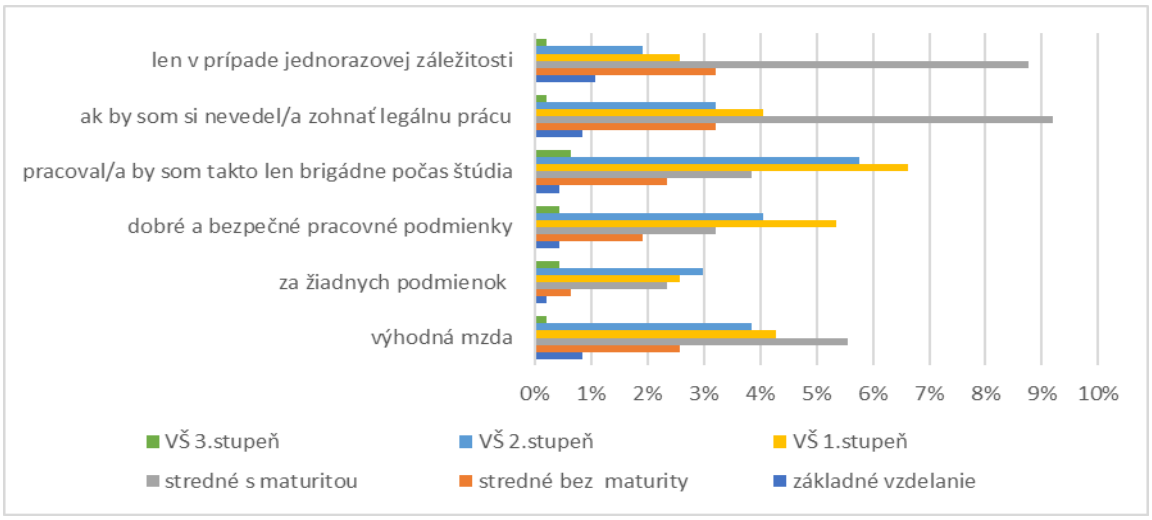
Obrázok 2: Spôsoby nelegálnej práce



Zdroj: vlastné spracovanie na základe výsledkov prieskumu (2022)

Dôvody, kvôli ktorým by boli respondenti ochotní ísť pracovať nelegálne boli najčastejšie ak by som si nevedel/a zohnať legálnu prácu (21% odpovedí), pracoval/a by som takto len brigádne počas štúdia (20% odpovedí) a len v prípade jednorazovej záležitosti (18% odpovedí). Odpovede sme znázornili n nasledujúcom obrázku.

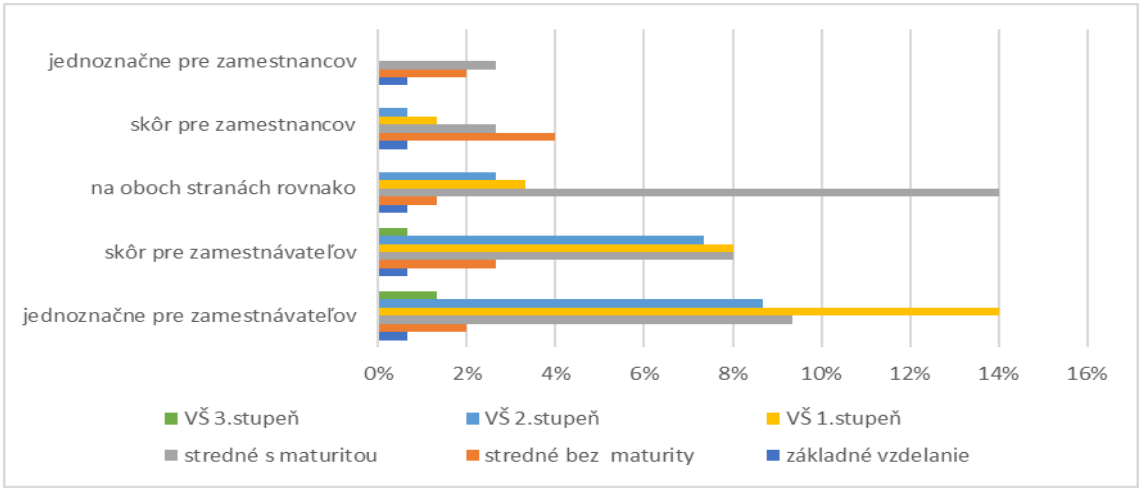
Obrázok 3: Spôsoby nelegálnej práce



Zdroj: vlastné spracovanie na základe výsledkov prieskumu (2022)

Zaujímalo nás, ako respondenti vnímajú nelegálne zamestnávanie z pohľadu výhod. Až 36% respondentov si myslí, že výhody sú jednoznačne na strane zamestnávateľa, 27% vidí výhody skôr na strane zamestnávateľa a 22% vníma výhody na oboch stranách rovnako. Výhody skôr pre zamestnancov vidí iba 9% respondentov a jednoznačne na strane zamestnanca 5%.

Obrázok 4: Spôsoby nelegálnej práce



Zdroj: vlastné spracovanie na základe výsledkov prieskumu (2022)

4. ZÁVER

Nelegálna práca je nežiaduci jav v ekonomike, ktorý sa vyskytuje vo všetkých druhoch hospodárskych sektorov, a to v rámci všetkých krajín EÚ.

Podľa dostupných štatistík je v Európe v priemere 61,8 % všetkej nelegálnej práce v rámci pracovného pomeru. Význam tejto problematiky je potvrdený aj záujmom Európskej únie, ktorá uskutočnila v septembri 2019 špeciálny prieskum Eurobarometer 498. Prieskum je tretím Eurobarometrom venovaným nelegálnej práci (prvý bol zverejnený v roku 2007 a druhý v roku 2013) a zhromažďuje osobné skúsenosti a postoje k nelegálnej práci 27 565 Európanov z rôznych sociálnych a demografických skupín. Zatiaľ čo len veľmi málo Európanov uviedlo, že pracovali neformálne, tretina občanov pozná niekoho, kto tak robil.

Zaujímavé by bolo rozšíriť informácie o nelegálnej práci a venovať sa závislosti čiernej práci a odvodovému zaťaženiu v EÚ, čo dáva priestor na ďalšie skúmanie.

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PARADIGMA HĽADANIA USPOKOJENIA Z PRÁCE

PARADIGM OF SEEKING JOB SATISFACTION

František STRUNGA[63]

Abstrakt: *Cieľom príspevku je zmapovať a pokúsiť sa nájsť spôsob ako počas pracovného a životného cyklu plnohodnotne akceptovať priority človeka a jeho individuálne potreby prostredníctvom, tzv. „uspokojenia z práce“. Predstavíme si model, kde aktívne pôsobenie človeka rozdelíme na obdobie, kedy sú priority materiálneho charakteru, s cieľom v čo najkratšom čase zabezpečiť také statky a kariérny rast, ktorý prinesie maximálny zisk. V druhom období sa zameriame na oblasť hľadania zmyslu pracovnej aktivity, vo vzťahu k naplneniu vlastných nehmotných túžob, ktoré prichádzajú po prvom období. Tieto služby nemusia nevyhnutne prechádzať trhom a tým pádom je ich ťažké kvantifikovať. Služby sociálnej politiky nevyhnutne nepotrebujú veľké finančné zdroje ak sa vykonávajú vo vzájomnej solidarite či subsidiarite. Hovoríme o službách, ktoré vyžadujú hlavne značný objem ľudskej práce, času a skúseností. Predstavíme si model, tzv. progresívnych odvodov ako motiváciu pre mladých a zároveň budovanie individuálnej zodpovednosti voči sebe ako aj spoločnosti.*

Kľúčové slová: *trh práce, age manažment, sociálne zabezpečenie,*

Abstract: The aim of the paper is to map and try to find a way to fully accept a person's priorities and individual needs during the work and life cycle through the so-called "job satisfaction". We will imagine a model where the active action of a person will be divided into a period when the priorities are of a material nature, with the aim of ensuring such goods and career growth in the shortest possible time, which will bring maximum profit. In the second period, we will focus on the area of searching for the meaning of work activity, in relation to the fulfillment of one's own intangible desires, which come after the first period. These services do not necessarily pass through the market and thus are difficult to quantify. Social policy services do not necessarily need large financial resources if they are carried out in mutual solidarity or subsidiarity. We are talking about services that mainly require a considerable amount of human work, time and experience. Let's imagine a model, the so-called progressive levies as a motivation for young people and at the same time building individual responsibility towards themselves and society.

Key words: *labour market, age management, social security ,*

JEL Classification: *J14, J53, H55*

1. ÚVOD

Príspevok spadá do kategórie hľadania zmyslu života. Každý si túto otázku už položil a odpovede prichádzajú v závislosti od aktuálneho rozpoloženia či životnej situácie. V každom prípade neexistuje jednoznačná a už vôbec nie jednoduchá odpoveď. Pri tvorbe sme sa inšpirovali aj prúdmi, ktoré sa zamýšľajú nad právom na lenivosť a nie na prácu. Paul Lafarque[64] píše: „ Ó , Lenivosť, matka umení a vznešených cností, buď balzamom na ľudskú tieseň“. My sa na ňu však pokúsime dať odpoveď cez tzv. uspokojenie z práce. Jedná sa o také nastavenie mysle, keď zmysel vidíme v aktivite, ktorá je užitočná a spätná väzba je buď priama alebo sprostredkovaná. S pojmom užitočnosť ekonómia pracuje často ale jej zmysel sa zo života vytráca. Miera užitočnosti vyhodnocuje, len ekonomický prínos častokrát bez odpovede na reálne potreby a skutočnú užitočnosť. Zrejme to súvisí s vysokou ekonomickou vyspelosťou a nízkou spoločenskou zodpovednosťou. Toto je základná úvaha,

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ktorá spoločnosť ťahá späť a nedovolí rozvinúť jej základné hodnoty ako úcta, ohľaduplnosť či ochotu podeliť sa. Vo všeobecnosti môžeme hovoriť, že nás individualizmus prevalcoval. Stali sme sa ekonomickými jednotkami s potrebou odmerať každú našu aktivitu a finančne ju vyjadriť. Zabúdame, že peniaze nemajú byť náš pán ale náš sluha. Keď si to uvedomíme, začneme si klásť otázky ako to zmeniť?

2. CIEĽ A METODOLÓGIA

Stojí za pokus hľadať spôsoby ako byť šťastnejší pri výkone svojho povolania?

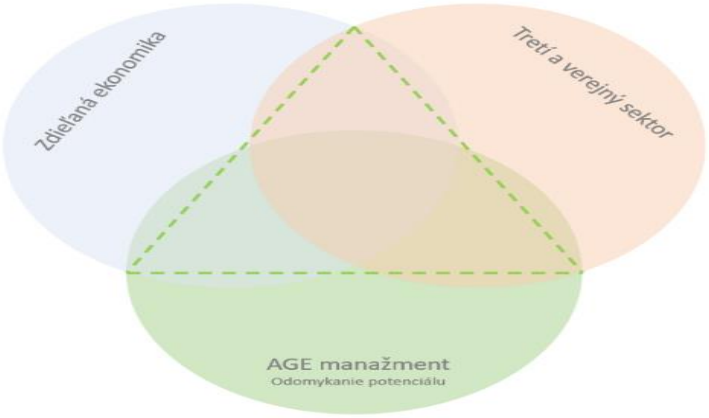
Každý z nás vykonáva nejakú prácu a každý z nás v nej vidí niečo iné, súvisí to s jej rôznorodosťou, ale v konečnom dôsledku sú základné úkony veľmi obmedzené. Motivácia prečo pracovať vychádza z vonkajších podnetov a nie z vnútorných, čo je základná a nesprávna motivácia. To odzrkadľuje aj mieru nechuti ju vykonávať. Našou odmenou sú nám peniaze, ktorými uspokojujeme svoje potreby, či potreby našich blízkych. Sme na nich tak závislí, že si nedokážeme život bez nich predstaviť. Otázkou je či sme šťastný? Dokonca aj vtedy ak ich máme dostatok. Existuje v tomto smere dostatok? Vieme si povedať kedy dosť? Tu narážame na hlavný problém peňazí, neexistuje ich dostatok, stále ich je málo, zrejme preto ich považujeme za také vzácne. Prestávame poznať skutočné hodnoty ale len pseudohodnoty vyjadrované ekonomickým blahobytom. Vzali sme si za cieľ pokúsiť sa nájsť riešenie ako ľudom, ktorí si uvedomujú slepú uličku spoločnosti poskytnúť odpovede. Existuje v ľudskom životnom cykle, tzv. „bod zlomu“, jedná sa o obdobie medzi 40-50 rokom života, kedy človek dosiahol materiálne nasýtenie svojich potrieb a každá dodatočná jednotka neprináša už očakávané uspokojenie, resp. môžeme dokonca hovoriť o neuspokojení. Táto skupina ľudí si ju kompenzuje, tým, že ju presmeruje k svojim deťom, resp. vnúčatám. Neprimerane ich obdarúvajú vecnými darmi v očakávaní, že to uspokojenie príde nepriamo cez emócie či vďačnosť. Je to nesprávna cesta, pretože rovnako ako my aj naše deti nedokážu oceniť ľahko získané veci. Častokrát sme sklamaní ich reakciou a viníme ich namiesto seba. Dokonca im škodíme, tým že im nedovolíme spoznať skutočné hodnoty vecí. Ak si týmto zážitkom prejdeme, opätovne si položíme otázku ako nájsť vlastné uspokojenie a neškodiť aj svojim blízkym? Žiaľ dnešná spoločnosť nie je naklonená riešeniam, pretože neexistuje sektor, kde financie sú sluhom.

Ponúkame model, ktorý je postavený na troch pilieroch. Sektor „X“ ako zlúčenie tretieho a verejného sektora, koncepcie AGE manažmentu a princípov zdieľanej ekonomiky. Všetky piliere sú nám dnes známe a postupne si hľadajú svoj priestor na uplatnenie. Priblížime si ich dnešnú podobu, načrtneme možný prienik a využijeme ho pre riešenie našej výskumnej otázky.

2.1 Prvý pilier „Sektor B“

Prvý pilier pozostáva z existujúcich štruktúr neziskových organizácií, dobrovoľných zväzkov a samosprávy vytvoriť samostatnú oblasť ekonomiky, kde na rozdiel od trhovo orientovaných subjektov budú platiť pravidlá zabezpečujúce, dôstojné postavenie členov, poskytnutie základných služieb a vzájomné zdieľanie nápadov či riešení. Hovoríme o určitom mixe tretieho a verejného sektora, v ktorom má občan možnosť sebarealizácie, slobodnej voľby a prejavenia individuality v rôznych formálnych či neformálnych zoskupeniach.

Obrázok 1: Piliere skúmaného modelu



Zdroj: vlastné spracovanie

Obrázok 1 zachytáva tri piliere, ktoré považujeme za dôležité pre štrukturálnu zmenu spoločnosti, jeho vzťahov a optimálneho mixu. Prienik týchto oblastí vytvorí predpoklady pre vyššie uspokojenie z práce v jednotlivých sektoroch hlavne tým, že výsledky svojej činnosti budú viditeľné a spätnou väzbou overiteľné.

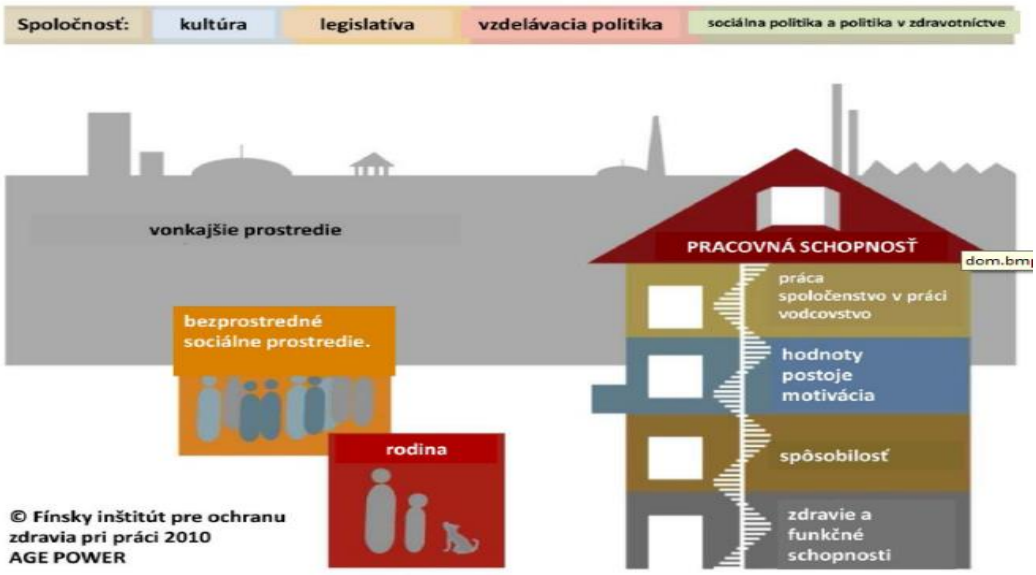
V reálnej ekonomike sa vyskytujú rôzne prekážky, ktoré zabraňujú aby sa presadili všetky ekonomické funkcie trhu. Môžeme preto povedať, že neexistuje taký ekonomický systém, ktorý je postavený na čisto trhových princípoch a dokonca ani historicky neexistoval. (Sivák, 2007) Hlavným dôvodom je, že trh v určitých aspektoch zlyháva, preto existuje konsenzus, že v opodstatnených prípadoch sú akceptovateľné zásahy štátu. Prostredníctvom prerozdeľovacích procesov efektívne alokovať finančné zdroje rozpočtov na produkciu verejných statkov a tým spätne vytvárať podmienky na fungovanie súkromného sektora“ (Peková, 2008) Tento pohľad sa pokúša naznačiť že tieto sektory sú vzájomne previazané a závislé. Preto aj my pracujeme s myšlienkou, že musia byť vzájomne rovnocenné, nekonkurenčné s presne vymedzenými kompetenciami a s možnosťou občanov sa rozhodnúť na miere a forme participovať v nich. Centrum komunitného organizovania podporuje a presadzuje aktívnu účasť občanov v procesoch verejného rozhodovania, napomáha občanom pri formulovaní a obhajobe ich prirodzených záujmov. Vznikajú nové inštitúcie a spôsoby, ktoré pomáhajú tým, čo sa chcú realizovať v oblasti darcovstva a nevedia ako. Zakladajú sa banky, ktoré ponúkajú také sporiace účty, kde 100 % investovanej sumy, ako aj úrokov je použitých na charitatívne účely. Ďalšie komerčné a bankové inštitúcie veria, že nie je rozdiel medzi budovaním schopných a udržateľných firiem a charitatívnych organizácií. Prenášajú tak vedomosti, kapitál a skúsenosti z komerčného sveta na vybudovanie lepších a silnejších neziskových organizácií. Iné firmy zase investujú do budovania kapacít v treťom sektore a namiesto peňazí prinášajú kvalitných manažérov. Medzi obľúbenejšie formy však stále patrí venovanie času a vedomostí neziskovým organizáciám prostredníctvom dobrovoľníckej práce. Ľudia a darcovia radi uprednostňujú osobný kontakt a účasť, chcú vidieť a zažiť, aký dopad má ich dar alebo pomoc. (Kunická, 2009)

2.2 Druhý pilier „Age management“

Druhý pilier predstavuje „Age management“. Jedná sa o odbor, riešiaci spôsob ako byť ústretový k zamestnancom, tak aby žiadny nebol vo výhode kôli veku a ani inak diskriminovaný a zároveň mohol plnohodnotne využívať svoj potenciál. Proces starnutia je nevyhnutným javom v živote človeka. Vo všeobecnosti hranica od ktorej sa znižuje pracovná spôsobilosť je v období 50-55 rokov ale z hľadiska pracovne-lekárskeho sú za starších pracovníkov považovaní ľudia od 45 rokov pretože v tomto veku už dochádza k zmenám

dôležitých orgánov. (Král, 2018) Vo Fínskom inštitúte zdravia sa snažili získať odpoveď na otázku. Aké zmeny nastávajú u človeka v priebehu starnutia a akým spôsobom to ovplyvňuje schopnosť pracovať a na základe akých faktorov správne stanoviť vek odchodu do dôchodku? (Štorová, 2016). Za najdôležitejší výsledok tohto výskumu bola identifikácia faktora ovplyvňujúca človeka pracovať a vytvorenie Work Ability Index. Následne bola aplikovaná na zamestnancov štátnej správy vo veku nad 45 rokov a výsledky boli nasledovné. 60% pracovníkom sa pracovná schopnosť nezmenila, 10% sa mierne zlepšila a až 30% sa výrazne zhoršila. Pri ďalšom skúmaní dôvodov tohto poklesu dospeli k názoru, že to spôsobil spôsob organizácie práce, ergonómiou pracoviska a významnou mierou aj životným štýlom zamestnanca. (Ilmarinen, 2008) Vyvinuli holistický model pracovnej schopnosti a nazvali ho „Dom pracovnej schopnosti“ (obrázok 2), ktorý pozostáva zo štyroch podlaží, kde prvé tri predstavujú individuálne možnosti nasledovne. Prvé podlažie hovorí o zdraví a funkčných schopnostiach pracovníka, druhé o jeho spôsobilosti a kompetenciách, tretie o hodnotách, postojoch a hlavne motivácii. Štvrté sa týka zamestnávateľa a predstavuje pracovný život, štýl vedenia pracoviska a pracovné podmienky. Vedecký výskum potvrdzuje, že práve v období okolo veku 45 rokov nastáva, určitá fáza, kedy človek má nadhľad a uvedomenie si vzájomných súvislostí. Práve tu musia spozornieť zamestnávatelia, nakoľko štvrté podlažie je často náročné na hmotné či nehmotné investície aby nedošlo k poľaveniu v práci resp. zníženiu pracovnej schopnosti. Málokedy zamestnávateľ dokáže potreby týchto zamestnancov uspokojiť a zároveň málokedy zamestnanec dokáže zamestnávateľovi prinášať takú produktivitu akú by požadoval. Je čas na partnerstvo, zmenu pracovného postavenia a definovanie si nových podmienok.

Obrázok 2: Model domu pracovnej schopnosti



Zdroj: MPSVaR, 2017

Tretie podlažie má balkón, z ktorého môžu zamestnanci vidieť prostredie najbližšie ich pracovisku: rodina a blízke okolie. Tieto faktory každý deň ovplyvňujú pracovnú schopnosť zamestnancov. Osobné kontakty a medziľudské vzťahy pôsobia na hodnoty, postoje a motiváciu. Tieto schopnosti je možné kreovať podporou mimopracovných aktivít vrátane celoživotného vzdelávania zamestnancov (verejnoprospešné aktivity a dobrovoľnícka činnosť, spoločenské súťaže, športové akcie, relaxačné pobyty a podobne). Riešením je seniorita, tzn. ovzdávanie skúseností mladším kolegom, zníženie pracovného úväzku a

postupný prechod k aktivitám spoločenskej zodpovednosti firmy. Väčšina firiem v dnešnej dobe podporuje sanáciu externalít trhu, resp. zodpovedný prístup k spoločnosti alebo prírode. Jej priority by mohol ako ambasádor vykonávať jej zamestnanec, ktorý nájde v tejto oblasti nové uspokojenie.

Firma nebude priamo posielať finančné príspevky ale zabezpečí kvalifikovaného a motivovaného človeka. Zamestnanec, ktorému bude umožnené sa realizovať v oblasti spoločenskej zodpovednosti bude vďačný, že môže byť užitočný a firma tým získa vyšší kredit u svojich spotrebiteľov. Existovala by možnosť pracovnoprávne tento vzťah upraviť tak aby partnerstvo bolo riešené rovnocenne, tzn. samotný zamestnanec sa stane SZČO, resp. živnostník. Pre zamestnávateľa bude vykonávať činnosti na ktorých sa vopred dohodne, nebude viazaný len k jednému zamestnávateľovi a zároveň svoje služby vie ponúknuť aj tretiemu sektoru, či už odplatne alebo bezodplatne po vzájomnej dohode. Existujú už dnes prvé príklady uplatnenia age manažmentu v praxi, hovoríme tzv. „stlačenom pracovnom týždni“[65], (Gender Studies, 2010). Tento model začal testovať od septembra 2022 aj Slovak telekom ako svoj interný pilotný projekt. Ďalším zaujímavým príkladom je Bosch diesel Jihlava, kde firma má záujem motivovať pracovníkov aby nevyužili možnosť predčasného odchodu do dôchodku ponukou práce na skrátený pracovný úväzok bez zníženia mzdy a straty benefitov.

2.3 Tretí pilier „zdieľaná ekonomika“

Tretím pilierom je koncept zdieľanej ekonomiky, v zmysle hesla generácie X ho môžeme charakterizovať nasledovne „*Nechceme vlastniť, nechceme kupovať, chceme užívať, požičiavať si a po určitom čase využívania vrátiť späť*“. Jedná sa o zásadnú zmenu paradigmy vo vnímaní vlastníctva. Tento trend odzrkadľuje ich potreby a flexibilitu. Zároveň ponúka aj riešenia pre spoločnosť ako ustáť niektoré výzvy budúcnosti. Ak sa koncept zdieľanej ekonomiky uchopí správne môže priniesť veľa pozitívnych aspektov. Zásadná otázka v tomto koncepte je kto bude vlastníkom, respektíve správcom týchto zdieľaných statkov a rovnako aj zdieľaných služieb? Kto, komu a podľa čoho bude tieto statky a služby poskytovať? Riešením môže byť súkromný sektor postavený na čisto ekonomickom princípe, tzn. bude pre toho kto si to môže dovoliť. Alebo na solidárnom, kto to potrebuje, respektíve komu vznikne nárok na základe ponúknutej spoločenskej protihodnoty. Tu sa otvára priestor na také verejné alebo súkromné statky a služby, ktoré nemusia prechádzať trhom a môžu byť poskytované vo vzájomnej výmene v rámci komunít, združení alebo iných spolkov. Ak sa tento koncept rozšíri bude to znamenať aj iný ekonomický pohľad na fungovanie výrobkov. Výrobok v zdieľanej ekonomike bude musieť fungovať dlhodobo a bude musieť spĺňať požiadavky rôznych zákazníkov. Celý proces si bude vyžadovať neustálu otvorenosť a flexibilitu aby bol celospoločensky obľúbený a podporovaný. (Staněk, 2017) Ďalším predpokladom, je že zdrojmi si uspokojujeme prioritne svoje potreby a nie svojich detí. Táto koncepcia si vyžaduje nový prístup, založený na individualizme jednotlivca v rozhodovaní. Zdieľaní aktivít s tými, s ktorými máme spoločné záujmy a preferencie. Deti, by mali dostať možnosť bezodplatne hľadať oblasti a hranice svojho potenciálu. (Muhlfeit, 2018) To sa dá vtedy, ak doprajeme deťom aby si prirodzene vyberali hračky, ktoré sú im blízke a ktoré ich zaujímajú. Tým objavujú svoj talent a prirodzene ho rozvíjajú. Problémom je, že sa v školách neučí chápať architektúru súvislostí, nevedieme žiakov a študentov k zaraďovaniu informácií do kontextu reťazenia súvislostí, príčin a dôsledkov a tým ich odsudzuje do roviny absorbentov individuálnych informácií. (Staněk, 2017)

[65] Spočíva v tom, že zamestnanec pracuje napr. štyri dni v týždni po 10 hodín, prípadne ak má pružnú pracovnú dobu tak max. 12 hodín denne. Tento spôsob by mal pomôcť nastaviť work-life balance zamestnanca.

3. RIEŠENIE PROBLÉMU A DISKUSIA

Z hľadiska možného riešenia sa črtá využitie existujúcich systémov či už komerčných alebo nekomerčných s trochou odvahy ich reformovať a väčšou odvahou ich správne orientovať, aby vytvárali vyššiu pridanú hodnotu pre spoločnosť a nie pre individuálne subjekty trhu. Správnou komunikáciou, pritiahneme na stranu tejto myšlienky spoločensky zodpovedné firmy a domino efektom aj ich spotrebiteľov čo následne spôsobí, že aj ostatné firmy sa budú musieť v nejakej únosnej miere pridať. Vo výsledku sa znovu sily vyrovnajú ale už spoločnosť bude mať inú štruktúru v ponímaní, že vzťah medzi súkromným a verejným nebude v priamom antagonistickom vzťahu ale vzniknú partnerstvá so vzájomným rešpektom. Zameriame sa predovšetkým na odvody sociálneho zabezpečenia v oblasti dôchodkov. Filozofický pohľad hovorí o tom, že vzhľadom k existujúcej inflácii a tým znehodnocovaniu peňazí je potrebné aby existoval priebežný systém. Zdroje pre jeho plnenie vzhľadom k demografickej otázke nemôžu plynúť len z odvodov zamestnancov ale aj z odvodov kapitálu. Ak to pochopíme môžeme otvoriť otázku ako to urobiť? Zdroje týchto fondov musia byť investované do udržateľných platforiem vo forme investícií a reštrukturalizácií firiem či organizácií produkujúcich také statky, ktoré priamo ovplyvňujú kvalitu života. Ako príklad uvádzame, bývanie[66], výroba kvalitných potravín či voľnočasových aktivít. Na druhej strane ponúknuť tieto zdroje k vybudovaniu kvalitnej infraštruktúry a služieb, ktoré vytvárajú skutočnú pridanú hodnotu. Ak sa pozrieme na ciele v starobnom dôchodkovom sporení tak v samotnom zákone[67] sú definované nasledovne. Zastavenie rastu deficitu, jeho stabilita a udržateľnosť. Vytvorenie predpokladov zhodnocovanie prostriedkov na osobných účtoch, štátna garancia v prípade porušenia zákona a pre nás veľmi dôležitý cieľ „***Sloboda odchodu do dôchodku***“. Princípy sú vymedzené správne ale realizácia nenapĺňa očakávania, hlavne pri veku odchodu do dôchodku či vo výbere a čerpaní dôchodku.

Zaviedli sme pojem „Zlatá generácia“[68], ktorá je ešte dostatočne vitálna, odhodlaná sa nepoddať a byť tvorcom svojho osudu. Je dostatočne nezávislá od zdrojov a dostatočne motivovaná nebáť sa výziev. Predpokladáme celospoločenskú potrebu vytvoriť skupinu ľudí, ktorých uspokojenie z práce je nízke a radi by sami rozhodovali ako naložiť so svojimi vedomosťami, skúsenosťami a časom. Dokázali by rozšíriť či vytvoriť také pracovné pozície, ktoré absentujú alebo sú nedostatočne zaplatené trhom. Dôvod prečo by ich ľudia vykonávali, je spätná väzba a nový zmysel vynaloženej energie bez nutnosti zarábať peniaze. Ak chceme k takémuto stavu dospieť musíme mať zdroje na to aby sme si to takpovediac mohli dovoliť. Navrhujeme riešenie ako v prvej fáze svojho ekonomického života vytvoriť zdroje a tým umožniť ešte pred dôchodkom byť nezávislým tvorcom svojho života, či šťastia. Jedná sa o obdobie 15 rokov pred starobným dôchodkom, ale asi 25 po aktívnom ekonomickom živote v prostredí ako ho poznáme dnes. Cieľom je nájsť spôsob ako počas 25 rokov vytvoriť zdroje krytia následne ekonomickej zvrchovanosti.

Prvým predpokladom je, že existuje spôsob ako zarobiť peniaze, niekde na úrovni 3-5 tisíc[69] euro mesačne. To nie je nereálne hlavne, keď zoberieme do úvahy, že sa jedná o tzv. superhrubú mzdu vrátame odvodov zamestnávateľa. Zároveň mzda[70] nesmie byť vnímaná ako prekážka v podnikaní ale ako zisk ekonomickej jednotky pri výkone svojej ekonomickej aktivity. Jej výška bude dostatočnou motiváciou ju vykonávať, bez potreby nezmyselnej kontroly zo strany zamestnávateľa a bez nutnosti poľavovania v úsilí zo strany zamestnanca. (Amstrong, 2007) definuje riadenie ľudských zdrojov ako strategický a logicky premyslený prístup k riadeniu zamestnancov, ktorí v podniku pracujú a individuálne či kolektívne

[66] Fondové schémy sa napríklad môžu využiť na podporu hypotekárneho bývania
[67] Zákon č.43/2004 Z.z. o starobnom dôchodkovom sporení
[68] jedná sa o obdobie predchádzajúce striebornej generácii
[69] V západnej Európe sa jedná o štandard
[70] ZISK, ODPISY a MZDA sú pridanou hodnotou ekonomickej činnosti musíme ju v tomto kontexte aj vnímať.

pomáhajú dosahovať jej ciele. Dôležitým aspektom je aj „diverzity manažment“, ktorý predstavuje vedomé vytváranie strategického, hodnotovo orientovaného komunikačného a riadiaceho procesu orientovaného na budúcnosť, spočívajúceho v akceptácii a využívaní rozdielov a podobností ako potencionálnej hnacej sily firmy. Takto zložito opisujúci proces vytvára pridanú hodnotu. (Keil, 2007). Základným predpokladom je postupné znižovanie kapitálového trhu na úkor odvodov sociálneho zabezpečenia, to následne dokáže uchovať spoločnosť zdravú a udržateľnú.

Druhým je aby existovala motivácia tretinu až polovicu týchto zdrojov smerovať cez fondy sociálneho zabezpečenia do oblasti, kde budú plniť funkciu sociálno-ekonomického charakteru. Ak aj nie, je potrebné aby nešli do spotreby ale investícií, ktoré sa dajú v čase premeniť na zdroje krytia, pre prípad, že človek bude mať potrebu ukončiť svoju ekonomickú aktivitu ako ju poznáme doteraz. Priamo nadväzujeme na postupné rozširovanie nových fondov sociálneho zabezpečenia, pre krytie obdobia zlatej generácie. Myslíme tým krytie výpadku príjmu, z dôvodu odchodu z práce a vstupu do neziskového sektora a systému dobrovoľníctva. Uvažujeme so systémom tzv. kreditov, ktoré budú predstavovať bezhotovostnú bázu a za ktoré budeme obstarávať služby spojené s každodennou potrebou, ako stravovanie, bývanie, opatrovanie, vzdelávanie a neposlednom rade aj dovolenky, či iné voľnočasové aktivity. Ako alternatívou sa javí zriadenie živnosti, čo by predstavovalo zabezpečenie príjmu síce v nižšej miere ale nepredstavovalo by to záťaž na fondy sociálneho zabezpečenia.

3.1 Model štruktúry spoločnosti a definovanie nových vzťahov

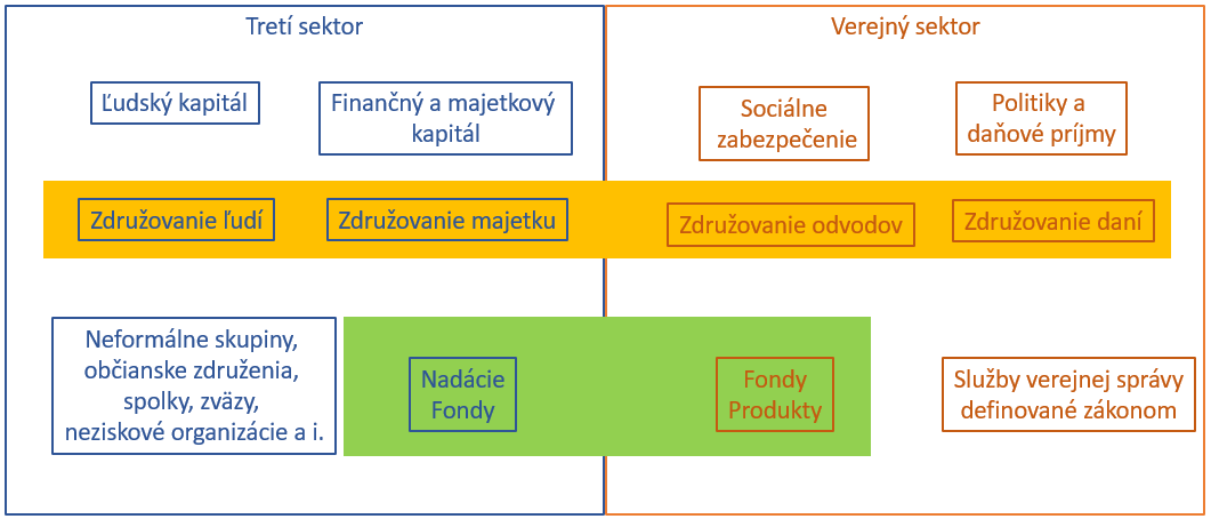
Model predpokladá vytvorenie dvoch základných sektorov ekonomickej oblasti, kde prvý „A“ bude ten ako ho poznáme dnes a je plne orientovaný na zisk, oblasť pôsobenia bude plne určovať trh, rozumej dopyt, bez akýchkoľvek štátnych intervencií a druhý „B“ bude orientovaný na poskytovanie služieb, potrebných pre spoločnosť bez ekonomického kalkulu. Jedná sa o dnes známe sektory ako tretí a verejný. Každý vykonáva svoje poslanie, tretí robí to čo uzná za spoločensky potrebné a jeho činnosť nie je v rozpore so zákonom. Verejný vykonáva služby, ktoré sú práve zákonom definované. Po zohľadnení optimálneho mixu týchto oblastí sme dospeli k úvahe ako docieliť rozdelenie sektorov a zdrojov tak, aby sme naplnili očakávanie, zaviedli tzv. zlatú generáciu do praxe a tým umožniť spoločnosti byť spoločensky zodpovednejšou. Je nutné jednoznačne oddeliť tieto dva sektory, ale dovoliť aby existoval voľný prechod medzi nimi, či už pracovníkov alebo tovarov. Ako základnú vec považujeme aby sektor „A“ zostal ako ho poznáme doteraz, resp. sa prirodzene vyvíjal podľa potrieb a dominovali by mu peniaze a štandardné finančné väzby. Navrhujeme aby bola ako protihodnota neexistenie subvencií zrušená daňová povinnosť týchto subjektov[71]. Jednoducho sa tu budú realizovať len služby, ktoré si dokážu nájsť cestu ku kupujúcemu zákazníkovi. Pre financovanie sektora „B“ navrhujeme nasledovný mechanizmus. Na strane príjmov budeme hovoriť o zdrojoch vo forme ľudského kapitálu, ktorý získame bezodplatne, resp. výmenou za vnútorne zrealizované služby „združovanie ľudí“ a „združovanie majetku“ ako ho poznáme dnes, ktorý je smerovaný od fyzických či právnických osôb podporujúcich aktivity tretieho sektora. Náš model ich rozširuje o zdroje verejného sektora vo forme „združovania odvodov“, kde sa hlavne jedná o tzv. 1. dôchodkový pilier plus niektoré ďalšie odvody, napríklad poistenie v nezamestnanosti. Zdroje budú doplnené pomerne veľkou objemovou zložkou vo forme pridelených spotrebných daní. Všetky zdroje budú spravované inštitúciou[72], združujúcou dnešné nadácie, fondy, Sociálnu poisťovňu a miestne zastupiteľstvá. Nebude existovať motivácia k vlastnému prospechu, nakoľko všetky zdroje budú v bezhotovostnej

[71] Priamo to súvisí s otázkou výšky mzdy, nami navrhované platy 3-5 tisíc ako priamy výsledok ekonomickej aktivity bez daní, resp. firmy svoj zisk reinvestujú alebo priamo podporia 3 sektor podľa vlastných preferencií vrátane športu. Dane na plnenie štátneho rozpočtu budú plynúť len zo spotreby,(spotrebné a DPH).

[72] Ako možný kandidát sa javí Národná banka Slovenska NBS

forme s priamou väzbou na tovary a služby základnej potreby a pod kontrolou verejnosti a neziskových organizácií, ktoré budú súčasťou tohto systému. Na obrázku 3 sme načrtli základné predpoklady ako bližšie previazať tretí a verejný sektor, identifikovali sme zdroje príjmu a následne efektívnou správou vytvoriť predpoklady ich distribúcie smerom a aktivitám zlatej generácie.

Obrázok 3: Previazanie vzťahov a medzi tretím sektorom a verejným sektorom



Zdroj: Brozmanová, A. a kol, Tretí sektora mimovládne organizácie. 2009, vlastné spracovanie

Model predpokladá ešte aj sektor „AB“, ktorý bude slúžiť ako zdieľaný zdroj hlavne ľudského kapitálu ponúkajúce služby obom sektorom. Jedná sa o formu živností a malých spoločností združujúcich týchto živnostníkov poskytujúcich služby. Základným predpokladom je ale vytvorenie štruktúry takýchto drobných služieb lokálneho charakteru. To vyžaduje veľké úsilie zo strany hlavne samosprávy aby využívala služby týchto lokálnych živnostníkov a osvety na komunálnej úrovni. V neposlednom rade sieť referencií medzi ľuďmi a rozšírenie komunitných centier, ktoré budú podporovať takýto spôsob poskytovania služieb. Vznik komunitných centier bude prepájať jednotlivé činnosti neziskového sektora, dobrovoľníctva a drobných živností s cieľom zvýšenia vzdelanostnej, zdravotnej, či spoločenskej úrovne v regióne.

4. ZÁVER

Príspevkom reagujeme na aktuálne potreby spoločnosti, kde často dochádza k vyhoreniu pracovníkov z dôvodu preťaženia a nízkeho uspokojenie z práce. Predkladaný návrh sa pokúša nájsť riešenie ako priniesť štrukturálnu zmenu do spoločnosti, akými nástrojmi ju realizovať a ako upraviť vzťahy medzi dotknutými subjektami. Hlavnou myšlienkou je vytvorenie dvoch sektorov, kde tretí a verejný bude zlúčený. Ten bude vytvárať pracovné príležitosti, kde sa ľudia budú môcť realizovať v sociálnej a filantropickej oblasti a výpadok príjmu bude krytý aj z fondov sociálneho zabezpečenia. Zároveň spoločné financovanie týchto sektorov bude prospešné pre ich vzájomnú kontrolu. Ak by došlo k úniku zdrojov v verejnom sektore (vláda, samospráva), tretí sektor ich bude priamo postrádať a opačne. Ak si vezmeme aktuálnu situáciu, vláda uvažuje nad podporou firiem a domácností s nízkymi príjmami. Nemá ale informácie kto patrí do kategórie spĺňajúcej podmienky pomoci. Rozhoduje o dlhu krajiny v prospech vybraných skupín. Veriteľom všetkých jej rozhodnutí sú samotní občania veľakrát bez možnosti sa vyjadriť či spôsob, ktorý zvolila je správny. Naším modelom dokážeme takéto situácie do budúcna riešiť, hlavne tým, že podnikateľská sféra

musí byť pripravená na šoky, ktoré trh prinesie bez štátnej pomoci. Na druhej strane musíme vytvoriť záchrannú sieť pre ľudí, ktorí budú týmito šokom postihnutí. Príspevok má ešte mnoho nezodpovedaných otázok, našim cieľom je naštartovať diskusiu na tému šťastia, uspokojenia a užitočnosti obyvateľov.

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THE IMPACT OF THE DATA REVOLUTION ON CHANGES IN HUMAN CAPITAL MANAGEMENT

***Henrieta ŠUTEKOVÁ*[73]**

Abstract: *Currently, the labor market is changing dramatically under the influence of various circumstances, and even today we still cannot say what the impact of all these changes will be and what the future will bring. It is all the more important to map all the negatives and positives associated with technological progress, to open up a discussion on changes in the labor market, and at the same time to create pressure on the competent to systematically address all problems and look for solutions. Those that eliminate negative impacts on the labor market in connection with Industry 4.0. And also those that can use its positives in an even higher benefit for society. The aim of the contribution is to identify the greatest challenges of the current century regarding human capital and work with it. The author mainly focuses on how innovations, the demand for personalized content and the circular economy are changing employers' requirements for the skills and qualifications of human resources. Also, how the relationship between the company and its workforce is changing and what alternative forms of work are developing thanks to technological progress. Last but not least, it also deals with the problems that occur as part of intergenerational clashes of personnel at the workplace.*

Key words: *human resources, changes, industry 4.0, labor market, profession, robotization, skills,*

JEL Classification: *E42, O15, J2, M5*

INTRODUCTION

The twenty-first century brings a number of dynamic changes to the labor market. Their emergence was stimulated by globalization, technological progress, innovation and the wider use of artificial intelligence. The transformations associated with Industry 4.0 affect several areas of economic and social life, and there is uncertainty in the world about the impact of these phenomena on the lives of its inhabitants. "For companies around the world, automation will offer the potential to capture significant value - and not just from labor substitution. These technologies enable higher throughput, higher quality, better outcomes, greater innovation, greater security, and the opportunity to expand or adopt new business models" (Manyika, Chui, George 2017). At the same time, together with the bad demographic development, they also bring many risks associated with the transformation of labor relations between employers and employees, with changes in the organization of work, in the corporate structure, in the way of cooperation between its individual articles, in the demand for a different type of required knowledge, skills and competences of hired employees/ employed human resources. And in this context, the habits used for years in teaching and education on the part of educational institutions should also change. The question is how society will approach this, what measures will it take to eliminate negative externalities from technological progress and how will it be able to use all the benefits resulting from it for a better life in it.

PROBLEM FORMULATION AND RESULTS

Unstoppable globalization trends, together with changes in the age structure and also in the composition of occupations, are bringing a serious crisis to the labor market. The achievements of Industry 4.0 affect not only the qualification requirements of employers, but also the value of the work itself. The pressure on the increasing work competences of human

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resources will lead to their higher value, and therefore also the price of work (Koreň 2019). As a result, the management of human resources becomes critical not only in competitiveness and business results, but also in viability. Thus, managers face not only external continuous and stressful influences, but also fundamental problems in human capital management (Keršule et al. 2019). In this post, only some current trends are presented. Although the first of them do not directly concern the labor market, they have a significant impact on the change in the skills and qualifications of human resources, so it is necessary to mention them. It is also necessary to look at how the relationship between the company and its workforce is changing and what alternative forms of work are developing thanks to technological progress. The presented text will also point out the problems that occur in the framework of intergenerational clashes of personnel at the workplace. In the author's next contribution (Changes in the labor market in the 21st century), attention is also paid to changes in the demand for human resources and in the disappearance of some professions and the creation of new job positions.

a) Innovations and personalized content

Recently, companies have focused significantly more on marketing-oriented production, where the basis is personalized content, i.e. a product tailored to the customer. According to Muránský (2017), the sharp increase in innovations, the greater influence of the media and digital means of communication, the accelerated innovation cycle and the cheapening of technologies bring faster feedback from the customer. They enable us to react more flexibly to his needs, they can copy the competition faster, and the multiplier effect of the mentioned influences creates space for the recombination of already existing technologies. Thanks to this, a self-supporting innovation cycle is created, i.e. innovations satisfying a certain customer need will create a demand for a new need, another innovation. This pressure forces manufacturers to use cheaper, more accessible products and offer an expanded assortment much more reflective of consumer requirements. More about this issue can be found, for example, in the study Csereová, Huszárik (2019). Havierníková and Kráľová (2019) analyze what challenges Industry 4.0 brings in the area of innovation and education, which small and medium-sized enterprises interested in cluster cooperation have to face. An apt characterization of Industry 4.0 changes can be found in a study by Koval, Mirus, Harchuk (2019). In the future, innovation can be expected to move from internal design centers to open communities, where it will be created by passionate and enthusiastic users. In connection with the labor market, it can be noted that companies will increasingly look for human resources that are creative, productive, proactive with a lot of ideas to constantly improve customer service. Another trend that is currently being discussed more and more intensively is the need to apply an approach that already thinks about its entire life cycle when designing a product, so that it is as ecological, closed and as long as possible, i.e. the principles of the circular economy are implemented.

b) Circular economy

The introduction of a circular economy is already considered a necessity in the transition to a sustainable economy. The European Union has also been dealing with this issue for a longer period of time, which in 2015 presented its recommendations, both on a practical and legislative level, on how to integrate the circular economy. This requires systemic solutions at the state and regional level. 196 countries committed to this in 2016, and by signing the UN Agenda 2030, they decided to fight for a better future for the planet by taking joint steps to fulfill the 17 goals of sustainable development (especially in the area of recycling and waste prevention) (Circular 2018). The mentioned economic model is based on the repeated return of components, materials and products back to the production process. It is therefore a cyclical transformation of outputs into inputs. Thanks to this circulation, waste is dramatically minimized, energy consumption used for the production of new inputs is eliminated, and overall production costs are also reduced. The biggest benefit is the effective use of

exhaustible natural resources by their effective valorization. The main features of this concept are dealing with renewable energy sources, sharing, renting, supporting local sales and eco-innovation, as well as eco-design. However, it requires the cooperation of all areas of society, from investors, developers, designers, material technicians, through consumers, to academics, politicians and the third sector (incien.sk). A lot of inspiring information, as well as examples of good practice, can be found on the Circle economy Knowledge hub online platform for cities, businesses and citizens. The circular economy helps create jobs and contributes to economic growth. Thanks to the development of innovative technologies, product design is improved for easier reuse and innovative industrial processes are introduced. Together with private investments, employment, gross value added, they strengthen the competitiveness of the entire economy (Circulation 2019). The implementation of this philosophy in practice can bring solutions to several challenges not only for Slovakia, but also for other countries, from environmental to economic to social. Unequivocal benefits include a lower level of environmental pollution and associated lower health care costs. Thanks to progressive technological solutions, the economy will be modernized, the competitiveness of businesses will also increase, leading to a reduction in costs and an increase in the quality of life of its shakeholders without impacting limited natural resources. However, this requires a reassessment of consumption and production patterns (towards sustainable products), cooperation with customers and suppliers and infrastructure, i.e. across the entire value chain behind a specific product, and only then can benefits from the implementation of the circular economy flow for the entire society (Circular 2018). At the same time, the state and the third sector must provide stimulation to change the consumer behavior patterns of customers, implement awareness in the direction of green products and ensure environmental education. Companies are therefore expected to take a responsible approach to this and make changes in their internal environment, whether in the organization of work, in the corporate structure, in the way of cooperation and in the ability to respond more flexibly to the mentioned trends. When recruiting a new workforce, this also results in a clear orientation that HR professionals will especially welcome applicants who are creative and focused on eco-innovation and eco-design.

c) Flattening of organizational structures, or management pyramid, project team cooperation, networking

The American top-down management system is already being replaced by the Japanese bottom-up model. Management from below, where employees will have the decisive say. The key duty of a leader, not a manager, will be to align individual team members. By connecting them properly, by networking, achieve the highest possible synergistic effect and ensure open cooperation, communication, knowledge sharing and willingness to engage with the highest level of work commitment. Business management must adapt to this and, under these new circumstances, must not only revise its business processes, structures and systems, but above all must change its mindset and work style: concepts, assumptions, attitudes and behavior (Keršule et al. 2019, Zakharov, Perfiljeva, Zakharov 2019). According to Martin Krekáč (Horníková 2005), co-owner and managing partner of the consulting company Amrop Jenewein Group, in the future the importance of personality requirements and their compliance with company culture will increase significantly when recruiting new employees. Value alignment between business and human resources will become increasingly important. HR professionals also agree that emphasis will be placed on languages, digital literacy, general outlook and willingness to learn. They will prefer those who are flexible, open, with "drive" and the ability to work in international corporate teams. Success on the labor market is not ensured by the education achieved, but by the desire and ability to work on oneself and further education. The World Economic Forum created a list of skills that today's ten-year-old children should have in order to apply themselves well in the future labor market: the ability to solve problems and think critically, negotiation skills, creativity, interaction with other people and emotional intelligence (Hovorková 2018). Furthermore, according to the Work 4.0

Initiative (2016), the ability to search for and process information and find connections and multidisciplinary parallels between different ideas and concepts will be in high demand.

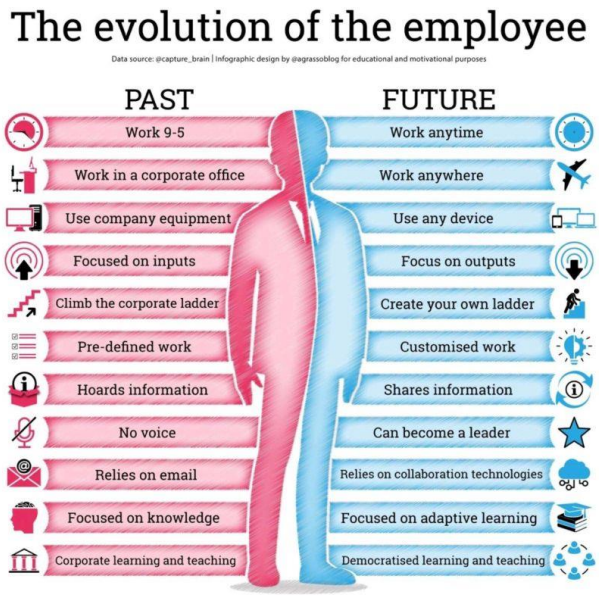
d) Pressure on lifelong continuous education

In the previous point, it was mentioned as an important and highly desired ability of cooperation. Teamwork on short-term projects creates the need to flexibly adapt to changing working circumstances and the environment, acquire new skills and absorb new experiences. According to Vlach (in: Novák 2017): work habits will change whether we want it or not. Even if we still don't have instructions, solutions and procedures on how to do it optimally, the important thing is that people want change. Greater freedom at work is a huge attraction." As Jurík (2012) states, the demands on the mental equipment of individuals in terms of applicability on the labor market are increasing, a certain degree of digital literacy is required and the need for continuous education is emphasized. It is also due to the fact that it shortens the life cycle of skills to an unprecedented extent (Hovorková 2018). According to HR specialists Turanová (chief consultant of the agency Target SK) and Vaček (HR director of Kappa Štúrovo), the importance of specialization will increase in the future and the demand for specialists will rise, which, on the other hand, will reduce the chances of generalist graduates (Horníková 2005). Lifelong learning will not only affect professional skills, but also the ability to cultivate oneself psychologically. It is the art of solving conflicts and problems with other people, mastering empathic communication, helping other people and establishing and maintaining relationships with customers. Since the future is not easily predictable, the only certainty is the lifelong ability to change. According to Hovorková (2018), it is not possible to perceive adulthood as an everyday unchanging routine, but: "we will have to be willing to enter new roles, test whether we are suitable for something, actively search and find our own way and leave what no longer works at work or what is not interested."

e) Employer-employee relationship

Managers also have to cope with a new type of employee, whose role is undergoing evolutionary development due to the influence of technological progress. The biggest changes compared to the past can be identified through the following infographic.

Figure 1: Evolutionary development of the employee



Source: Grasso (2022)

In the previous century, great emphasis was placed on creating and maintaining a harmonious model of cooperation, where, thanks to a properly set corporate culture, employee motivation ensures employee satisfaction, high work productivity, and loyal ties (job stability and

possible career growth). At present, especially on the part of employees, there is a reorientation towards short-term employment contracts. There is a growing interest in freelancing, where a person works for himself, perhaps for several "employers" (clients) and creates his own name/brand under which he acts in business relations. Thanks to digital technologies, according to Vlach (Novák 2017), ... "the model of time-allocate boundaries of work has fallen... The shift from local to non-local work, which is more focused around ideas and activities than around place and time, is unstoppable." Contracts for an indefinite period and lifelong employment with one employer will become a thing of the past. People will be hired only for a certain time, for the duration of work on a specific project. This will create space for negotiating the terms of cooperation, where individuals with highly sought-after qualifications will be able to dictate them. Employers will have to try harder than before to attract people to whom this form of work cooperation appeals. Their number is growing due to the many benefits derived from it. Investing in human resources is worthwhile for any company, because this form of capital is, as Macey, Schneider (2008) states, the most difficult to reproduce by market rivals (Keršule et al. 2018). Many studies have confirmed that motivated and committed employees are an important source of the company's competitiveness and have a fundamental impact on the performance and productivity of work in the company (Boselie, DerWiele 2002), (Frank et al. 2004), (Tarafdar et al. 2007), (Zigarmi et al. 2009), (Xanthopoulou et al. 2009), (Rana, Chhabra 2011), (Schaufeli 2013), (Rayton, Yalabik 2014), (Katou, Budhwar 2015). Bradová (2019) reports agreement in the results of two studies by the Harvard Business Review (in-depth, based on a sample of 65 respondents) and the McKinsey Global Institute (8,000 respondents from all over Europe), where for freelancers, all personal, social and financial concerns are outweighed by the independence, courage and a richer life. Overall, they showed greater job satisfaction with their lives than workers in traditional jobs, and this applies regardless of country, age, education and income.

In connection with technological progress, the issue of *working time* is also raised. By introducing robots to work, it would be possible to shorten the working week or working hours. People would be less stressed, more rested, which could be reflected in their work performance and commitment, overall satisfaction (with worklife balance). The work could bring fewer health impacts, a lower number of burnout syndrome. Currently, a 5-day working week applies almost all over the world (still a 6-day week in the post-war Czechoslovakia), the differences are only in the number of working hours per week. However, solving this issue would require pan-continental agreement (at least at the level of the European labor market), as non-agreed countries could gain a disproportionate competitive advantage (Hovorková 2018).

Thanks to technology, on-demand work (occasional work) is a modern phenomenon. More alternative forms of work in 1995-2015 can be found in the study of American economists Katz and Krueger (2017). This is a type of business cooperation where independent contractors, freelancers, work on short-term projects. They are "hired" only at the time of their real need thanks to websites or mobile applications that connect the offer of adopyt (in the past it was only thanks to acquaintances or agencies). The trendy name for this form of work or business of the future is the gig economy. Since the boundaries of this informal work are not quite clearly defined, it is complicated to quantify or determine its extent. It does not only concern the young, but in the USA a large part of this workforce is made up of the 55-74 age group, more women than men. In 2015, 8.4% of the workforce in the USA worked directly on a contract for a client (outside an agency), i.e. j. 12.6 million people. But many more of them work offline, outside the internet platform (Baláž 2016). Bradová (2019) states that in 2017, up to 34% of the workforce in the USA was involved in this economy. According to the European Commission, revenues from the shared economy of the Slovak Republic reached almost 122 million euros. In the past, this type of work was used in the case of independent professions such as musicians, writers, tax advisors, etc. Nowadays, it already affects all economic activities, especially the service sector, technical and economic employees. Thus,

not only the traditional idea of employment is changing, but also the usual business models. On the part of new gig companies, pressure is being created for greater competitiveness and flexibility of classic business entities (Gig economy... slsp.sk). The greatest advantages are considered to be flexible working hours, a better balance between work and private life (work life balance), the possibility to work from home and only on interesting projects that a person can choose and rotate. From the point of view of the customer of these services, it is about lower labor costs, easier recruitment from a wider range of job seekers and, above all, payment only when the ordered service is really needed. But despite the indisputable advantages of this new form of economic activity, time shows that it is necessary to reevaluate some "settings" of the market and regulate a number of negative externalities flowing from self-management. The low social protection of its participants forces the state to take a responsible approach to the establishment of certain rules of operation. A fundamental problem for every country is that: "the work orderer in the gig economy actually shifts the costs of pension insurance to other market participants and the state" (Baláž 2018). This fact, together with the change in the structure of the demand for human resources, makes it necessary to start solving these issues systematically (more in the author's next post Changes on the labor market in the 21st century).

A different view of the above is offered by the popular futurologist George Muir (Gig ekonomika.. slsp.sk), who examines the applications of digital innovations in business. He does not see the future of work in freelancing, but on the contrary in joining together, in cooperation in communities, since not everyone will have work and it will be necessary to share it among themselves (for example, there will be 2-3 alternating employees in one position, who will also earn something, but they will also have enough free time or space to offer their skills to other employers). It predicts even greater specialization (one person will not do everything, but the tasks will be divided among several, and this division of labor can be both at the local and international level). In the future, he sees the demise of corporate work and offices, the emphasis will be on places where people will meet because of robots.

Nowadays, the phenomenon of digital nomadism is becoming increasingly popular, which appeals especially to the emerging **generation Z**. For them, the desire for freedom, their own realization in space and in the way that suits them most when performing work, is a fundamental life decision, or practicing lifestyle. It is mainly associated with traveling, getting to know new countries, and in addition, nomads work to be able to afford to finance such activities (more Šuteková, 2021).

f) Generation Z

The first members of this generational cohort are already entering the labor market. Although the opinions of experts on their time frame differ, it can be based on the range of years of their birth 1995-2002. Currently, generation X is the most represented among active workers, followed by Y with a smaller share, but in a few years the ratio will reverse. Representatives of the Baby Boomers are mostly already of retirement age. As a result of the multigenerational community and its mutual interactions, various problems arise in the workplace. This requires changes in the management approach, in the way of motivation, coordination, communication and in the requirements for the performance of the work. The basic prerequisite for proper handling of human resources is to know the specifics of each group of employees and effective, systematic work on synergistically connecting them so that their needs and requirements are met. Each of these cohorts was influenced by different historical events, different levels of technological progress, different economic, social and cultural circumstances.

In this context, the Urbanovičová collective (2018) engaged in interesting research. Their goal was to analyze the current situation of different generations of employees with a focus on intergenerational interactions in the conditions of industrial enterprises operating in the Slovak Republic. Among the conclusions of their study is that members of Generation X are

marked by the upbringing of parents of a post-war cohort that experienced a socialist regime suppressing freedom of expression. Therefore, they are used to following rules, accepting authority, hierarchy, are loyal to the company, work hard and are not very assertive. In contrast, generation Y is used to expressing their opinions, discussing, they are more sensitive to their needs, they are more individualistic, they have less stamina and patience for work, but they are more relaxed and more creative. They experienced the transition from the analog world to the digital one. Modern technologies, on the other hand, are a matter of course for the next cohort. Gen Z lives in abundance, availability of anything due to the possibilities of online shopping and connectedness 24/7 via social networks. Currently, there are many members of generation X in managerial positions who determine the norms and rules of behavior, which is met with misunderstanding by subordinate members of Y. They resist authoritative leadership and introduce a new culture. X's managers do not want to support creativity, they see Y's employees as superficial, unproductive who need to be forced to work. They rebel against the outdated hierarchy and inflexible management, they don't like restrictions, they destroy work procedures that have been used for years (the reason and logic of which no one can explain anymore) (Machová, Zsigmond 2019). However, it is necessary to use their potential, their self-confidence, imagination, positive approach to tasks, as they do not see a problem in anything and are always proactive in finding a solution. They do not perceive risk, but look for opportunity, but they will never be as cautious as X, since they have not experienced the existential problems of the previous generation. With the incoming cohort, the clash of different worlds, approaches, "visions" will be even more pronounced. This workforce has a greater problem with concentration and endurance, they have higher expectations for work content and a high-quality technological work environment (Urbanovičová et al. 2018). According to Forbes magazine, they also rely more on work-life balance. This is based on the report Mental Health at Work 2019, which brings interesting results: up to 50% of millennials and 75% of members of Generation Z mention prioritizing mental health as a partial reason for leaving their jobs (Wong 2019). In any case, multigenerational action can create a tense atmosphere and misunderstandings in the workplace.

DISCUSSION

In the future, people with low skills, the uneducable, unwilling to cooperate, and especially women, will have a problem with applying to the labor market. The trend of automation threatens those professions in which the female gender dominates, namely sales, business, administration. Those positions in which the activities are routine and repetitive are critical and most at risk. Conversely, automation is least threatening to those where human interaction is required. But even with these professions, the content of the work and the nature of the required competencies may change. Their complete replacement by artificial intelligence cannot be expected, as their soft skills will still be needed (more in Šuteková 2020). Human ingenuity will lead to the creation of new jobs and new ways for people to secure their subsistence and other needs. "With growing dehumanization, customers will look for humanization in occupations, that is, what a robot will never have." (Lubyová, Štefánik 2015). One of the strong benefits of robotization is that machines will relieve people of boring, routine work, and people will be able to focus on creatively solving customer problems or providing an experience associated with purchasing a product or using a service. Therefore, soft skills are being emphasized more and more, and the future is proving to be in HR-intensive services. Many traditional occupations will still favor manual work over industrial production (Lee, no date). It will also become a symbol of luxury (for example, as with expensive cars, where hand-made parts have a high value, even though a machine would probably do it more precisely and much faster, or with shoes and tailor-made suits). In the future, human activity will still be valued in society, despite its imperfection and error, and

only thanks to the contribution of its executor, the demand for it will even increase. To explain, we can help with a small analogy in the art of music. Although the machine can play the song completely flawlessly, but without the emotions that a human performer can sell to the audience despite minor mistakes in the rhythm. Therefore, it is mainly the responsibility of human resources management to ensure such a working environment and conditions that human activity in the company is supported and can develop.

CONCLUSION

Several changes in the labor market in the 21st century were mentioned. Possible changes in the structure of required skills, changes in work models, creation of new professions, etc. were outlined. The scope of this post does not allow a comprehensive and in-depth analysis of the established processes. The task was to reflect on the challenges of the current century and to point out the need for countries and entrepreneurs for the necessary solution to this issue and systematic preparation to face their impacts. Time will tell to what extent the individual economies of the states and the business sphere can deal with the mentioned trends. Also, how can individuals create such a working world that their flexibility, freedom and freedom are in symbiosis with space for self-realization and the possibility of constantly ensuring their own needs (work, existence, leisure time).

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CHANGES IN THE LABOR MARKET IN THE 21ST CENTURY

***Henrieta ŠUTEKOVÁ*[74]**

Abstract: *The twenty-first century brings a lot of dynamic changes, and their impact is very difficult to forecast today. It is certain that the world faces a huge challenge, how to eliminate the negative impact of these changes and, on the contrary, how to use the many positives associated with technological progress in an even higher benefit for society. The transformations caused mainly by Industry 4.0 affect several areas of economic and social life. Bad demographic development together with changes in the structure of labor demand, with the transformation of work models, with the disappearance of some existing job positions and the emergence of new professions are bringing a serious crisis to the labor market. The task of the contribution is to think about some challenges of the current century and to point out the need for countries and business practice to solve this issue. In the article, the author focuses mainly on naming the problems associated with changes in the demand for human resources and with changes in the composition of occupations during this century..*

Key words: *human resources, changes, industry 4.0, labor market, profession, robotization, skills,*

JEL Classification*: E42, O15, J2, M5*

INTRODUCTION

The prognosis of specialists, scientists, experts on the development of the labor market are different, but the consensus is in the estimation of the size of the changes. Dramatic and turbulent reversals are expected. Automation, robotization, and artificial intelligence started these transformations, and society is worried about the social and economic impact of these phenomena. The transformation affected several areas of social and economic life. Manyika, Chui, George (2017) state that: "future automation could increase productivity growth globally from 0.8% - 1.4% per year, which can contribute meaningfully to world economic growth and offset the demographic causes of population aging. For countries around the world, automation will offer the potential to capture significant value - and not just from labor substitution. These technologies enable higher throughput, higher quality, better results, greater innovation, greater security and the opportunity to expand or adopt new business models".

The OECD has also been dealing with the issue of changes in work and its future for a long time. The output of her several years of international research is a 2018 report entitled Job Creation and Local Economic Development: Preparing for the Future of Work. Key areas that must be addressed are: the impact of technological progress on local markets, non-traditional forms of employment, productivity and inclusion at the regional level. However, it should be emphasized that the impact of the changes is geographically and demographically determined. Automation can be seen as a much bigger opportunity in countries with aging populations and labor shortages than in countries with high birth rates and lots of young people entering the workforce. The OECD report shows that there are significant regional differences within the EU in the share of cities at risk of robotization (OECD 2018).

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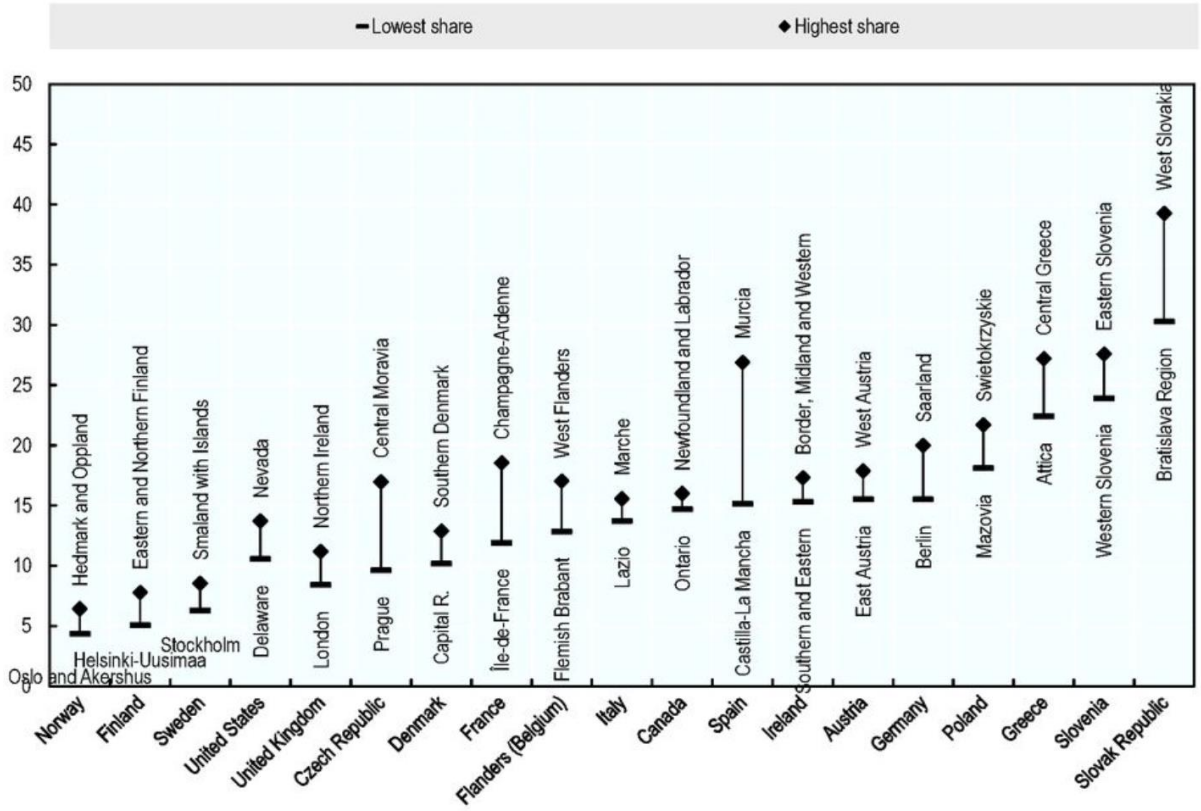
Figure 1: Regional differences within the EU in the share of cities threatened by robotization



Note: High risk of automation refers to the share of workers whose jobs face a risk of automation of 70% or above Data from Germany corresponds to the year 2013. Except for Flanders (Belgium), for which sub-regions are considered (corresponding to NUTS2 level of the European Classification).
Source: OECD calculations based on (Nedelkoska and Quintini, 2018) and national Labour Force Surveys (2016).

Source: OECD (2018)

Regions with a lower risk of automation are characterized by a larger share of workers with higher education, a larger share of service jobs and are highly urbanized. The higher share of automation is not only influenced by unemployment, the aging of the population, but also the composition of occupations, the distribution of labor forces, and the structure and level of education (OECD 2018, Kořen 2019). It is also necessary to emphasize that robotization will affect not only the qualification requirements of employers, but also the value of the work itself. The pressure on the increasing work competences of human resources will lead to their higher value, and thus also the price of work (Koreň 2019).

PROBLEM FORMULATION AND RESULTS

Bad demographic development together with changes in the structure of labor demand, with the transformation of work models, with the disappearance of some existing job positions and the emergence of new occupations are challenges that the governments of individual countries will have to face and choose a systematic approach to solving them. In this contribution, only those that directly affect the quantity, quality and structure of labor resources and the need to cover them in the future in relation to new professions are presented. In the author's next contribution (The impact of the data revolution on changes in human resources management), attention will also be paid to the transformation of the usual work models and also to the changing required work skills and competencies.

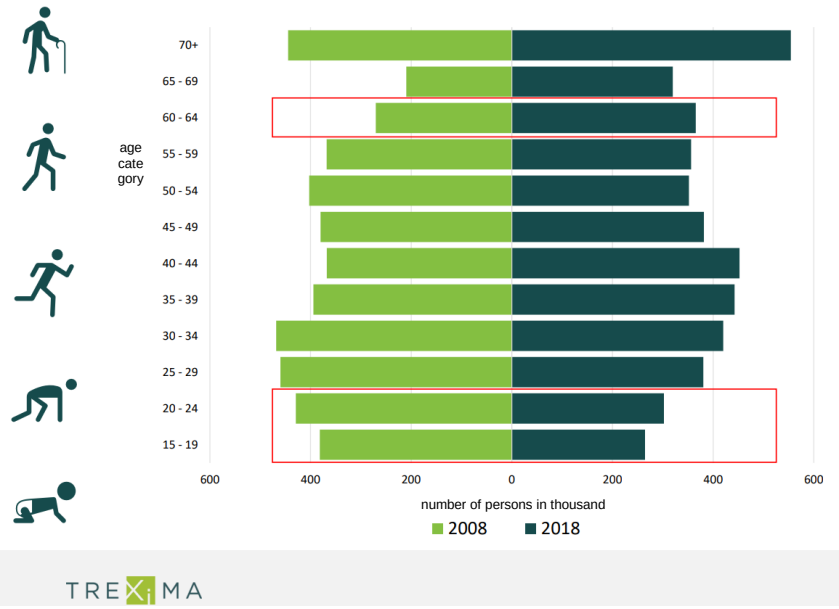
Changes in the demand for human resources

Thanks to computerization, the structure and qualifications of employees are radically changing, as well as the overall demand for human resources on the labor market. According to Jurík (2012), two basic challenges are expected: low-skilled employees will be replaced by robots and the pressure on highly qualified personnel will increase. This issue is discussed in more detail, for example, e.g. Rievajová (2009), Rievajová, Klimko (2014), Klinec (2010), Klinec et al. (2009), Keller (2005, 2010). As part of the current robotic revolution, the labor market has already seen a decrease in positions for low-skilled labor, and at the same time expects an even further decrease in the future. These human resources remain beyond its borders and are dependent on assistance from the state. From the above, two fundamental problems arise in connection with the compatibility of the workforce and the labor market: (Jurík 2012)

- On the one hand, industry 4.0 requires highly qualified, skilled and digitally literate human resources, but they commit "demographic suicide" according to Toynbee (Europani...2022) (more on this trend, e.g. Pilinská 2005, Hašková 2009, Potančoková 2009).
- On the other hand, the number of low-skilled labor is increasing, which is difficult to employ, complicated to retrain, definitively loses work habits, remains in the care of the state and is financially supported thanks to those workers who are at risk of the mentioned demographic crisis in a few years' time.

The reality is that the development of the population curve in EU countries has seen a rapid decline in the number of people under 18 who are yet to enter the workforce. In this context, Hrnčiar (2020) talks about the silent crisis of human resources. What changes are occurring in the demographic structure of the population in Slovakia can be seen from the following picture. It is clear from it that at the moment the population is strongest in those years that are of productive age and there are relatively more of them compared to the past. But the above graph also shows that towards the lower age categories, a significant decrease in human resources is recorded not only at the present time, but also in comparison with the year 2008. It can be expected that in a few years employers will have a problem sufficiently saturating their workforce needs precisely from generation Z and Alfa.

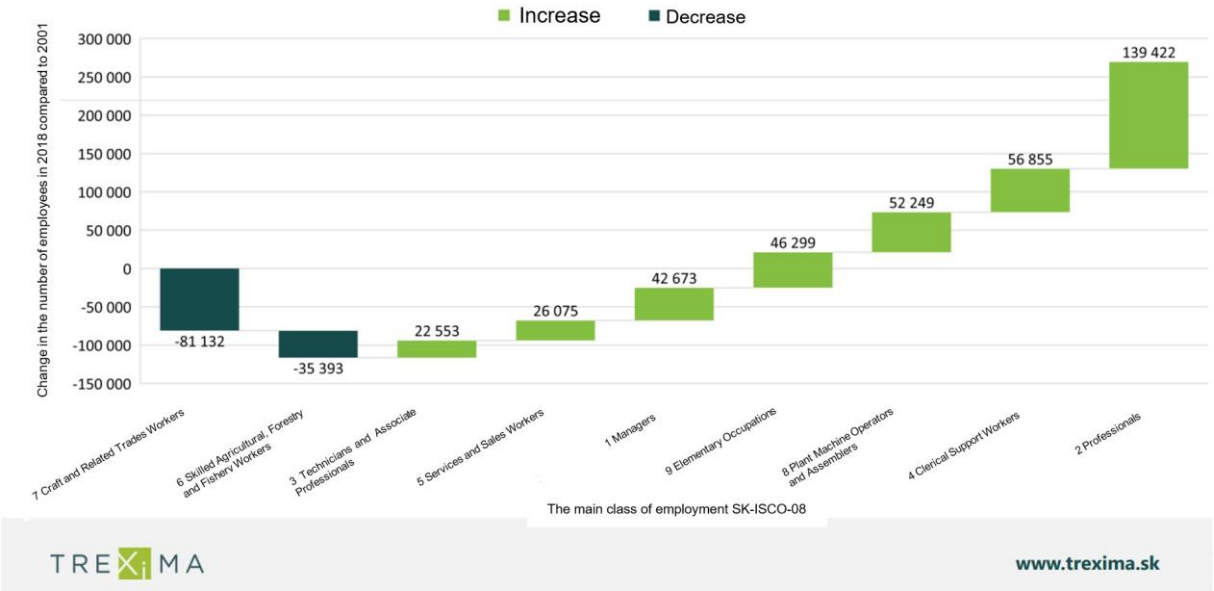
Figure 2: Changes in the demographic structure of the population



Source: Hrnčiar (2020)

The above-mentioned fact can also be identified from the next picture, namely that the demand for highly qualified employees is also growing in Slovakia. Compared to the past, this is an enormous increase.

Figure 3: Structural change towards highly qualified employees



Source: Hrnčiar (2020)

It is widely known that low labor costs are the primary motivational criterion for deciding where capital owners (with open borders) will create jobs. Thus, the pressure on wages is high and the impact on the tax and levy burden, from which the state implements its social policy, is obvious. Jurík (2012) poetically formulates this fact as: (inspired by Keller 2010) "increasing power asymmetry between capital, which has grown wings, and labor, whose shackles have become heavier, ...there is currently no instance that is able to face the growth of this asymmetry." This can be summarized in the statement: "within the framework of the global economy, one integrated structure has been created, where the labor forces participating in the running of the global economy belong, while the labor forces that do not participate in the running of the global economy are constantly becoming increasing burden on the economies of individual states" (Klinec 2010). It is obvious that the described situation will require certain measures from the state, as it will not avoid the pressure of people of productive age, fully integrated into the work process, to reduce social solidarity towards those who are dependent on the mentioned system (Jurík 2012). Keller (2010) attributes these tendencies to greater egoism and individualism in the values of individuals living in the current information society.

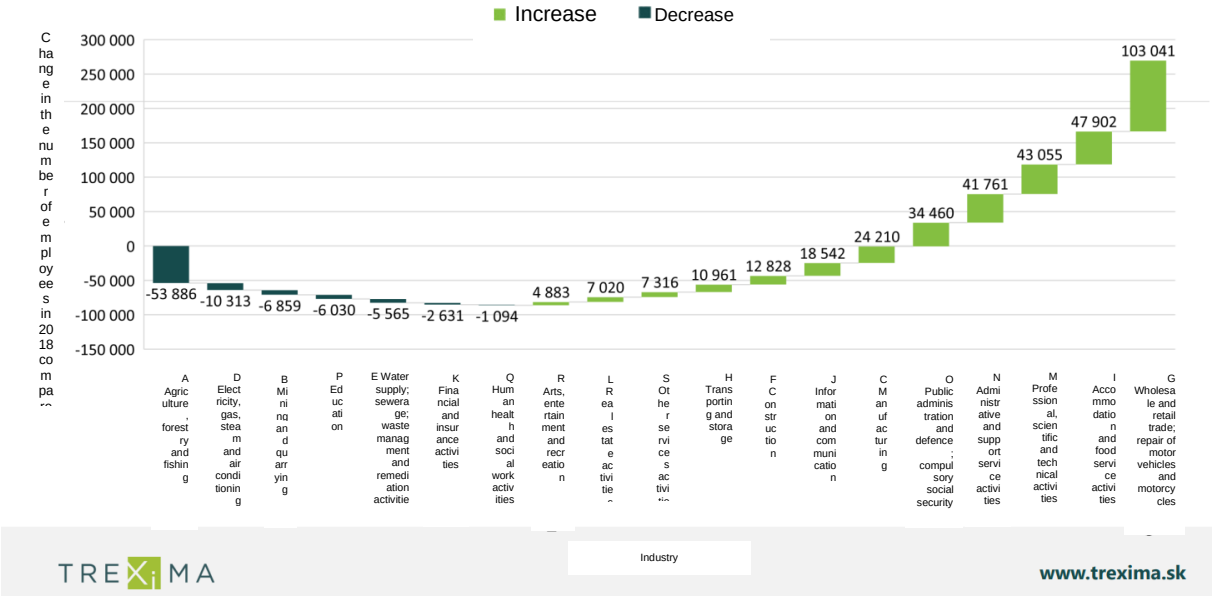
The results of Jurík's study (2012) can be summarized in the following points:

- the demand for highly qualified human capital is growing,
- however, those from Slovakia migrate abroad for higher income and a better standard of living (the influence of migration on selected macroeconomic indicators is paid attention to, for example, in a study by Tupá, Vojtovič, Strunz 2018).
- the innovative capacity of the Slovak Republic is limited by this fact, innovations can mainly be created by escaping "brains",
- on the contrary, the demand for low-skilled work decreases,
- demographic development has a decreasing character and fertility is higher only among people with a lower ability to apply themselves on the labor market, with lower

education, and thus it can be predicted that there will be a problem with the necessary qualification increase between generations (Koreň 2019).

Not only in Slovakia, but also in the world, the mentioned facts are also related to the diversion of economic activity in the field of agriculture and industry to the service sector, which significantly participates in the creation of GDP. How these economic activities have developed in our country over the last period is illustrated by the following picture.

Figure 4: Structural change towards an increase in economic activities in the service sector

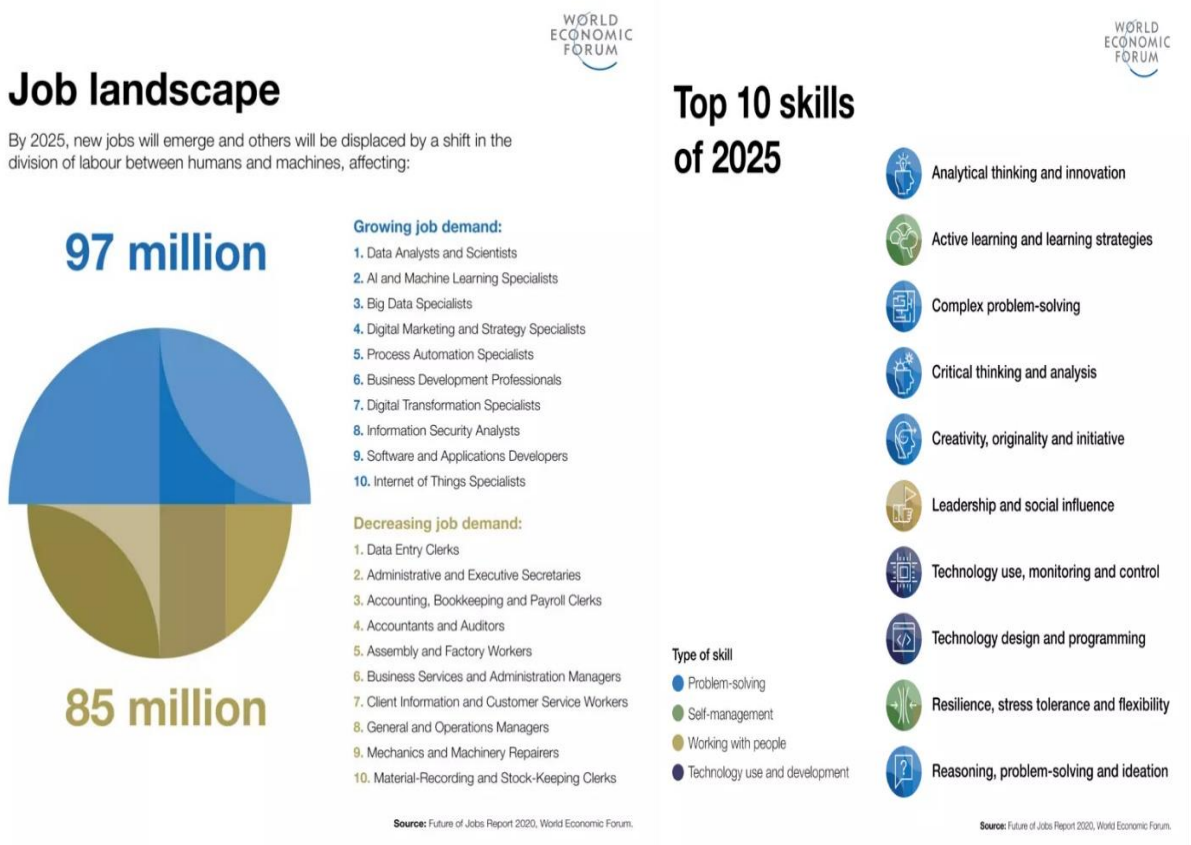


Source: Hrnčiar (2020)

Disappearance of some professions and creation of new job positions

Cambridge University research results show that over the past 30 years, during three recessions, up to 88% of jobs have been automated in some way, and a similar trend is set to continue after the Covid-19 pandemic (which only accelerated it) into the distant future. The mentioned situation in Slovakia has been going on for several years and currently there are 151 robots per 10,000 employees in industrial production, while the global average is about 85 robots. Within the European Union, Germany has the lead, where there are three times more robots per year in industrial production than in Slovakia (SITA 2020). According to a McKinsey study (Manyika et al. 2017), 30% of activities in 60% of all job positions could be automated (for example, from gardeners, welders, postmen, salespeople, cashiers, call center operators to mortgage brokers). Up to 800 million people should lose their jobs due to robotization by 2030, i.e. about every 5 people in the world. In Germany and the USA, it should even be every third person. In poorer countries, it will not be so fast yet, as the lack of finance hinders technological progress (Sidorová 2017). As already mentioned above, in the future people with low skills, the uneducable and especially women will have a problem with applying. The trend of automation threatens those professions in which the female gender dominates, namely sales, business, administration. Those positions in which the activities are routine and repetitive are critical and most at risk. Conversely, automation is least threatening to those where human interaction is required. But even with these professions, the content of the work and the nature of the required competencies may change. Their complete replacement by artificial intelligence cannot be expected, as their soft skills will still be needed. Kráľová (2019) discusses how these changes affect small and medium-sized businesses in Slovakia in her article.

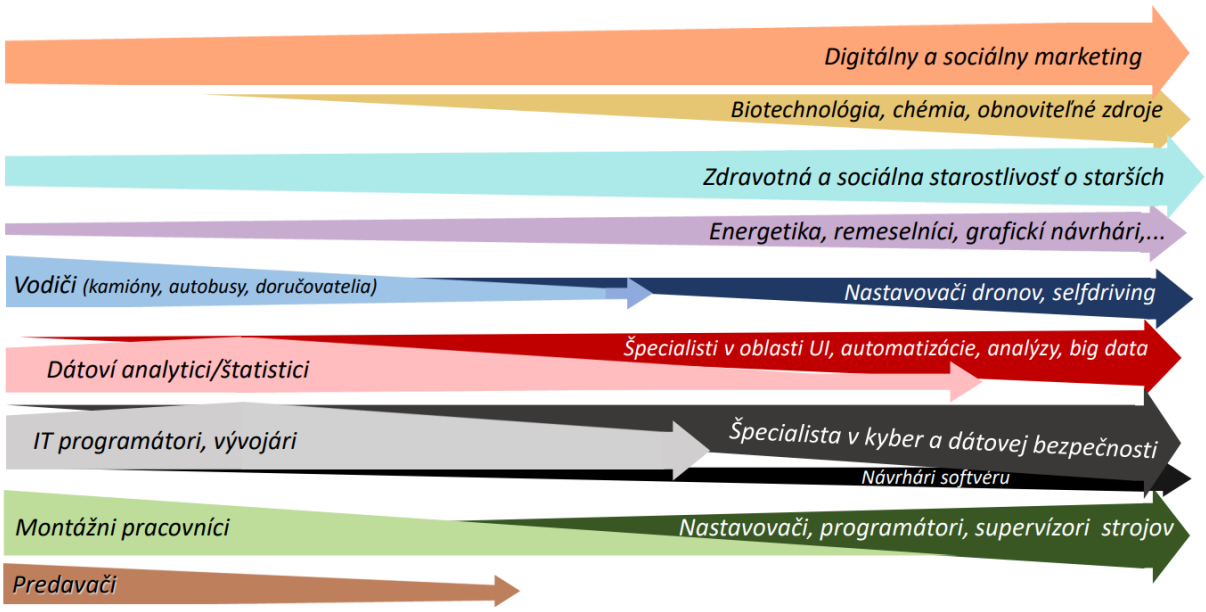
Figure 5 a Figure 6: Changes in the division of labor between humans and machines a Desired skills of "tomorrow"



Source 5: Kande, Sönmez (2020), Source 6: Whiting (2020)

Of course, professions will not only disappear, but the development in society will also stimulate the creation of new ones. It is not only related to technological progress, but also to social changes. The dividing line between human work and robotization is different for individual professions, therefore many of them will not disappear, but the function will be redistributed between man and machine (Baláž 2014). It is possible to predict an increase especially in those in which it will be necessary to apply empathy, social interactions, the art of communication, and of course there will continue to be a demand for technical specialists. According to Hovorková (2018), it is estimated that after 2030 there will be up to 65% of new professions on the labor market whose names we do not know today. The future will mainly belong to fields connected with biochemistry, bioengineering, genetics and nanotechnologies. More on predictions of future occupations can be found in Teofilov (2019) Careers of the Future:42 Professions of Tomorrow or Tytler (et al. 2019) 100 Jobs of the Future. Changes in the composition of job positions in Slovakia can be identified from the following picture.

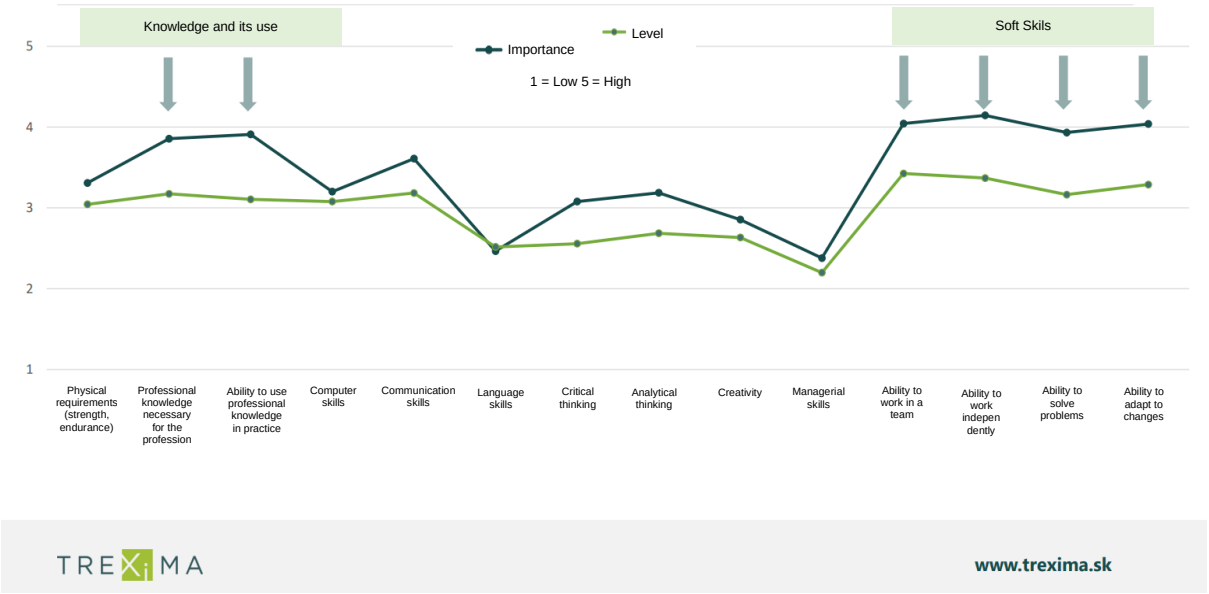
Figure 7: Professions of the future (Where the labor market is headed by 2050?)



Source: Hrnčiar (2020)

Perhaps it is not so important what professions will arise, as it is not possible to predict all of them. From the point of view of the state, educational institutions and business practice, it makes more sense to focus on what skills will be needed and what employers will expect, what human resources they will be looking for. The following picture captures the current approach on the part of companies and the ability of the current school system in Slovakia to reflect on the requirements of practice.

Figure 8: Employers' requirements for the skills of the employed workforce and the level of these skills in graduates



Source: Hrnčiar (2020)

The results of the company Trexima are approaching the conclusions, or expectations of the World Economic Forum, which in the above infographic (Figure 6) presents the 10 most important skills of "tomorrow". It should be emphasized that they all belong to the category of soft skills. Critical thinking and problem solving have been at the top of the list for years. The stated state is consistent over time, as already in the first report from 2016, these

competencies were in the leading positions. However, compared to the past, the ability to self-manage, active learning, resistance to stress and flexibility also appeared among the most requested skills (Whiting 2020).

In connection with hard skills, Tytler et al. (2019) states that future jobs will require employees with interdisciplinary skills. They will be especially in demand:

- people with a deeper overview in one area and with broader "partial" knowledge from several areas due to work in interdisciplinary teams,
- people who can connect multiple knowledge from various spheres with knowledge of technologies in order to understand the meaning and need of data and their possibilities of use,
- people with the ability to look for connections in the field of STEM (academic disciplines Science, Technology, Engineering and Mathematics) and, thanks to technology, can combine them into creative outputs,
- people who can properly interact socially, understand and lead not only interpersonal communication, but also communication at the interface between technology and people, and can also use technological applications when applying their community and civic skills.

DISCUSSION

A study by the Pew Research Center (Berecz 2014) produced, based on interviews with experts from various professional fields, a two-fold scenario for the development of the labor market in the near future. He pessimistically states that the robot world will bring about the growth of income inequality, unemployment and the breakdown of the social order. This is actually a Luddite fallacy. New technologies do not destroy jobs, but only change their structure in the economy (Pettinger 2017). A more optimistic variant assumes that human ingenuity will lead to the creation of new jobs and new ways for people to ensure their existence and other needs. Hope also comes from a survey pointed out by Time.com that in the case of 35% of companies that automated some activities, they had to re-recruit human resources, as the change did not bring predicted results and customers required personal and live communication (Berecz 2014). . The above is also confirmed by Lubya's words (Prognostic Institute of SAS): "Dehumanization comes hand in hand with automation. With growing dehumanization, customers will look for humanization in occupations, that is, what a robot will never have." (Lubyová, Štefánik 2015). This can be seen as one of the strong benefits of robotization, that machines will relieve people of boring, routine work and people will be able to focus on creatively solving customer problems or providing an experience associated with purchasing a product or using a service. Therefore, soft skills are being emphasized more and more, and the future is proving to be in HR-intensive services.

CONCLUSION

In the post, we focused only on the two biggest challenges of this century, namely changes in the structure of demand and the disappearance of some job positions and the emergence of new professions. The scope of this contribution limits the possibility of solving the mentioned issue in more detail. The author's main goal was to contribute to the discussion about the transformations of the current labor market and to contribute to the pressure to solve the raised problems systematically from the position of state power, educational institutions and also business practice. Time will tell to what extent the individual economies of the states and the business sphere can deal with the mentioned trends.

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SUSTAINABLE CORPORATE SOCIAL RESPONSIBILITY IN THE INDUSTRY 4.0 AND COVID-19 ERA

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Abstract: *The importance of the social behaviour of employers is gaining importance due to the significant impact on many stakeholders. The importance of the impact of the sustainable behaviour of organizations on society is gaining importance especially in situations that are unpredictable and demanding. An example of an unpredictable and demanding situation is the Covid-19 pandemic. Human resource management in organizations is affected by dramatic changes in other areas as well, such as technological progress and the implementation of Industry 4.0. The main aim of the article is to present the results of research focused on the perception of sustainable socially responsible behaviour of employees within the social area in organizations operating in Slovakia. The research was carried out using the questionnaire method of data collection. The research sample consisted of n = 556 respondents. The collected data were processed through descriptive statistics. Among the most significant findings, we can include the fact that almost 70 % of employees considered their employer's behaviour to be socially responsible, especially in the area of health promotion activities and measures. On the other hand, the area of information was most often negatively assessed as part of the socially responsible behaviour of employers. The implementation of Industry 4.0 and overcoming the consequences connected to the Covid-19 pandemic is not only a technological, but also an economic and social challenge for organizations. Presented findings resulting from the research can be a benefit for the practice of human resource management in various organizations.*

Key words: *corporate social responsibility, social area, sustainable human resource management, employee care.*

JEL Classification: *E2, I3, J2, L2, M5*

1. INTRODUCTION AND THEORETICAL BACKGROUND

Nowadays, organizations are aware of the importance of sustainability in relation to their business activities (Saeidi et al., 2002). Sustainability is considered a key element that can generate a long-term competitive advantage that manifests itself through increased business and financial performance (Cachón-Rodríguez et al., 2021). Over the past decades, a number of ideas and concepts have emerged from academia, industry or political movements to support sustainability transformations; by trying to harmonize three main pillars: economic, social and environmental (D´Amto et al., 2019; Jackson, 2011; Loiseau et al., 2016). Within the environmental pillar, companies focused on green practices, which include cleaner production, waste reduction and resource optimization (Sayyadi et al., 2017). The economic pillar of sustainability is connected mainly in the direction of the accumulation of effective financial resources and financial classification, which lead to the most efficient use of financial capital (Assi, 2021). The pillar of social sustainability refers to the ability of

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organizations to measure and perceive the importance of different areas and classify the social aspects of sustainability based on the interests of stakeholders (customers, employees, society) to ensure that everyone's rights are fairly addressed (Wee et al., 2012; Sarkis et al., 2010). Human resources are one of the most important resources of the company, which is known as the soul of the business (Jabbour and Santos, 2008). Following the goals of sustainable development, the importance of job development in relation to employee well-being and job satisfaction is emphasized (Sanusi and Johl, 2022). Several factors have been identified within the social sustainability of organizations: work-life balance, workplace well-being, resilience and work-related stress. Monitoring the mentioned factors is crucial for the sustainable performance of employees (Iqbal et al., 2020). The most important challenge for organizations today is to find the best way to adopt and use sustainability and human resource management in a fully effective and integrated way (Saeidi et al., 2002). Current challenges in the field of human resource management are aimed at attracting and retaining talent, supporting and increasing the participation of employee relations and sustainable management of organizations and teams (Cachón-Rodríguez et al., 2022). In order to develop a sustainable human resource management system, contribute to the organization's social goals and support more sustainable organizations, human resource management care practices focus on the needs of employees and their health and well-being. In addition, the above mentioned human resource practices can facilitate employee involvement in corporate sustainability and corporate social responsibility initiatives and activities (Stahl et al., 2020).

Sustainable employee care and long-term initiatives aimed at improving the benefit system help to manage unpredictable situations, such as the Covid-19 pandemic. However, the care of human resources must also reflect the current situation, which is why researchers also deal with the Covid-19 pandemic situation and its impact on the behavior of employees in the area of workplace safety, or job insecurity (Vu et al., 2022). One of the most considerable human resource management challenges arising from the pandemic involves adapting new and existing employees to drastically changed working conditions, such as moving to a remote work environment or implementing new policies and procedures to limit human contact (Carnevale and Hatak, 2020). The pandemic has changed employee lifestyles and reshaped business models, dictating new needs and preferences. Many employers adopted new personnel policies, which meant the need to redefine remuneration and benefits as well. Among the most frequently used benefits are health insurance, bonuses and year-end bonuses (Shtembari et al., 2022). Other benefits that will be affected as a result of the Covid-19 pandemic include social security and programs focused on life and health (e.g. flexible working conditions). Opportunities to improve is mainly in the area of working hours (relating to the traditional working week), worker classification, other employee benefits and workplace safety (Abston and Bryant, 2021). The work consequences of Covid-19 (i.e. home office work environment, job insecurity and virtual connectivity) have been shown to affect employee performance, although not to the same extent, with Industry 4.0 mitigating these consequences (Narayanamurthy and Tortorella, 2021). Through Industry 4.0, an intelligent production environment is created, which has great technological potential (Rudenko et al., 2022). Due to unforeseen situations, organizations introduced innovations and new technologies to help cope with the pandemic period. Within Industry 4.0, there are also concerns related to the social area with a focus on employees, which include e.g. loss of jobs, lack of training and skills, or organizational obstacles and employee resistance zamestnancov (Rajnai and Kocsis, 2017; Gázquez et al., 2021; Horvath and Szabo, 2019).

The implementation of Industry 4.0 should be coordinated by the project team for the purpose of synergy between the organization, employees and information technologies. It is also necessary for employees to be uniformly coordinated and have a defined person they can contact (Müller, 2019), as communication is key in any change. Based on the presented theoretical findings, we focused our research on the area of corporate social responsibility and define ourselves the aim of identifying and assessing the sustainable socially responsible

behaviour of employers when implementing Industry 4.0, in addition under the influence of societal restrictions caused by the Covid-19 pandemic.

2. MATERIALS AND METHODS

The main aim of the article is to present the results of research focused on the perception of sustainable socially responsible behaviour of employers within the social field in organizations operating in Slovakia.

In order to obtain data mapping how employees of organizations operating in Slovakia perceive the socially responsible behaviour of employers in the social field, a quantitative research was chosen. A questionnaire was chosen as a collection tool, through which it was possible to collect the necessary data. To evaluate the collected data, we used the method of descriptive statistical analysis, the results of which were interpreted in the form of tables and graphical representations. The collected data were processed in the Microsoft Excel program.

2.1 Description of the data collection tool

The collection tool was created as one of the project tasks of the VEGA project entitled: "Identification of priorities for sustainable human resources management with respect to disadvantaged employees in the context of Industry 4.0".

The research questionnaire consisted of 37 questions. Sociodemographic questions were placed at the beginning of the questionnaire and were focused on: the sector in which the respondent works, or the sector in which the organization in which the respondent operates, the region in which the organization is based, how many employees work in the organization, what job position the respondent works in, the respondent's gender and year of birth. The questionnaire used scale questions, open questions and closed questions with options. The questionnaire was distributed electronically through a web platform. Distribution of the research questionnaire took place from 10.04.2021 to 31.01.2022.

2.2 Main aim of the research and research questions

The main aim of the research was to identify and assess the sustainable socially responsible behaviour of employers in the social field based on the perception of employees of organizations operating in Slovakia.

Research question 1 (RQ1): How do employees of organizations operating in Slovakia assess the sustainable socially responsible behaviour of their employers?

Research question 2 (RQ2): What are the most common reasons why employees of organizations operating in Slovakia do not consider their employer's behaviour to be socially responsible?

2.3 Research sample description

For a better characterization of the research sample, we evaluated selected sociodemographic questions that will help to better characterize our research sample, which was represented by respondents (employees of organizations operating in Slovakia). In total, 556 respondents participated in the research. Table 1 shows an overview of the sectors in which the respondents work.

Table 1: Sector in which respondents work

Option	Absolute frequency	Relative frequency [%]
Industrial sector	338	60.79
Service sector	138	24.82
Public and government administration	80	14.39
Sum	556	100.00

Source: own elaboration, 2022

From the data in Table 1, it follows that the largest part of respondents are respondents working in the industry sector 60.79%, and on the contrary, the smallest share is made up of respondents working in the public and government administration sector 14.39%. Furthermore, we analysed the size of the organizations in which the respondents work, based on the number of employees. The obtained results can be seen in Table 2.

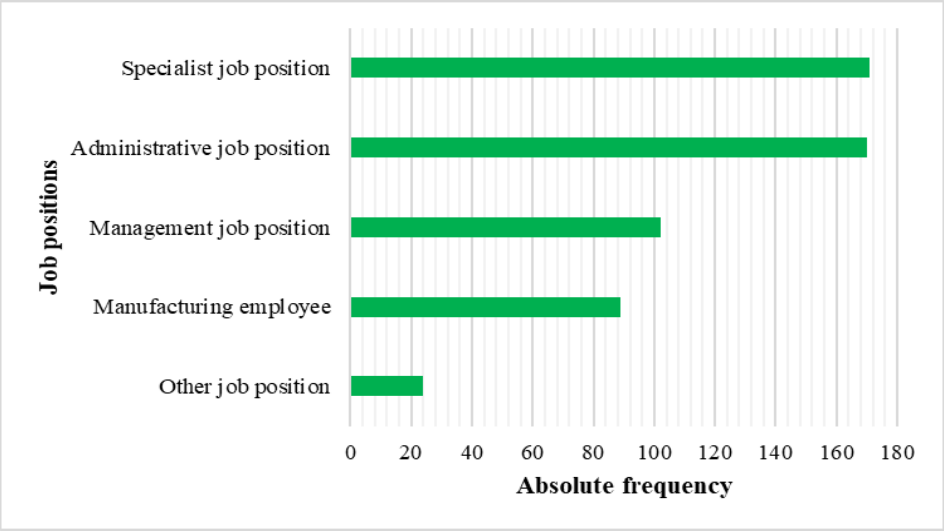
Table 2: Number of employees in the organization

Option	Absolute frequency	Relative frequency [%]
1-9 employees	48	8.63
10-49 employees	77	13.85
50-249 employees	117	21.04
250 employees and more	314	56.47
Sum	556	100

Source: own elaboration, 2022

It follows from Table 2 that the majority of companies with 250 or more employees are classified as large organizations based on the number of employees (56.47%). Conversely, the fewest respondents work in organizations with 1-9 employees, which we classify as small organizations (8.63%). Next, the authors of the article evaluated a question focused on the job position of the respondents. The results are in Figure 1.

Figure 1: Respondents by job position



Source: own elaboration, 2022

According to Figure 1, the largest group consisted of employees classified as specialist employees, who made up 31% of all respondents. The smallest group consisted of other job positions (4%), among these job positions we can include: nurse, consultant, truck driver,

teaching assistant, loader driver, student, scientific and pedagogical employee, self-employed person, receptionist, cook, part-time worker, waitress and vehicle salesman. The last evaluated question was dealing with the gender of the respondents. The analysis shows that 299 (53.78%) respondents were male and 257 (46.22%) respondents were female. Based on the above, we can claim that the respondents were gender balanced.

3. RESULTS

Two research questions were established within the research. The evaluated and interpreted results of the analyses aimed at answering the established research questions are described below.

Research question 1 (RQ1): How do employees of organizations operating in Slovakia assess the sustainable socially responsible behaviour of their employers?

As part of the evaluation of the first research question, the answers from the research questionnaire focused on the respondents' perception of the social responsibility of their employers in the social field were analysed. The results are included in Table 3.

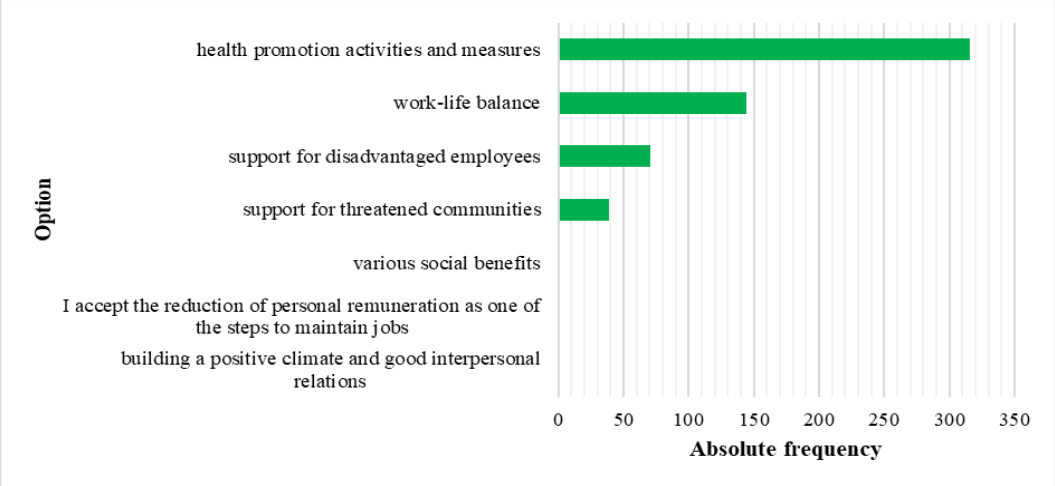
Table 3: Respondents' perception of social responsibility

Option	Absolute frequency	Relative frequency [%]
Yes	385	69.24
No	56	10.07
I do not know	115	20.66
Sum	556	100.00

Source: own elaboration, 2022

It is clear from Table 3 that almost 70% of respondents think that their employer is socially responsible in the social field. This fact can be considered as positive finding. We consider as a negative finding that up to 56 respondents (10.07%) perceive the employer's behaviour as socially irresponsible and 115 (20.66%) cannot assess whether their employer is socially responsible in the social field. In order to identify the areas of social responsibility, we evaluated the answers of the respondents in which area they consider their employer's behaviour to be socially responsible. Respondents had the opportunity to mark more answers and the results can be seen in Figure 2.

Figure 2: Positively assessed areas of social responsibility according to respondents



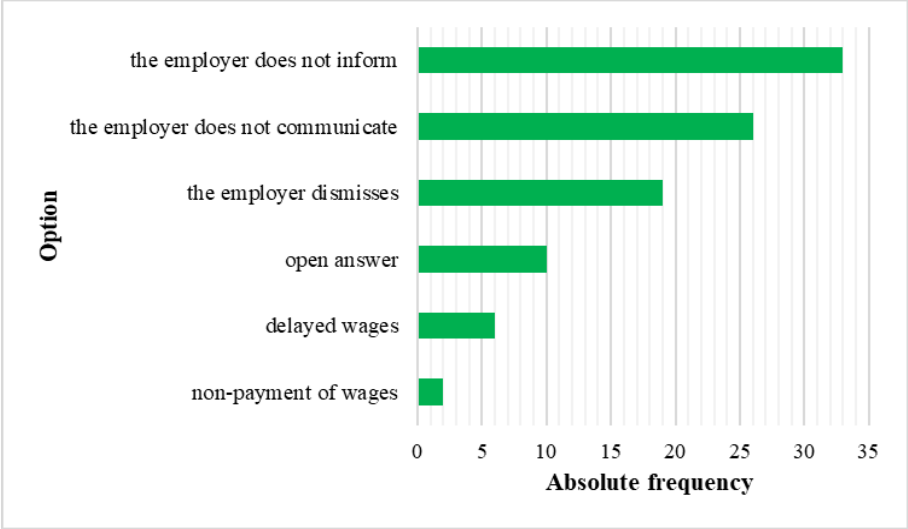
Source: own elaboration, 2022

Figure 2 shows the results evaluated through descriptive statistics. The answers were filtered based on the results of the analysis shown in Table 3. Only the answers of respondents who declared that they consider their employer's actions to be socially responsible were taken into account. The obtained results showed that the responsibility of employers in the social area within the framework of social responsibility is mostly implemented within health promotion activities and measures 315 (81.81%), the second most frequent answer is work-life balance 143 (37.40%). The least represented options are: various social benefits, building a positive climate and good interpersonal relations and accepting a reduction in personal remuneration as one of the steps to maintain jobs. Based on the above results, we can conclude that employers have the opportunity to expand the area of social responsibility in the social area by several human resource management tools.

Research question 2 (RQ2): What are the most common reasons why employees of organizations operating in Slovakia do not consider their employer's behaviour to be socially responsible?

As part of the evaluation of the second research question, the respondents' answers to the negatively assessed behaviour of employers in the social area of socially responsible business were processed. The answers are filtered based on the answer, no and I don't know (171 respondents in total) from the question that dealt with the perception of social responsibility of employers in organizations operating in Slovakia. Again, respondents could mark multiple answers that they considered adequate, the results are in Figure 3 below.

Figure 3: Negatively assessed areas of social responsibility according to respondents



Source: own elaboration, 2022

According to results in Figure 3, the most common reason why employers are considered socially irresponsible is that the employer does not inform 33 (19.3%), the second most numerous answer was that the employer does not communicate 26 (15.2%). The least numerous answer was non-payment of wages 2 (1.2%). Respondents were also offered the option of a free answer, which was used by 10 respondents who stated: it does not allow any extra benefits, no environmental program; stagnation of society; hygiene measures related to Covid-19; the employer only informs about the situation (Covid-19) and with its "measures" prevents employees from performing their job duties; reluctance to increase salary, lower starting salaries compared to previous years; insufficient remuneration; no benefits, bonuses, just basic salary; cancellation of bonuses and 13 salary and reduced salary for three months.

4. DISCUSSION

Industry 4.0 is becoming a phenomenon that affects all sectors of the economy and is receiving more and more attention. Industry 4.0 fundamentally changes production and everyday life. It has an influential economic and social impact. It becomes a priority, which is reflected by the lay and professional public. As the results and findings show, we stand on the threshold of a new era of understanding industrial problems. Digitization and robotization will grow into all areas of life and sectors of the economy. It sharply changes the usual ones, but still provides room for self-adjustment. However, the transition to Industry 4.0 is not possible if there is no communication between all elements of the chain involved in the process (Jakubčinová, 2020). No transformation can be successful without communication. Employees tend to resist change, even oppose it. In this context, it is crucial to conduct a dialogue with employees and create space for discussion (Bendová, 2021). As part of the research, we conclude the greatest reserves in information and communication with employees. Informing employees and communication is important not only when introducing fundamental changes such as the implementation of Industry 4.0, but should be a natural part of the normal functioning of the organization. It is important in this context that companies build a corporate culture focused on mutual trust and open communication. From this point of view, transparency in the company's activities, both internally and externally, is a clear attribute that companies should start observing.

Among the problems associated with the social sector due to Covid-19 was the dismissal of employees. The pandemic caused a major crisis in the labour market and an economic crisis that had a huge impact on people. Dismissal led to an increase in the unemployment rate, but also to the inability of people to meet their basic needs for daily life, especially for poor and vulnerable households (Gandasari and Dwidienawari, 2020). This is also confirmed by our research, which showed that if employees do not consider the employer's behaviour to be socially responsible, one of the important factors involved in this is the dismissal of employees.

In our research, we consider the finding that companies are developing activities towards safety and health protection at work to be positive, which is also provided for by the Constitution of the Slovak Republic. A healthy working environment can affect the employee's work performance, and company management realizes that only healthy employees can benefit the company. During the Covid-19 pandemic, employees have faced non-payment or delayed payment of wages, which can put them in significant financial difficulties (Alahmad et al., 2020). However, non-payment of wages can also have a negative effect on the health of employees, both physical and psychological. Despite the small number of respondents who identified non-payment of wages as a negative behaviour of the employer in the social field, we perceive these answers very negatively, since non-payment of wages as a reward for work performed is considered a criminal offense in Slovakia. The criminal offense of non-payment of wages and severance pay constitutes one of the most significant legal remedies outside the framework of labour law, which, according to the existing theoretical concept, is intended to ensure employees the protection of their monetary claims with regard to the job performance (Švec and Schuszteková, 2012). It should be in the interest of the management of every organization to ensure sustainability in all areas of its operation. A strong practice for achieving social sustainability is to create and improve the quality of work-life balance for employees (work-family balance and work-time balance) (De Vos and Vab der Heijden, 2017). Our research has shown that in this direction, companies in Slovakia are already developing activities that are positively perceived by employees.

The changes that companies face on the labour market, unprecedented digital and technological changes, demographic changes, represent challenges that they must respond to if they want to be successful. These changes also contribute to a greater number of jobs with a need for higher qualifications. The need to help employees with changes, especially

disadvantaged groups, when transferring to new jobs, with new job duties, or when changing professions becomes important. The role of state institutions to create a suitable environment supporting employment, regarding appropriate legislation, building a practice-oriented education system and also a further education system is irreplaceable here. To create a space for the recognition of knowledge and skills that a person has acquired through his experience during his working life so far, not only in the school system. People should update their skills throughout their working life to meet the changing needs of the labour market. Create the conditions and maximize efforts to create jobs for all. These measures should create suitable conditions for maintaining employability, better focus on vulnerable groups of persons, on reducing inequalities in the labour market and social protection of disadvantaged persons.

5. CONCLUSIONS

Economic instability is currently negatively affecting the ability of organizations to invest in their own development, which can threaten their future. With massive changes in the functioning of companies, such as the implementation of Industry 4.0, their management and employees face many big challenges. The perception of corporate social responsibility in times of crises and a turbulent global environment is an important aspect when trying to succeed in the competitive struggle, not only on the product market, but also on the labour market in finding and retaining capable employees.

It becomes a challenge for organizations to find qualified employees on the labour market who meet the requirements for new job positions, and perhaps qualified employees will be the ones who choose, also with regard to the company's reputation and its activities in the field of social responsibility. On the other hand, part of the social responsibility of employers is to develop in their employees the skills that are necessary due to digitalization, not only with regard to Industry 4.0, but also to manage the workload related to the Covid-19 pandemic.

The presented results of our research can be useful for organizations in effective sustainable management of human resources and building the image of a socially responsible subject, which will be perceived as such by its current and potential employees.

Demands for specialized employee qualifications for the needs of the transformation to Industry 4.0 are increasing. People with their perception and relationship to the organization, their initiative and activity become an opportunity for the development and competitiveness of organizations. In our further research, we would like to focus on workforce development needs, especially identifying disadvantaged groups of employees in connection with the implementation of Industry 4.0 and exploring the need and opportunities for their development.

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DIGITÁLNE TECHNOLÓGIE A ENERGETICKÁ EFEKTÍVNOSŤ

DIGITAL TECHNOLOGIES AND ENERGY EFFICIENCY

Jarmila VIDOVÁ[79]

Abstrakt: *Energetická účinnosť, obnoviteľné zdroje energie sú najdôležitejšie piliere pri dosahovaní klimatickej neutrality. Úsporu energie, čo prospieva životnému prostrediu, ako aj všetkým ekonomickým subjektom, je možno realizovať viacerými spôsobmi. Dôležtými v tomto procese sú úspory energií v budovách, či už kancelárskych alebo budovách s bytmi, úspory v deprave. Každodenné problémy s efektívnym fungovaním miest v dôsledku tlaku rastúceho počtu obyvateľov je možné riešiť zavádzaním digitálnych inteligentných technológií. Digitálne technológie sú v súčasnosti predpokladom zmysluplnej digitalizácie a nástupu novej priemyselnej inteligentnej revolúcie. V príspevku sa zmeriame na možnosti využívania smart technológií efektívne a synergické riešenia v súlade s udržateľným rozvojom miest.*

Kľúčové slová: *digitálne technolológie, enernetická efektívnsoť, smart*

Abstract: *Energy efficiency, renewable energy sources are the most important pillars in achieving climate neutrality. Saving energy, which benefits the environment as well as all economic entities, can be realized in several ways. Important in this process are energy savings in buildings, whether office or apartment buildings, savings in transportation. Everyday problems with the efficient functioning of cities due to the pressure of a growing number of inhabitants are possible to resolve by the introduction of digital smart technologies. Digital technologies are currently a prerequisite for meaningful digitization. In the contribution, we will measure the possibilities of using smart technologies, effective and synergistic solutions in accordance with the sustainable development of cities.*

Keywords: *digital technologies, energy efficiency, smart cities*

JEL Classification: *N70, O18, R11,*

1. ÚVOD

Digitálne technológie prenikajú a reštrukturalizujú všetky aspekty ekonomických a sociálnych aktivít. V niektorých spôsoboch, ako sa vykonávajú, narúšajú existujúce činnosti, zatiaľ čo v iných majú väčší vplyv a dopĺňajú existujúce činnosti. V niektorých prípadoch nahrádzajú existujúce technológie a úlohy, v iných sa však dopĺňajú. Niekedy vedú k vytvoreniu nových služieb, inovácií, či obchodných príležitostí. Digitalizácia je výkonná, pretože umožňuje nielen automatizáciu, ale tiež sleduje a ukladá informácie a údaje o úlohách a aktivitách, čím vytvára záznam, ktorý je možné analyzovať a ktorý poskytuje príležitosti na zlepšenie procesov, organizácie práce, predpovedí o budúcnosti. udalosti (Agrawal et al., 2018). Schopnosť digitálne modelovať analógový svet rozpútala vlnu inovácií. Medzi digitálne technológie patrí internet vecí, blockchainy, aditívna výroba, big date, umelá inteligencia (AI), cloud computing a rozšírená a virtuálna realita (Ciarli, T., et. al., 2021). V príspevku sa využitie internetu vecí. V súčasnosti je vďaka internetu viac ako polovica planéty online. Výrazne prispel k interdependencii, aj vďaka tomu, že takmer 40 % svetovej populácie každodenne využíva produkty digitálnej ekonomiky. Digitálna ekonomika je nový priemysel, nové typy firiem, nové biznis modely. Tiež sú to nové technológie, nové riešenia, ktoré zmenili životy miliónov ľudí. Digitálne technológie sú v súčasnosti nositeľmi inovatívneho prístupu a rozhodujúcim predpokladom zmysluplnej digitalizácie a nástupu novej priemyselnej inteligentnej revolúcie.

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Už od samotného vzniku internetu v roku 1989, začali ľudia uvažovať o postupnom pripájaní vecí, do tejto širokospektrálnej siete. Tzv. „Trojan room coffe pot" bola pravdepodobne prvou aplikáciou takéhoto druhu na svete. V roku 1990 John Romkey vytvoril prvé „internetové zariadenie" a to hriankovač, ktorý bolo možné zapnúť a vypnúť prostredníctvom internetu. V roku 1994 vynašiel Steve Mann skrytú kameru, ktorú si človek mohol pripevniť na oblečenie a tak nahrávať okolitý svet. Video ukladala do svojej pamäte v takmer reálnom čase jeho natočenia a pracovala prostredníctvom 64 bitového procesoru. Paul Saffo vo svojej eseji z roku 1997 po prvýkrát stručne opísal senzory a možnosti ich budúceho využitia. Pojem internet vecí, bol po prvý raz použitý v roku 1999 Kevinom Ashtonom, ktorý bol výkonným riaditeľom AutoIDCentra v MIT. V tom istom roku jeho tím vynašiel tiež identifikačný systém predmetov, založený na systéme RFID. V roku 2003 bola technológia RFID nasadzovaná masívne v ozbrojených silách Spojených Štátov Amerických. V rovnakom roku sa k podobnému kroku odhodlala spoločnosť Walmart, ktorá RFID začala používať vo všetkých svojich obchodoch na označovanie tovaru. Internet vecí sa postupne dostával aj do médií. V roku 2008 sa skupina spoločností rozhodla vytvoriť tzv. IPSO alianciu, ktorá podporovala využívanie internetového protokolu IP v sieťach „inteligentných objektov", a tak rozšírila povedomie o internete vecí. Federal Communications Commission (FCC) v roku 2008 povolila používanie tzv. „white space spectrum", teda nového typu frekvencie pre šírenie informácií.[80] Postupne sa internet vecí dostáva do bežného života, aj vďaka investíciám a inováciám technologických podnikov ako Cisco, IBM a iné.

2. CIEĽ A METODOLÓGIA

Hlavným cieľom príspevku je na základe analýzy súčasných cieľových potrieb identifikovať možnosti využitia digitálnych technológií na úsporu energií. Sústredili sme sa na podporu budovania zelených miest, aby sa v mestách zachránilo životné prostredie, hospodárilo, aby sa chránilo. Tak ako je potrebné technické zabezpečenie pre digitálne technológie, je nevyhnutným predpokladom pre ich využívanie aj kvalifikovaný personál, informačný gramotný jednotlivec. Regionálnou analýzou pracovných ponúk pre pracovné pozície so zameraním na I o T, sme realizovali prieskum, ktorého výsledky uvádzame v príspevku.

3. RIEŠENIE PROBLÉMU / VÝSLEDKY / DISKUSIA

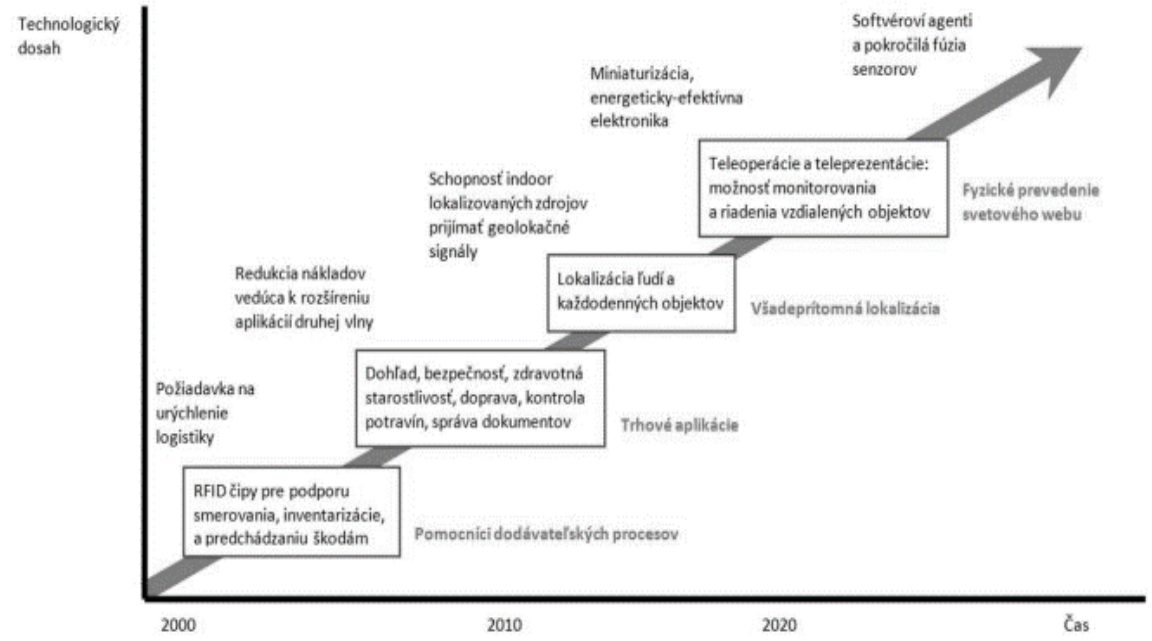
Internet vecí v užšom zmysle je definovaný ako sieť, ktorá spája jednoznačne identifikovateľné „veci" s internetom. „Veci" majú schopnosť snímania, ovládania a sú programovateľné. Pomocou využívania jednoznačnej identifikácie a snímania môžu byť informácie o „veciach" zhromažďované a „veci" môžu byť menené kdekoľvek, kedykoľvek a kýmkoľvek. Je súčasťou Priemyslu 4.0. Priemysel 4.0 bol po prvýkrát spomenutý v nemeckom Hannoveri, na technologickom veľtrhu v roku 2011. Vo všeobecnosti môžeme konštatovať, že priemysel 4.0 alebo štvrtá priemyselná revolúcia je pomenovanie rozsiahlych zmien v priemysle. Bol to jeden zo spôsobov ako zabrániť poklesu priemyselnej produkcie, ktorá bola aj v dôsledku znižovania nákladov často presunutá do lacnejších krajín. V roku 2013 nemecká vláda dala odporúčania pre realizáciu projektu Priemysel 4.0. Nositeľom Priemyslu 4.0 je digitalizácia.

Vplyv digitalizácie má rozsiahlu interakciu a prelieva sa do mnohých sfér. Tiež má výrazy vplyv na trh práce. Pri zavedení systémov automatizácie sú potrební v podnikových útvaroch IT špecialisti na správu komunikačnej či výpočtovej techniky, špecialisti pre oblasť databázových systémov a počítačových sietí, či vývojári softvéru. Tieto špecializácie sú potrebné aj na využívanie internetu vecí. Cieľom Internetu vecí je digitálne prepojenie objektov, zariadení, ich vzájomná komunikácia a výmena informácií. Podľa prognózy IDC

[80] FCC (Federal Communications Commission) – Federálna komisia pre komunikáciu

(International Data Corporation)[81] bude do roku 2025 bude v rámci internetu vecí pripojených 41 miliárd zariadení a očakáva sa, že tieto zariadenia vygenerujú 79,4 zettabajtov (1 zettabajt = 10^{21} bajtov) údajov. Výrobcovia a poskytovatelia služieb pomocou vzájomného zdieľania zozbieraných údajov zo zariadení, vďaka senzorom, budú generovať nové produkty a služby. Na základe prijatých vstupov je možné meniť správanie, ukladať pokyny a tak vďaka digitálnej interakcii môžeme aj ušetriť zdroje. Vďaka technológii internetu vecí môžu byť údaje zdieľané v celej sieti a prenesené na vzdialené miesto so skutočným zlepšením výkonu pre koncového užívateľa.

Obrázok 1: Internet vecí - technologický plán pre internet vecí



Zdroj: Antoni, L. a kol. (2020). Internet veci a jeho aplikácie. ISBN 978-80-8152-911-5

Ekonómovia Erik Brynjolfsson a Andrew McAfee v knihe The Second Machine Age poukázali na to, že revolúcia môže priniesť medzi ľudí väčšie rozdiely. Podobne ako predchádzajúce revolúcie, štvrtá priemyselná revolúcia má tiež potenciál zlepšiť kvalitu života obyvateľstva na celom svete. Nové technológie a pokrok priniesli pre mnohé krajiny zásadné zmeny, napr. za posledných 30 rokov sa v Indii znížil počet obyvateľov žijúcich v chudobe zo 60% na 22%, v Číne sa za to isté obdobie dostalo z chudoby 600 miliónov obyvateľov. Tento pozitívny vývoj má vplyv na spotrebu energií, spotrebu tovarov a služieb, zmeny v urbanistickom prostredí. Rozvoj miest, nárast potreby nehnuteľností na prácu alebo bývanie, by mal akceptovať efektívne a synergické riešenia v súlade s udržateľným rozvojom miest. Rastúci záujem o energiu z obnoviteľných zdrojov navyše reaguje na rastúci celosvetový dopyt po energii, najmä v rozvíjajúcich sa trhových hospodárstvach, čo má potenciálne negatívne vplyvy na životné prostredie, najmä z dlhodobého hľadiska, na prírodu a klimatické zmeny. Diaľkovo ovládané alebo autonómne mechanické zariadenia zariadenia s integrovanou inteligenciou, ktoré dokážu vnímať svoje prostredie, svoj stav a dokonca môžu podľa toho konať. Spojenie fyzikálnych vlastností internetu vecí s inteligentnými zariadeniami poskytuje príležitosti pre vznikajúce aplikácie s inherentne autonómnymi vlastnosťami a funkciami samohodnotenia.

[81] IDS – je poprednou svetovou spoločnosťou v oblasti poskytovania informácií o trhu, poradenských služieb a v oblasti organizovania podujatí pre trhy s informačnými technológiami, telekomunikáciami a spotrebiteľskými technológiami (https://www.idc.com/about)

3.1 Možnosti využitia IoT v urbanistickom prostredí

IoT rastie obrovským tempom, ponúka príležitosti pre nové inovatívne modely, ktoré zlepšia aj kvalitu života občanov a môžu poskytovať efektívnejšiu a účinnejšiu podporu ľuďom. Je významným prvkom pre realizáciu inteligentného prostredia. Medzi inteligentné prostredia patria inteligentné domy, inteligentné mestá a inteligentná výroba. Medzi subjekty, ktoré dokážu internet vecí využiť najefektívnejšie, sú okrem výroby, aj verejné služby, doprava, logistika. Sú to zároveň subjekty, ktoré sú súčasťou Konceptu Smart cities, čo je to komplexný prístup k fungovaniu mestského regiónu. Koncept smart cities, zasahuje do rôznych spoločenských oblastí, kultúry, infraštruktúry, životného prostredia, energetiky, sociálnych služieb. Dôležitým v súčasnosti je využiť tento koncept na podporu rozvoja zelených miest s cieľom udržateľnosti, pretože urbanizácia sa zrýchľuje a je potrebné zamerať sa na rozvoj mestských zelených plôch, ochranu vody, znižovania energií. Predpokladá sa, že v mestách bude v roku 2050 žiť okolo 78 % obyvateľov, čo bude energeticky náročné a preto je potrebné sústrediť sa na zelené inovácie v mestách. Zavedenie ekologických digitálnych technológií má preto zásadný význam pre diverzifikáciu miestnych, udržateľných činností na ochranu životného prostredia a zlepšenie životných podmienok ľudí.

Výhodou života v mestách je kvalita dopravy, ponuka práce, dostupnosť služieb, no nemali by sme zabúdať na to, že planétu máme iba jednu. Prírodu nemožno nahradiť ničím, a tak je potrebné si ju vážiť a rešpektovať, pretože rastie miera osídľovania. Rímsky klub formuloval v roku 1972 vo svojej štúdii "Limity rastu" negatívny vplyv nadmernej spotreby zdrojov na životné prostredie. Za posledných štyridsať rokov sa vyvinula medzinárodná diskusia o teórii eko-mesta a dôležitá výskumná oblasť, ktorá sa týka budúcnosti urbanizmu a samotného mesta. Ide o zelený urbanizmus, ktorého predstavitelia sa vo svojich prácach venujú mnohým problémom, spôsobu výstavby budov, energetickej účinnosti budov, potrebe revitalizácie mesta (Banham, 1969, Braungart - McDonough, 2002, Jenks - Burgess, 2000).

Teórie Jenks a Burgess, 2000, Lehmann, 2005, zahŕňajú vízie založené na presvedčení, že zelenú budúcnosť mesta možno dosiahnuť len využitím zásad udržateľného mestského dizajnu. V 21. storočí potrebujeme nové typy miest, pretože sme sa dostali do "novej éry neistoty", v ktorej sú kritické dodávky energie, vody a potravín. "Žijeme vo svete čoraz nevyčísliteľnejšej neistoty, ktorú vytvárame rovnakou rýchlosťou ako technologický vývoj." (Beck, 2000).

Aby budovy mali minimálny nepriaznivý vplyv na prírodné a zastavané prostredie, energeticky efektívny dizajn budov musí vyvážiť celý rad požiadaviek z rôznych vzájomne prepojených otázok vrátane stratégie navrhovania založené na hlbokom pochopení lokality a kontextu, stratégie energetickej efektívnosti (prevádzkové a stelesnené), stratégie pre efektívnosť vody, účinnosť materiálu: zameranie sa na materiálové toky a stelesnenú energiu (životný cyklus), celkové toky materiálu a odpadu počas výstavby, prevádzky a demolácie, integrácia princípov pasívneho dizajnu, ako je optimalizácia tvaru a orientácie budovy, využitie prirodzeného vetrania, používanie denného svetla, tepelná hmotnosť, tieňovanie slnka, zníženie celkových emisií skleníkových plynov zo stavebníctva.

Práve podpora budovania zelených miest je jedným zo spôsobov ako môže mesto udržateľne fungovať, ako šetriť energie, hospodáriť s vodou, aby sa chránilo životné prostredie. Keďže v mestách sa spotrebuje najviac energií. V súčasnosti sa stretávame čoraz častejšie s konceptom zeleného mesta a hodnotí sa na základe viacerých faktorov. Meria sa kvalita bývania, rozloha zelene v mestách, doprava, odpadové hospodárstvo, hlučnosť, kvalita ovzdušia a pod. Podľa IHS (Institute for Housing and Urban Development Studies) je Green City Concept je jedným z konceptov, ktorý zdôrazňuje dôležitosť efektívneho vyžívania energií, čo má následne vplyv na kvalitu života, bývania, atď.

V krajinách Európskej únie hodnotíme kvalitu miest Európskym indexom zelených miest. Meria a hodnotí environmentálne správanie 30 popredných európskych miest z 30 európskych

krajín. Zohľadňuje 30 individuálnych ukazovateľov na mesto, ktoré sa dotýkajú širokej škály environmentálnych oblastí, od správy životného prostredia a spotreby vody až po odpadové hospodárstvo a emisie skleníkových plynov. Cieľom indexu je umožniť kľúčovým skupinám zainteresovaných strán, ako sú správcovia miest, tvorcovia politík, poskytovatelia infraštruktúry, mimovládne organizácie a občania, porovnať úroveň svojho mesta v rámci každého kritéria. Index umožňuje porovnanie medzi mestami a je nástrojom na pokrok smerom k riešeniu zmeny klímy a iným environmentálnym výzvam.

Na získavanie údajov v jednotlivých mestách môžeme využiť už spomínaný internet vecí. Podľa Miorandi et al. (2012) je šesť hlavných aplikačných oblastí, kde môžeme využiť technológie internetu vecí - monitorovanie životného prostredia, budovanie inteligentných miest, v inteligentnom podnikaní, inteligentných budovách a inteligentnom riadení budov, v zdravotnej starostlivosť a bezpečnosti.

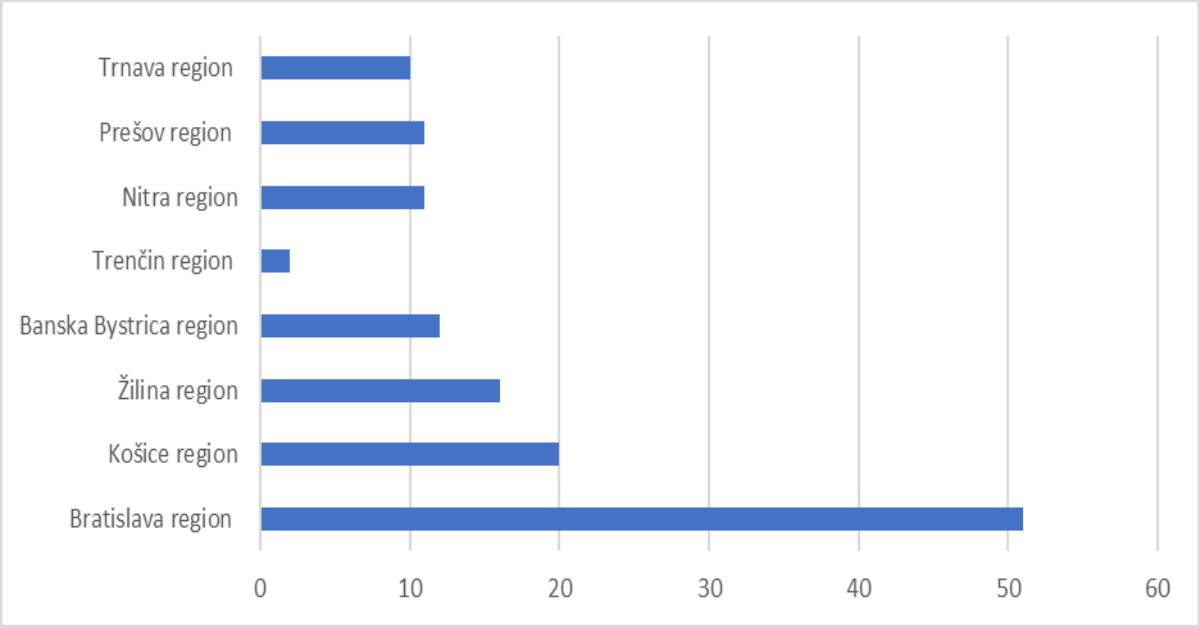
3.2 Príspevok k udržateľnosti v slovenských mestách

Život v mestách sa v posledných rokoch v mestách výrazne zmenil. Rastie počet obyvateľov, zvýšila sa kúpyschopnosť. Tiež sa zmenil životný štýl, čo prinieslo nové problémy. Zhoršila sa dopravná situácia, kvalita životného prostredia poklesla vplyvom emisií a výstavby, keďže zelené plochy ustupujú betónovým konštrukciám a plochám. Vzrástol objem odpadu, snaha o jeho separovanie a recykláciu zdvihla požiadavky na jeho manažment. To všetko korunuje slabá interakcia občanov so samosprávami. Inteligentné osvetlenie s nabíjaním elektromobilov, monitorovanie spotreby energie, parkovací systém a kontrola parkovania, sledovanie kvality ovzdušia, či analýza dát o demografickom správaní obyvateľov, sú oblasti, kde sa využívajú inovatívne riešenia, spojené s modernými technológiami, smartfónmi či Internetom vecí (Internet of Thing – IoT), na zlepšenie života v slovenských mestách a obciach.

Medzi najpoužívanejšie sieťové IoT štandardy patria LoRaWAN (Long Range Wide Area Network) a NB-IoT (NarrowBand-IoT). Testovaciu prevádzku siete typu LoRaWAN sa začala v apríli roku 2016 v troch slovenských mestách – Košiciach, Poprade a Trenčíne. V súčasnosti pokrýva všetky krajské sídla, viac ako polovicu okresných a niekoľko ďalších menších miest a obcí. Pevná sieť NB IoT je výhodné riešenie najmä na monitoring technologických vodomerov, vodomerov s vyššou spotrebou, aby sa predišlo stratám vodárenským spoločnostiam. Viaceré väčšie, či menšie mestá na Slovensku využívajú internet vecí na zber a spracovanie dát o demografickom správaní sa obyvateľov, na monitorovanie spotreby energie, monitoring ovzdušia, inteligentné osvetlenie, riadenie parkovania a iné.

Tak ako je potrebné technické zabezpečenie pre I o T, je nevyhnutným predpokladom pre jeho fungovanie kvalifikovaný ľudský kapitál, informačne gramotný jednotlivec. Regionálnou analýzou pracovných ponúk pre pracovné pozície so zameraním na I o T sme zistili, že najviac ponúk je v Bratislavskom regióne. Výška mesačnej mzdy sa pohybuje v rozmedzí min 800 € - max 3500 €. Hodinová mzda je vo výške min 1€ – max 23 €, median 5 € a priemer je 8 €.

Obrázok 2: Prehľad pracovných ponúk na pozície pre I o T platformy – regionálna analýza



Zdroj: spracované z portálu 8h.sk

4. ZÁVER

Okrem ponuky pracovných pozícií, skúmame aj index pripravenosti na automatizáciu. Index porovnáva krajiny v ich pripravenosti na vek inteligentnej automatizácie. Pri hodnotení sa zistilo, že v oblasti inovácií, vzdelávania a trhu práce neexistuje komplexná politika, ktorá by konkrétne riešila problémy automatizácie. Len Južná Kórea, Nemecko a Singapur (celkový líder v indexe) realizovali niektoré iniciatívy, reformovali učebných osnovy, sústredili sa na celoživotné vzdelávanie, odbornú prípravu a flexibilitu na pracovisku. Na Slovensku sa stretávame s postupným nárastom v tejto oblasti, no je nevyhnutné viac sa sústrediť na inovačnú politiku, politiku trhu práce a vzdelávaciu politiku. Na základe subindexov sa na Slovensku zvyšuje digitálna gramotnosť, no vyskytol sa problém s digitálnou chudobou. Medzi skupiny obyvateľov, ktoré majú najviac sťažený prístup k online službám, patria nízkopríjmové domácnosti s deťmi. Táto skupina z hľadiska budúceho vývoja môže mať problém umiestniť sa na trhu práce, problém s nedostatkom zamestnancov, ktorí budú vyvíjať aplikácie pre využitie internetu vecí, či problém so zabezpečením úspory zdrojov.

Dodatok

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ODMEŇOVANIE SESTIER AKO ROZHODUJÚCI FAKTOR MIGRÁCIE

NURSES REWARDING AS A MAIN FACTOR OF MIGRATION

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Abstrakt: *Zdravotné sestry sú považované za vysokokvalifikovanú pracovnú silu. Okrem toho, že majú náročnú psychickú prácu, tak aj fyzickú. Na základe toho, by mali byť aj adekvátne finančne ohodnotené. Zdravotné sestry už dlho volajú po pomoci ohľadom zvyšovania platov. Nepochybne možno tvrdiť, že nízke platy patria k primárnym dôvodom, prečo sestry migrujú za prácou do zahraničia. Tento problém je dlhodobo spomínaný najmä Slovenskou komorou sestier a pôrodných asistentiek, ktorá zastrešuje ochranu sestier. Štúdia sa venuje skúmaniu spokojnosti sestier so mzdovým ohodnotením ako primárnou pohnútkou, ktorá ovplyvňuje migračné nálady sestier. Hlavnými metódami použitými v štúdii je analýza, pomocou ktorej sa skúmajú rozdiely v mzdových ohodnoteniach v domovskej krajine a v zahraničí. Opisná štatistika – deskripcia popisuje vyjadrenie miery spokojnosti sestier pracujúcich na Slovensku so mzdovými podmienkami a ostatnými mzdovými benefitmi. Bodovacia metóda slúži na vyjadrenie spokojnosti sestier so mdovým ohodnotením a inými zamestnaneckými benefitmi. Mzdové ohodnotenie sestier na Slovensku je dlhodobo diskutovanou témou, preto je nutné problematike venovať náležitú pozornosť.*

Kľúčové slová: *migrácia, migrácia sestier, pracovná migrácia, mzdové ohodnotenie sestier, platové podmienky sestier na Slovensku*

Abstract: *Nurses are considered a highly qualified workforce. In addition to the fact that they have a demanding mental job, they also have a physical job. Based on this, they should also be adequately financially valued. Nurses have long been calling for help regarding pay raises. Undoubtedly, it can be argued that low salaries are among the primary reasons why nurses migrate abroad for work. This problem has been mentioned for a long time, especially by the Slovak Chamber of Nurses and Midwives, which covers the protection of nurses. The study examines nurses' satisfaction with salary evaluation as a primary motivation that influences nurses' migration moods. The main methods used in the study are the analysis by means of which the differences in salary evaluations in the home country and abroad are investigated. Descriptive statistics - the description describes the level of satisfaction of nurses working in Slovakia with wage conditions and other wage benefits. The scoring method is used to express nurses' satisfaction with salary evaluation and other employee benefits. Salary evaluation of nurses in Slovakia has been a long-term discussed topic, therefore it is necessary to pay due attention to the issue.*

Keywords: *migration, migration of nurses, labor migration, wage evaluation of nurses, salary conditions of nurses in Slovakia*

1. ÚVOD – AKTUÁLNY STAV SKÚMANEJ PROBLEMATIKY

Príspevky v zdravotníckych službách a konkrétnejšie v oblasti poskytovania ošetrovateľskej starostlivosti sestrami má spokojnosť s prácou vplyv na výsledky pacientov, výkonnosť

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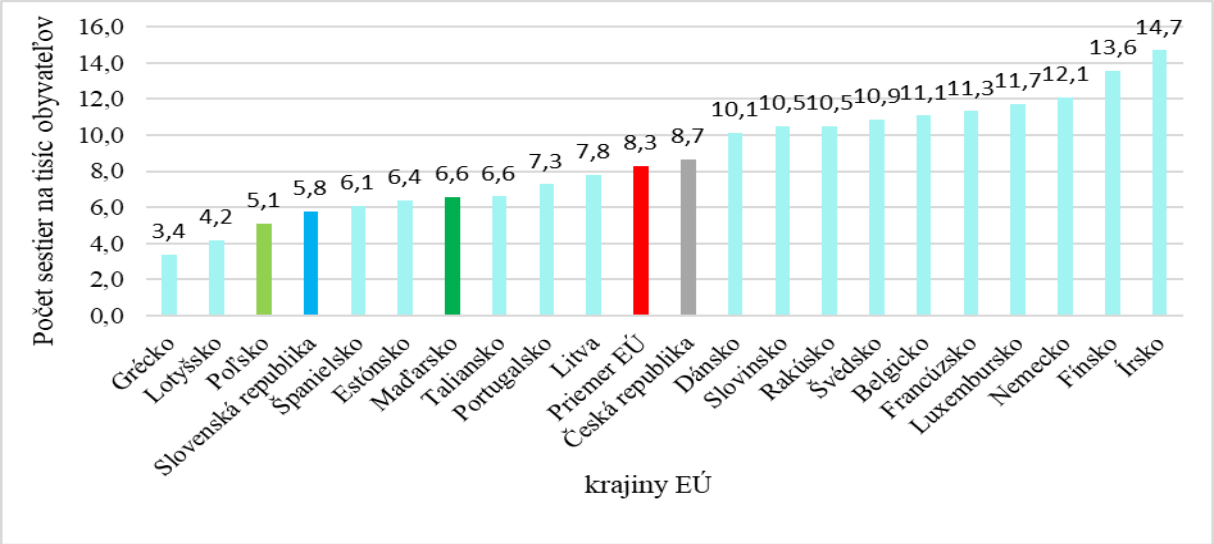
sestier, udržanie ošetrovateľského personálu a absenciu. Ovplyvňuje tiež záväzok voči organizácii, organizačné zmeny a ošetrovateľskú profesiu, pracovné prostredie a podmienky, vzťah so spolupracovníkmi a manažérmi a ďalšie relevantné faktory (Bellizzi, S., Padrini, S., 2021). Migrácia medzinárodných zdravotníckych pracovníkov je motivovaná makro, mezo a mikro hnacími silami na medzinárodnej, národnej profesionálnej a osobnej úrovni. Spojené kráľovstvo má silné spoločné makro motivačné faktory, ktoré priťahujú zdravotné sestry, ale aj lekárov a zubných technikov, a môžu mať vplyv na účinnosť politík na obmedzenie ich migrácie. Medzinárodná migrácia ľudských zdrojov pre zdravie (HRH) ovplyvňuje jednotlivcov a má vplyv na zdravotnícke systémy zdrojových aj cieľových krajín tým, že ovplyvňuje poskytovanie služieb, zdravotné politiky, plánovanie pracovnej sily, odbornú prípravu a vzdelávanie, sociálny a hospodársky rozvoj týchto krajín. (Davda, L., Gallagherová, J., Radford, D., 2018).

Prognózy predpovedajú rastúci nedostatok kvalifikovaného ošetrovateľského personálu v krajinách po celom svete. Migrácia sestier je už bežnou stratégiou, ktorá sa používa na riešenie potrieb ošetrovateľskej pracovnej sily. Krajiny s vysokými príjmami sa často spoliehajú na medzinárodný nábor sestier, aby vyriešili svoj nedostatok domácich ošetrovateľov. Tieto krajiny sa pokúšajú vytvoriť vzájomne prospešné hospodárske a politické dohody s krajinami s nižšími príjmami s cieľom povzbudiť sestry, aby migrovali z jednej krajiny do druhej (Smith, J., Herinek, D., Ewers, M., 2022). Nepriaznivé pracovné podmienky a nízka kompenzácia podnecujú presťahovanie zdravotníckych pracovníkov do vyspelejších krajín. To následne vedie k zvýšeniu pracovnej záťaže a nevhodným pracovným podmienkam v krajine pôvodu, čo ďalej vedie k tomu, že viac zdravotných sestier migruje z domovskej krajiny. Nedostatok ošetrovateľských služieb je teda vážnejší a výraznejší v zdrojových krajinách (Hongyan, L., Wenbo, N., Junxin, L., 2014). Od roku 2004 vzrástla migrácia lekárov a zdravotných sestier pracujúcich v krajinách OECD celkovo o 60%. Tento trend odzrkadľuje všeobecný nárast imigrácie do krajín OECD (OECD, 2015).

V neposlednom rade Slovensko pociťuje nedostatok sestier v nemocniciach. Z tohto dôvodu sme zisťovali, aké sú hlavné príčiny ich odchodov do zahraničia. Jedným z najhlavnejších dôvodov sú relatívne nízke príjmy sestier v porovnaní s inými krajinami EÚ. Ďalším dôvodom môžu byť aj nevhodné pracovné podmienky, neporiadok a plytvanie v celom systéme slovenského zdravotníctva (I-health, 2013). Podmienky pre samotnú medzinárodnú migráciu mali taktiež svoj vývoj. (Smatana a kol., 2016) vo svojej práci vyjadrujú, že po implementácii smernice ES 2005/36 mohli slovenskí zdravotnícki pracovníci pracovať v krajinách Európskej únie. (Divinský, 2010) uvádza, že migrácia je všeobecne považovaná za jeden z charakteristických prejavov globalizačných procesov vo svete. Slovenská republika nie je v tomto kontexte výnimkou, nakoľko sa najmä od roku 2004 migračné procesy v krajine aktivizovali a ich význam neustále naberá na sile.

Obrázok 1: Počet sestier v prepočte na tisíc obyvateľov v EÚ a V4



Zdroj: Vlastné spracovanie podľa údajov OECD, 2022

Štúdiu sme realizovali na základe vyplývajúceho nedostatku sestier v sektore zdravotníctva na Slovensku. Podľa údajov OECD sme zostrojiligraf, v ktorom sú zverejnené počty ošetrujúcich sestier. Sú to priemery krajín na prepočet tisíc obyvateľov. Priemer Európskej únie je 8,3 ošetrujúcich sestier na tisíc obyvateľov. Ako možno sledovať, Slovenskú republiku sme vyznačili modrou farbou, nakoľko sa jedná o domovskú krajinu, ktorá je predmetom skúmania. Slovensko je takmer na chvoste v počte zdravotných sestier, ktoré poskytujú zdravotnú starostlivosť na 1000 obyvateľov. Z grafu nám vyplýva, že Slovensko nemá dostatočný počet zdravotníckeho personálu (sestier), z ktorého vzniká **negatívny dopad** na poskytovanie ošetrovateľskej starostlivosti pacientom v domovskej krajine. Ďalej sme sa sústredili na vymedzenie priemerov počtu sestier v krajinách V4, kde: Česká republika sa nachádza tesne and priemerom v počte sestier tzn., že v prepočte na tisíc obyvateľov poskytuje zdravotnú starostlivosť 8,7 sestry, v Maďarsku je to 6,6 sestry na tisíc obyvateľov, na Slovensku 5,8 sestry a v Poľsko je v tesnom závese za Slovenskom s priemerom 5,1 sestry.

2. CIEĽ A METODOLÓGIA

Hlavným cieľom štúdie je zhodnotiť, akým spôsobom odmeňovanie a platové podmienky vplývajú na migračné nálady sestier.

Úlohy:

- zistiť, ako vnímajú sestry mzdové podmienky a iné zamestnanecké benefity,
- zistiť a vyhodnotiť mieru spokojnosti sestier so mzdovým ohodnotením a jej vplyv na migračné nálady,
- zistiť a porovnať platové podmienky pre sestry v krajinách V4.

Zisťovanie a hodnotenie miery spokojnosti so mzdovými podmienkami sestier v systéme zdravotníctva Slovenskej republiky sme uskutočnili pomocou analýzy, kde sme skúmali rozdiely v mzdových ohodnoteniach v domovskej krajine a v zahraničí (v krajinách V4). Opisnou štatistikou (deskripciou) sme opisovali mieru spokojnosti sestier pracujúcich na Slovensku so mzdovými podmienkami a inými mzdovými benefitmi. Mieru spokojnosti sme vyhodnocovali na základe bodovacej metódy z dotazníkového prieskumu na základe odpovedí respondentov. Poradie sme určovali na základe najčastejších odpovedí respondetov ako uvádzaných dôvod pre odchod za prácou do zahraničia.

Popis prieskumnej vzorky: V rámci využitia štatistických zdrojov sme mali možnosť do vypracovania štatistík zahrnúť aj dotazníkový prieskum. Dotazník je súčasťou projektu APVV č. 19/0579 „Nastavenie procesov personálneho riadenia v nemocniciach a jeho vplyv na migráciu lekárov a sestier za prácou do zahraničia“. Dotazníkový prieskum sa použil v rámci predvýskumu k šetreniu na vzorke 65 respondentov. Na online dotazník odpovedalo spolu 65 respondentov – sestry pracujúce v slovenských nemocniciach.

3. VÝSLEDKY ŠTÚDIE

V nasledujúcej časti štúdie venujeme pozornosť spracovaniu výsledkov, ktoré sú zamerané na skúmaný problem a to je mzdové ohodnotenie sestier v zdrojovej krajine v krajinách V4.

1. Zhodnotenie mzdových podmienok sestier v domovskej krajine

Tabuľka 1: Odmeňovanie sestier na Slovensku v roku 2022

Odmeňovanie sestier v roku 2022 - Brutto (Prepočet na priemernú mzdu v NH v roku 2020 (t.j. 1133 €) pre určenie základnej zložky mzdy zamestnanca pre rok 2022)		
Zdravotnícke povolanie	**Koeficient**	**Základná zložka mzdy v €**
Sestra bez CPČ/SŠ	0,89	1008,37 €
Sestra s certifikátom	0,94	1065,02 €
Sestra - špecialistka	1,06	1 200,98 €
Sestra s Mgr. + SŠ+ 5 rokov praxe po ukončení SŠ	1,10	1 246,30 €
Vysvetlivky		
CPČ - Certifikovaná pracovná činnosť		
SŠ - Špecializačné štúdium		

Zdroj: Vlastné spracovanie podľa SK SaPA, 2022

V tabuľke sú podľa údajov (SK SaPA, 2022) aktuálne mzdy pre zdravotné sestry a pôrodné asistentky v roku 2022. Tieto mzdy sa zvyšujú podľa stanoveného „automatu“, pre ktorý je charakteristický koeficient navýšenia. Prepočet sa robí podľa mzdy v národnom hospodárstve z pred dvoch rokov, v tomto prípade je to rok 2020. Následne sa priemerná mzda v NH vynásobí koeficientom pre dané zdravotnícke povolanie a z toho vyplýva základná zložka mzdy v hrubom vyjadrení pre daný rok, teda pre rok 2022.

Tabuľka 2: Vývoj priemernej mzdy v národnom hospodárstve na Slovensku

2009	745,00 €	**2016**	912,00 €
2010	769,00 €	**2017**	954,00 €
2011	786,00 €	**2018**	1 013,00 €
2012	805,00 €	**2019**	1 092,00 €
2013	824,00 €	**2020**	1 133,00 €
2014	858,00 €	**2021**	1 211,00 €
2015	883,00 €	**2022**	1 295,00 €

Zdroj: Vlastné spracovanie podľa ŠÚSR, 2022

V tabuľke sú zobrazené údaje priemernej hrubej mzdy v národnom hospodárstve. Ak si pozrieme priemernú mzdu pre rok 2022, tak jej úroveň dosahuje 1295,00€. Sestra bez certifikovanej pracovnej činnosti alebo špecializačného štúdia je tesne pod spomínaným priemerom hrubej mzdy v národnom hospodárstve. To znamená, že plat sestry pre rok 2022 je na úrovni 1008, 37€. Sestra magisterským titulom, ktorá absolvovala špecializačné štúdium a má v rámci špecializačného štúdia aj 5 rokov praxe, vtedy jej mzda prdstavuje výšku 1246, 30€ podľa zdroja SK SaPA. V tomto prípade možno konštatovať, že jej hrubá mzda sa začína približovať priemiernej hrubej mzde v národnom hospodárstve.

2. Zhodnotenie mzdových podmienok a ostatných benefitov sestier a ich vplyv na migračné nálady sestier

V tejto časti štúdie budeme pomocou bodovacej metódy hodnotiť, ktoré sú najčastejššie dôvody odchodov sestie za prácou do zahraničia. Vyhodnocovali sme dotazník, ktorý je súčasťou prejktu APVV č. 19/0579. Otázky boli zamerané na ich spokojnosť s prácou, podmienkami a ostatnými aspektmi, ktoré ovplyvňujú ich prácu. Otázky boli zamerané na ich spokojnosť s prácou, podmienkami a ostatnými aspektmi, ktoré ovplyvňujú ich prácu.

Tabuľka 3: Bodovacia metóda

Čo si myslíte, v akej miere nižšie uvedené podmienky práce sú dôvodom pre odchod slovenských sestier za prácou do zahraničia?							
Odpoveď	**1. Spokojný**	**2. Skôr spokojný**	**3. Ani spokojný/ ani nespokojný**	**4. Skôr nespokojný**	**5. Nespokojný**	**Priemer**	**Poradie**
Body za odpoveď	**10**	**5**	**0**	**-5,00**	**-10,00**		
1. Organizácia práce: pridelenie úloh, spolupráca medzi kolegami, pracoviskami, komunikácia a pod.	57,14	40,00	0,00	78,57	23,33	49,76	15
2. Odmeňovanie za prácu	100,00	20,00	0,00	75,00	86,67	70,42	1
3. Zamestnanecké výhody, benefity a pod.	85,71	28,00	0,00	78,57	73,33	66,40	2
4. Vybavenie pracovne	85,71	48,00	0,00	82,14	36,67	63,13	4
5. Nedostatok sestier a s tým spojená pracovná záťaž, nadčasy, služby, urgentné prípady atď.	28,57	24,00	0,00	64,29	100,00	54,21	11
6. Byrokracia, administratíva	14,29	28,00	0,00	64,29	76,67	45,81	16
7. Komunikácia a vzťahy s kolegami	71,43	100,00	0,00	32,14	16,67	55,06	10
8. Komunikácia a vzťahy s nadriadenými	71,43	60,00	0,00	64,29	20,00	53,93	12
9. Komunikácia a vzťahy s pacientmi	85,71	96,00	0,00	21,43	10,00	53,29	13
10. Vzdelávanie, odborný a kariérny rast	85,71	60,00	0,00	71,43	13,33	57,62	9
11. Zabezpečenie potrebným personálom	57,14	32,00	0,00	82,14	76,67	61,99	5
12. Materiálne a priestorové zabezpečenie	85,71	40,00	0,00	100,00	33,33	64,76	3
13. Prístrojové zabezpečenie	57,14	56,00	0,00	89,29	30,00	58,11	8
14. Elektronizácia (digitalizácia) práce	57,14	52,00	0,00	60,71	20,00	47,46	15
15. Prestíž zdravotníckeho povolania	71,43	40,00	0,00	67,86	63,33	60,65	7
16. Aktuálna politická, ekonomická a sociálna situácia na Slovensku	42,86	12,00	0,00	96,43	96,67	61,99	5

Zdroj: Vlastné spracovanie, 2022

Pomocou bodovacej metódy sme určili poradie najčastejších dôvodov pre odchod sestier. Každej alternatíve sme priradili body a alternatívam sme určili následné hodnoty: Spokojný: 10 a Skôr spokojný: 5. Ani spokojný ani nespokojný pre nás nemá výpovednú

hodnotu, preto sme tejto alternatíve určili nulovú hodnotu. Alternatíve Skôr nespokojný sme určili zápornú hodnotu: -5 a pre alternatívu Nespokojný: -10. Aby sa nám podarilo určiť poradie, museli sme vypočítať jednotlivé ukazovatele ako je Minimum a Maximum.

Ukazovateľ maximálnej hodnoty: $b_{ij=}\frac{xij}{X_{max}}$; Ukazovateľ minimálnej hodnoty: $b_{ij=}\frac{X_{min}}{Xij}$

Po určení hodnôt minima a maxima, sme vypočítali priemer a určili tak poradie jednotlivých odpovedí. V tomto hodnotení nám **na prvom mieste vyšla odpoveď Odmeňovanie za prácu**, na druhom mieste Zamestnanecké výhody, benefity a pod., na treťom mieste Materiálne a priestorové zabezpečenie, na štvrtom mieste Vybavenie pracovne, na piatom mieste nám vyšli dve odpovede, ktoré mali rovnako dosiahnuté hodnoty a to: Zabezpečenie potrebným personálom a Aktuálna politická, ekonomická a sociálna situácia na Slovensku.

Okrem nespokojnosti s odmeňovaním, sestry odchádzajú pre veľa rôznych dôvodov. Najviac respondentov vyjadrilo ako **najčastejšie opakujúce sa opatrenie** práve **zvýšenie mzdy**. Zdravotné sestry sa na Slovensku cítia nedostatočne finančne ohodnotené. Okrem tohto problému sa stretávajú aj s radom ďalších, ktoré zapríčiňujú, že sa rozhodnú hľadať si prácu v zahraničí.

3. Porovnanie mzdových podmienok sestier a pôrodných asistentiek v krajinách V4

V nasledujúcej časti štúdie sa budeme venovať najmä porovnávaniu miezd sestier a pôrodných asistentiek v krajinách Vyšehradskej štvorky.

Tabuľka 4: Porovnanie priemerných hrubých mesačných miezd sestier v krajinách V4 (HM v Eur)

Štát V4	Zdravotnícke povolanie	2010	2012	2013	2014	2015	2016	2017	2018	2019
SR	Zdravotné sestry	x	766	778	803	827	847	868	918	1005
	Pôrodné asistentky	x	828	792	753	878	906	955	1008	1143
ČR	Zdravotné sestry so špecializáciou	x	1015	1008	1036	1109	1158	1293	1454	1607
	Pôrodné asistentky bez špecializácie	x	938	920	961	1001	1078	968	1310	1488
HU	Profesionálne sestry	x	454	434	552	520	526	661	806	1195
	Profesionálne pôrodné asistentky	x	384	353	480	422	431	567	685	1017
PL	Zdravotné sestry	709	729	x	756	x	917	x	1185	x
	Pôrodné asistentky	734	719	x	750	x	921	x	1197	x

Zdroj: Vlastné spracovanie podľa údajov ISPV, KSH, ITM, GUS, 2022

V tabuľke je znázornený vývoj hrubej mesačnej mzdy zdravotníckych pracovníkov v kategórii sestier a pôrodných asistentiek. Platové podmienky pre sestry a pôrodné asistentky pracujúce na Slovensku, vzhľadom na aktuálny vývoj nemusia považovať za dostatočne adekvátne k povahe práce, fyzickej a psychickej náročnosti čo môže vyvolávať u zdravotníckeho personálu Push faktory.

Vývoj mzdového odmeňovania sa napríklad v susednom štáte, Českej republike, výrazne líši od Slovenskej republiky. Spracované údaje boli poskytnuté Informačným systémom o priemerných zárobkoch v Českej republike. Údaje podliehajú klasifikácii ISCO - CZ, ktoré nadobudli svoju platnosť v roku 2010. Vzhľadom k tomu, že Slovenská republika prijala klasifikáciu až v roku 2011, tak pre porovnanie týchto dvoch štátov boli vybrané roky od 2012 do 2019. Česká republika na prvý pohľad disponuje výrazne lepším mzdovým

ohodnotením v sektore zdravotníctva. Štát sa snaží motivovať študentov k štúdiu zdravotníckych povolaní a aj výhodným mzdovým ohodnotením.

Maďarsko ako jeden zo štátov Vyšehradskej skupiny je krajinou, ktorá si prešla nespočetným množstvom reforiem v sektore zdravotníctva. Medzi najväčší reformný problém patrí zdroj financovania, ktorý nie je schopný pokryť tento výrazný deficit. Tento deficit sa v roku 2019 zmenil a tým aj mzdové ohodnotenie sestier. Vzhľadom na túto situáciu z pohľadu pracovnej migrácie Maďarsko nepovažujeme medzi krajiny, ktoré by boli schopné pokryť súčasné potreby sestier migrujúce zo Slovenska. Vývoj mzdového odmeňovania podlieha klasifikácii FEOR – 08, ktorá poskytuje informácie o mzdovom vývoji všetkých pracovných profesii v krajine.

V Poľsku bude vývoj mzdového ohodnotenia na porovnateľnej úrovni, len za kratšie časové rozpätie. Poľsko spracováva štatistické dáta len každé dva roky, preto je mzdový vývoj znázornený v porovnaní v rokoch 2010 – 2018. Samotné Poľsko podlieha klasifikácii KZiS, čo v preklade znamená *„Klasifikácia povolaní a špecialistov"*. Táto klasifikácia sa vzťahuje na všetky zamestnania v Poľsku a je podobná našej klasifikácii SK – ISCO 08. Vývoj mzdy podľa tabuľky napovedá, že mzda sa v sledovaných obdobiach zvyšovala. Ak by sme porovnali priemernú hrubú mesačnú mzdu v roku 2018 so mzdami krajín V4, tak Poľsko, čo sa týka výšky mzdy je hneď za Českou republikou.

Tabuľka 5: Percentuálne vyjadrenie zmeny vývoja miezd a pôrodných asistentiek v krajinách V4

Štát V4	Zdravotnícke povolanie	2012	2013	2014	2015	2016	2017	2018	2019	Priemerný medziročný nárast v %
SR	Zdravotné sestry	x	1,57	3,21	2,99	2,42	2,48	5,76	9,48	3,99
	Pôrodné asistentky	x	-4,35	-4,92	16,60	3,19	5,41	5,55	13,39	4,98
ČR	Zdravotné sestry so špecializáciou	x	-0,69	2,78	7,05	4,42	11,66	12,45	10,52	6,88
	Pôrodné asistentky bez špecializácie	x	-1,92	4,46	4,16	7,69	-10,20	35,33	13,59	7,59
HU	Profesionálne sestry	x	-4,41	27,19	-5,80	1,15	25,67	21,94	48,26	16,29
	Profesionálne pôrodné asistentky	x	-8,07	35,98	-12,08	2,13	31,55	20,81	48,47	16,97
PL	Zdravotné sestry	2,82	x	3,70	x	21,30	x	29,23	x	14,26
	Pôrodné asistentky	-2,04	x	4,31	x	22,80	x	29,97	x	13,76

Zdroj: Vlastné spracovanie podľa údajov ISPV, KSH, ITM, GUS, 2022

V tabuľke sme percentuálne vyhodnocovali medziročný vývoj miezd vo všetkých krajinách V4. Z tohto hľadiska môžeme konštatovať, že najpomalší nárast miezd sestier je v rámci krajín V4 na Slovensku. Záporné hodnoty nám poukazujú na pokles miezd pôrodných asistentiek na Slovensku v rokoch 2013 a 2014. V Českej republike v roku 2013 a v roku 2017. V Maďarsku 2013 a 2015 pri oboch typoch zdravotníckeho povolania a v Poľsku došlo k poklesu v roku 2012. V Maďarsku môžeme sledovať najvyšší nárast miezd v posledných troch rokoch sledovaného obdobia Priemerný medziročný nárast je zaznamenaný v nasledujúcej postupnosti: Maďarsko, Poľsko, Česko Slovenko. V Slovenskej republie je zaznamenaný najpomalší priemerný medziročný nárast miezd sestier a pôrodných asistentiek.

Tabuľka 6: Medziročné rozdiely vývoja miezd sestier a pôrodných asistentiek v krajinách V4

Štát V4	Zdravotnícke povolanie	2012	2013	2014	2015	2016	2017	2018	2019	Priemerný medziročný nárast miezd
SR	Zdravotné sestry	x	12,00	25,00	24,00	20,00	21,00	50,00	87,00	34,14
	Pôrodné asistentky	x	-36,00	-39,00	125,00	28,00	49,00	53,00	135,00	45,00
ČR	Zdravotné sestry so špecializáciou	x	-7,00	28,00	73,00	49,00	135,00	161,00	153,00	84,57
	Pôrodné asistentky bez špecializácie	x	-18,00	41,00	40,00	77,00	-110,00	342,00	178,00	78,57
HU	Profesionálne sestry	x	-20,00	118,00	-32,00	6,00	135,00	145,00	389,00	105,86
	Profesionálne pôrodné asistentky	x	-31,00	127,00	-58,00	9,00	136,00	118,00	332,00	90,43
PL	Zdravotné sestry	20	x	27	x	161	x	268	x	119,00
	Pôrodné asistentky	-15	x	31	x	171	x	276	x	115,75

Zdroj: Vlastné spracovanie podľa údajov ISPV, KSH, ITM, GUS, 2022

V tejto časti sme vyhodnocovali priemerný medziročný nárast miezd sestier a pôrodných asistentiek v číslach. Ako sme vyhodnotili v prechádzajúcom prípade, najpomalšie narastajú platy sestier a pôrodných asistentiek na Slovensku, následne v Česku, Poľsku a v Maďarsku. Tu sa však dá poukázať na fakt, že aj keď mzdy v ČR majú priemerný rast pomalší ako Poľsko či Česko, tak výška ich platov je počas celého sledovaného obdobia najvyššia. Čo sa týka miezd na Slovensku, aj v roku 2022 sa zaznamenal nárast mzdy. Iveta Lazorová hovorkyňa Slovenskej komory sestier a pôrodných asistentiek na Slovensku poukázala, že platy sa sestrám zdvihli o 3,75% čo robí cca 36€ – 45€ v hrubom.

DISKUSIA

Mzdy zdravotných sestier sa prepočítavajú na základe automatu, podľa ktorého sa valorizujú platy sestier. Mzda sestier pre rok 2022 sa vypočítala z priemernej mzdy v národnom hospodárstve z roku 2020, ktorá bola 1133€, pre určenie základnej zložky mzdy zamestnanca pre rok 2022 podľa zákona NR SR *č. 578/2004 Z .z.* Valorizácia mzdy zdravotníckych pracovníkov pracujúcich v ústavných zdravotníckych zariadeniach bez ohľadu na zriaďovateľa.

Slovenská komora sestier a pôrodných asistentiek poukazuje na výrazný rozdiel slovenského a českého odmeňovania zdravotných sestier. V Českej republike sú platy sestier v súčasnosti na vyššom stupni. Od januára 2022 sa mzdy za prácu zvýšili o 6% a na Slovensku len o 3,75%. (SK SaPA, 2022) ďalej uvádza, že do Česka odchádza najviac našich sestier za prácou, aj kvôli tomu, že sa nemusia učiť český jazyk, pretože je podobný nášmu a tak sa nemusia zaťažovať jazykovými bariérami Podľa SK SaPA čelí Slovensko kríze ošetrovateľskej pracovnej sily. Prístup a systém manažérov a politikov vyháňa zdravotné sestry a pôrodné asistentky, ktoré nie sú nijakým spôsobom motivované zotrvať a pracovať na Slovensku, ale naopak, podporuje ich motívy hľadať si prácu v zahraničí.

4. ZÁVER

Predmetom našej štúdie bolo analyzovať a zistiť mieru spokojnosti s platovými podmienkami ako hlavnej migračnej pohnútky. Ako sme vypozorovali viacerí autori sa zhodujú v tom, že motiváciu pre migráciu sestier ovplyvňuje množstvo hospodárskych, sociálnych či ekonomických faktorov. Najväčšie migračné toky vychádzajú z krajín s nízkymi príjmami do krajín so strednými a vyššími príjmami. Výnimkou nie je ani Slovenská republika, ktorá trpí

dlhodobým nedostatkom sestier v nemocniciach. Jedným z hlavných dôvodov migrácie slovenských sestier je práve výška mzdy. Hlavným výsledkom štúdie bolo vyzistiť mieru spokojnosti so mzdovým ohodnotením sestier na Slovensku. Preto sme v štúdií porovnávali mzdové podmienky sestier v zdrojovej krajine so zahraničím, keďže rozhodujúci factor pre migráciu sme určili výšku príjmu. Ako tvrdí aj SK SaPA, najviac slovenských sestier migruje za prácou práve do Českej republiky, ktorá po finančnej stránke lepšie zabezpečuje mzdy sestier. Prostredníctvom spracovania dotazníkového prieskumu sme vyhodnotili bodovacou metódou migračné motívy, kde na prvom mieste dominovala výška mzdy. Možno konštatovať, že táto nespokojnosť bude slovenské sestry ďalej motivovať k hľadaniu si práce v zahraničí.

Dodatok

Táto práca bola podporovaná Agentúrou na podporu výskumu a vývoja na základe Zmluvy č. APVV-19-0579 a Vedeckou grantovou agentúrou MŠVVaŠ SR a SAV prostredníctvom projektu s názvom: Ekonomické aspekty emigrácie absolventov vysokých škôl v zdravotníckych odboroch v kontexte udržateľnosti personálneho zabezpečenia zdravotníckych zariadení v SR č. 1/0691/22.

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VÝZNAM VÝSKUMU, INOVÁCII A DIGITALIZÁCIE V 21. STOROČÍ

THE IMPORTANCE OF RESEARCH, INNOVATION AND DIGITIZATION IN THE 21ST CENTURY

Veronika ŽÁRSKÁ[85]
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Abstrakt: *Výskum a inovácie sú v súčasnosti považované za dôležité nástroje zvyšovania ekonomickej výkonnosti a konkurencieschopnosti a sú jedným zo základných faktorov prispievajúcim k digitálnej transformácii hospodárstiev. Ak chcú krajiny naďalej prosperovať, musia na makro i mikroúrovni systematicky podporovať všetky procesy vedúce k modernizácii. Napriek tomu, že prínosy týchto aktivít sú nespochybniteľné, mnoho krajín len veľmi pomaly pristupuje k navyšovaniu financovania výskumných činností, či zavádzaniu digitálnych prvkov a inovácii v iných oblastiach. Cieľom článku je analyzovať vývoj ukazovateľov z oblasti výskumu, digitalizácie a inovácii v štyroch vybraných krajinách EÚ (Slovensko, Česko, Rumunsko a Dánsko) - aká je výška investícii smerujúcich do výskumu, aké miesto mu patrí v jednotlivých hospodárstvach, ako prvky digitalizácie postupne prenikajú na trh práce a ako na ne reagujú podniky, ako aj ako sa malé a stredné podniky zapájajú do inovačných aktivít.*

Kľúčové slová: *digitalizácia, inovácie, ľudský kapitál, male a stredné podniky, výskum*

Abstract: *Research and innovation are now seen as important tools for improving economic performance and competitiveness and are one of the key factors contributing to the digital transformation of economies. To continue to prosper, countries need to systematically support all processes leading to modernisation at both macro and micro levels. Although the benefits of these activities are unquestionable, many countries have been slow to increase funding for research activities or to introduce digital elements and innovations in other areas. The aim of this paper is to analyse the development of indicators in the field of research, digitisation and innovation in four selected EU countries (Slovakia, the Czech Republic, Romania and Denmark) - what is the level of investment in research, what is the place of research in each economy, how elements of digitisation are gradually penetrating the labour market and how businesses are responding to them, as well as how SMEs are engaging in innovation activities.*

Key words: *digitization, human capital, innovations, research, small and medium enterprises*

JEL Classification: *O30, O32, O52*

1. ÚVOD

Vo vedomostnej ekonomike je stále väčší dôraz kladený na realizáciu výskumu. Investície do výskumu a inovácií sa považujú za jeden zo základných faktorov, ktoré vedú k hospodárskej prosperite a udržaniu si konkurencieschopnosti na mikro aj makroúrovni. V posledných desaťročiach sa veľa hovorí najmä o automatizácii a digitalizácii procesov. Napriek tomu, že zavádzanie digitálnych prvkov či akýchkoľvek iných inovácií má nespochybniteľné prínosy, stále sa možno stretnúť s prípadmi, kedy je ich zavádzanie sprevádzané odporom zo strany spoločnosti, či prípadmi kedy je týmto procesom venovaná nedostatočná pozornosť zo strany podnikov či vlád jednotlivých krajín. Zamestnanci sa bránia zavádzaniu moderných technológii z dôvodu, že ich využívanie môže zmeniť celkový charakter práce. Práca sa tak

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môže stať intelektuálne náročnejšou, či vyžadovať, aby zamestnanci disponovali novými znalosťami a schopnosťami, ktoré si musia osvojiť, aby mohli aj naďalej zotrvať na svojom pracovnom mieste. Podniky zasa nejavia záujem o zavádzanie nových technológií, pretože to je spojené so zvýšenými investíciami, na ktoré často najmä malé a stredné podniky nemajú dostatok zdrojov.

2. TEORETICKÉ VÝCHODISKÁ

S rozvojom vedomostnej ekonomiky a s tým súvisiacim stále väčším dôrazom kladeným na vedomosti začína v spoločnosti narastať záujem o ľudský kapitál a vytváranie priaznivých podmienok pre jeho uplatnenie. Význam ľudského kapitálu je umocnený rozvojom procesov, ktoré prebiehajú v súvislosti s Industry 4.0. V 21. storočí sa základom dynamického rozvoja spoločnosti stávajú inovácie. Ich zavádzaniu predchádzajú čoraz komplikovanejšie procesy, na pozadí ktorých musia stáť špičkoví odborníci. Predpokladom zavádzania inovácii je realizácia výskumu, pričom ľudský kapitál je základným vstupom do výskumu (Eriksson a kol., 2022). Napriek tomu, že je výskum základným činiteľom, vďaka ktorému možno produkovať inovácie, prístup k podpore výskumu a vývoja je medzi krajinami rozličný. Aj v súčasnosti stále existujú krajiny, ktorých hospodárstva sú založené prevažne na priemysle či poľnohospodárskej produkcii a nízkych nákladoch práce, pričom výskumu je v nich venovaná nedostatočná pozornosť, napriek tomu, že čoraz viac sú jeho výsledky uplatňované aj v týchto oblastiach. Nech už je úroveň výskumu a vývoja v jednotlivých krajinách akákoľvek, jeho základná priorita je väčšinou rovnaká – ide najmä o prepojenie získaných vedeckých poznatkov s ich následným využitím v praxi (Halaskova a kol., 2020). Pokiaľ by výsledky výskumných aktivít neboli aplikované do každodenného fungovania spoločnosti, rapídne by klesala efektivita výskumu.

Na to, aby bola na oblasť vedy a výskumu sústredená stále väčšia pozornosť, vyvíja tlak aj prudký rozvoj procesov digitalizácie v poslednom období, ku ktorému prispel príchod pandémie Covid-19 na začiatku roka 2020. Digitálne technológie sú dnes súčasťou takmer všetkých odvetví, či už ide o výrobné procesy, logistiku, dopravu, bankovníctvo,... a stále viac ovplyvňujú a menia aj osobný život ľudí (Piatkowski, 2020). Podniky naprieč celým svetom si uvedomujú zmeny, ku ktorým globálne dochádza a prostredníctvom ich implementovania do svojho fungovania sa snažia udržať si konkurencieschopnosť. Je preukázané, že zvýšenie zásob rôznych typov ľudského kapitálu vedie k nárastu inovačnej aktivity (Teslenko a kol., 2021). Intelektuálny ľudský kapitál je tak z hľadiska samotných podnikov dôležitý pre rozvoj inovácií a od neho závisí udržateľnosť podnikania - úspešnú udržateľnosť podnikania možno dosiahnuť prostredníctvom takých štýlov vedenia ľudí, ktoré dokážu zabezpečiť súlad medzi kompetenciami, kreativitou zamestnancov a ich rozvojom (Amran a kol., 2021). Nestačí však, aby podniky disponovali technológiou a personálom, ale musia vedieť tieto technológie aj efektívne využívať, aby mohli čerpať výhody s prijatia IKT, pretože práve táto skutočnosť sa stáva dôležitým pilierom udržania ich konkurencieschopnosti (Martin a kol., 2013). V kontexte zavádzania nových technológií sa preto stáva dôležitým realizovať rôzne školenia a rekvalifikácie, kde zamestnancom budú predstavené všetky možnosti využitia, ktorými nová technológia disponuje. Zabráni sa tým tomu, že efekt zo zavedenia novej technológie by bol len čiastkový, pretože niektoré jej možnosti by zostali nevyužité.

Veľké podniky síce majú väčšie možnosti a viac zdrojov na zavádzanie nových technológii, avšak keďže v rozvojových a rozvinutých krajinách je väčšina pracovnej sily zamestnaná v malých a stredných podnikoch, veľmi často sa sleduje práve ich inovačná výkonnosť a zapájanie do technicky náročnejších procesov (Singh a kol., 2008). Aj samotná EÚ si uvedomuje nevyhnutnosť podporovať a posilňovať inovačnú schopnosť najmä malých a stredných podnikov. Veľká časť európskych zdrojov v oblasti výskumu, vývoja a inovácií je určená na rozvoj práve týchto veľkostných kategórii podnikov napr. prostredníctvom podpory nákupu technológií potrebných pre zavádzanie inovácií či poskytovanie poradenských a

vzdelávacích aktivít pre MSP v oblasti podnikania (Ministerstvo dopravy a výstavby SR, 2022).

Zatiaľ čo na mikroúrovni je potrebné venovať pozornosť trom hlavným oblastiam: ľudské zdroje, informačno-komunikačné technológie a manažment, tak na makroúrovni je potrebné zamerať ju na investície a ich efektivitu. Rozvoj udržateľnej ekonomiky založenej na inováciách a jej konkurencieschopnosti úzko súvisí s dôsledným investovaním do výskumu a efektívnej prípravy odborníkov pre túto oblasť (Garbuz a Topala, 2017). Predmetom záujmu teda nemôže byť iba samotný rozvoj výskumných aktivít, ale aj ich zabezpečenie adekvátnymi ľudskými zdrojmi, ktoré by mal byť schopný vyprodukovať systém vzdelávania. Viacero krajín sa však potýka s rovnakým problémom: systém vzdelávania dostatočne rýchlo nezareagoval na zmeny, ku ktorým dochádza na trhu práce, pretrval v zastaralej podobe a nie je schopný produkovať ľudí s takými charakteristikami, o ktoré je záujem. Mnohí jednotlivci si tak napriek získanému vzdelaniu nevedia nájsť uplatnenie a naopak, niektoré pracovné miesta nemá kto obsadiť. Takýto nesúlad na trhu práce nie je spôsobený len signifikantnými zmenami, ku ktorým v hospodárstvach dochádza, ale aj pomalými reakciami vlád jednotlivých krajín na tieto zmeny. V súčasnosti najmä tie krajiny, ktoré systematicky rozvíjajú ľudský kapitál, reformujú systém vzdelávania, podporujú IKT sektor a snažia sa zvyšovať kvalitu inštitucionálneho prostredia, spravidla bývajú úspešné v hospodárskom rozvoji, a to i vtedy ak nemajú k dispozícii dostatok prírodných zdrojov (Entele, 2021).

Digitalizácia, výskum a inovácie sú veľmi úzko prepojené oblasti, pričom rozvíjanie všetkých troch súčasne je základným predpokladom pokroku. Digitalizácia transformuje výskum a inovácie, z toho dôvodu je potrebné podporovať špičkové technológie, digitálne zručnosti výskumných pracovníkov a súčasne prostredníctvom dostatočných investícií zabezpečovať vysokokvalitné dátové infraštruktúry (Filus, 2020). Ide o náročné procesy, ktoré môžu efektívne prebiehať jedine pod vedením vysokokvalifikovaného ľudského kapitálu.

3. CIEĽ A METODOLÓGIA

Cieľom príspevku je identifikovať aká je podpora výskumu a vývoja vo vybraných krajinách, aké miesto mu patrí v jednotlivých hospodárstvach, ako jednotlivé prvky digitalizácie postupne prenikajú na trh práce, ako aj ako sa malé a stredné podniky zapájajú do inovačných aktivít.

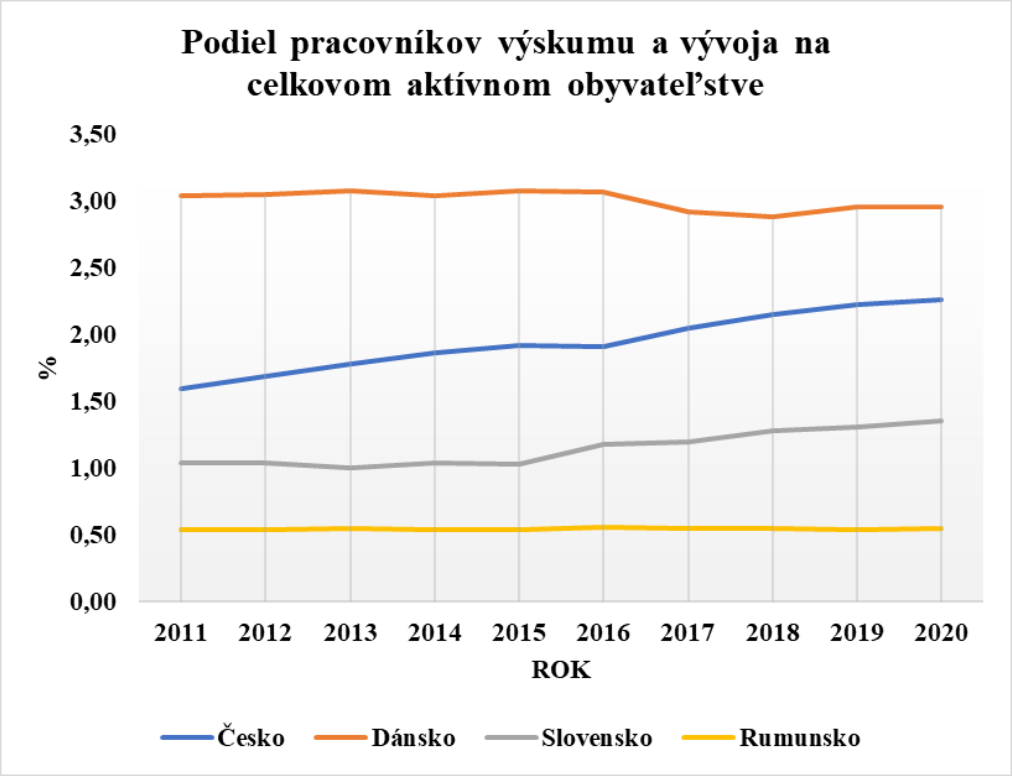
Do analýzy boli zahrnuté okrem Slovenska tri ďalšie krajiny EÚ: Česko, ktorého hospodárstvo má historicky blízke väzby na SR a takisto podobné podmienky pre rozvoj, Dánsko patriace k najvyspelejším krajinám EÚ a Rumunsko, ktoré naopak patrí k najmenej rozvinutým európskym krajinám. Štatistické ukazovatele sme čerpali z Eurostatu a z databáz Európskej komisie. Ukazovatele budú sledované do roku 2020, resp. 2021 tam, kde dostupnosť dát umožnila zahrnúť aj tento rok.

Na splnenie stanoveného cieľa bolo využitých niekoľko vedeckých metód. V teoretickej časti príspevku išlo najmä o metódu indukcie, dedukcie a analýzy. Pri spracovaní štatistických údajov bola využitá metóda analýzy časových radov a metóda komparácie. Nakoniec pri formulovaní záverov sme uplatnili metódu syntézy.

4. VÝSLEDKY A DISKUSIA

Rozvoj výskumných aktivít, ako aj tempo zavádzania inovácii vrátane digitálnych prvkov do procesov prebiehajúcich v hospodárstvach je v jednotlivých krajinách rôzne. Vyspelé krajiny zodpovednejšie a systematickejšie pristupujú k modernizácii svojich hospodárstiev, zatiaľ čo v menej vyspelých sú tieto procesy len pozvoľné.

Obrázok 1: Podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve



Zdroj: Eurostat, vlastné spracovanie

Najvyšší podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve z krajín zahrnutých do analýzy vykazovalo počas celého sledovaného obdobia Dánsko – okolo 3%. V Česku bol podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve síce nižší ako v Dánsku, avšak dynamicky sa zvyšoval – z 1,60% v roku 2011 na hodnotu 2,26% v roku 2020, čím sa ČR Dánsku výraznejšie priblížilo. Aj v SR sa síce podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve v priebehu sledovaného obdobia zvyšoval, nie však tak výrazne ako v ČR – iba o 0,31 p.b. z 1,04% v roku 2011 na 1,35% v roku 2020. V Rumunsku, ktoré patrí k najmenej rozvinutým európskym krajinám, sme zaznamenali stagnáciu. Podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve sa počas celého sledovaného obdobia pohyboval v rozmedzí 0,54% - 0,56%.

Tabuľka 1: Výdavky na výskum a vývoj na obyvateľa v €

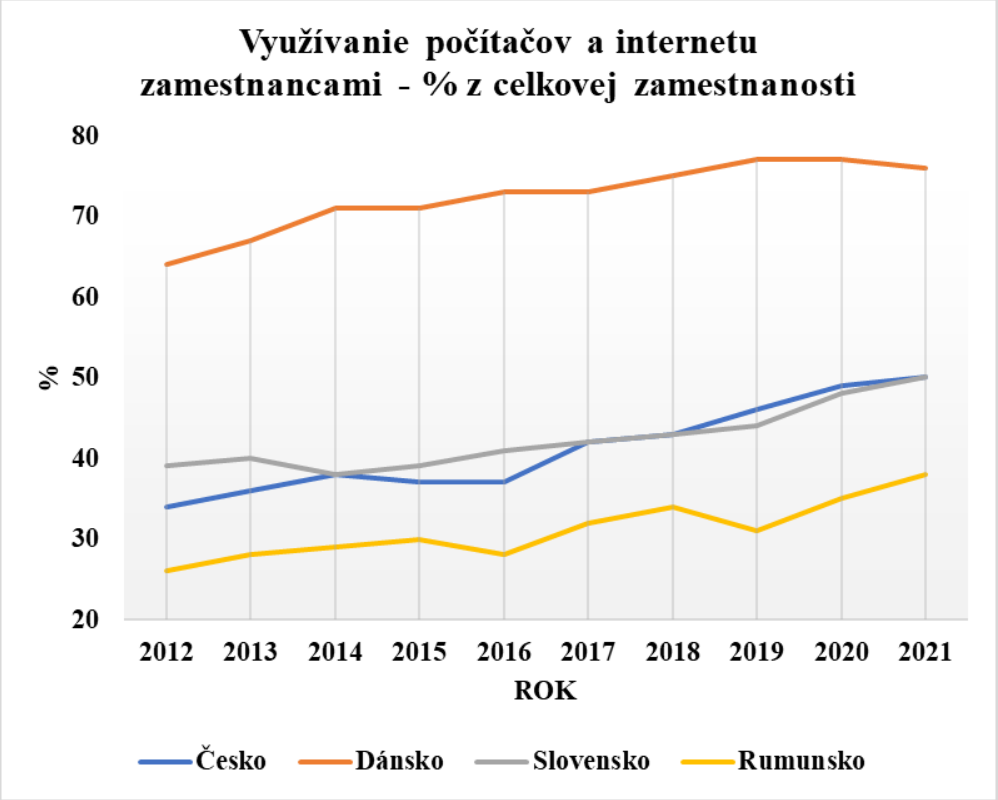
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Česko	243	274	285	294	308	281	325	378	408	401
Dánsko	1313	1360	1372	1376	1474	1534	1503	1551	1569	1625
Slovensko	87	108	113	124	171	118	138	138	143	154
Rumunsko	33	32	28	29	39	41	48	53	55	53

Zdroj: Eurostat

Výška výdavkov smerujúca do výskumu a vývoja kopíruje výšku podielu pracovníkov vo výskume a vývoji. V Dánsku, kde bol podiel týchto pracovníkov na celkovom aktívnom obyvateľstve najvyšší spomedzi sledovaných krajín, sú najvyššie aj výdavky na obyvateľa. Od roku 2011 sa zvýšili o 312 € až na 1625 € v roku 2020. Ostatné krajiny zahrnuté do analýzy na výskum a vývoj vynakladajú oveľa menšie čiastky. V Česku to v roku 2020 bolo

401 €, čo predstavovalo oproti roku 2011 nárast v absolútnom vyjadrení o 158 €. Na Slovensku v roku 2020 výška výdavkov na výskum v prepočte na obyvateľa činila 154 €, pričom od roku 2011 išlo o zvýšenie o 67 €. Najnižšie investície do výskumu a vývoja sme zaznamenali pri Rumunsku. V roku 2020 predstavovali iba 53 € na obyvateľa. Investovanie do tejto oblasti v Rumunsku dlhodobo stagnuje, krajina naďalej zostáva prevažne poľnohospodárskou a priemyselnou ekonomikou založenou na nízkych nákladoch, čo potvrdzuje aj jeden z najnižších podielov pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve v rámci krajín EÚ. Okrem poľnohospodárskej produkcie sa v Rumunsku rozvíja najmä energetický a automobilový priemysel, pričom do týchto oblastí je smerované aj gro vládnej podpory (Ministerství zahraničních věcí ČR, 2022). Mnohé ďalšie oblasti zostávajú na pokraji záujmu, napriek tomu, že sa v nich čoraz zreteľnejšie prejavuje zaostávanie za zvyškom Európy.

Obrázok 2: Využívanie počítačov a internetu zamestnancami - % z celkovej zamestnanosti



Zdroj: Eurostat, vlastné spracovanie

Rast podielu zamestnancov, ktorí využívajú pri práci počítače a internet vo všetkých sledovaných krajinách súvisí s rozvojom procesov digitalizácie. Podiel zamestnancov, ktorí využívajú počítače a internet na celkovej zamestnanosti bol spomedzi sledovaných krajín najvyšší v Dánsku – až 76% zamestnancov pri svojej práci v roku 2021 potrebovalo počítač a internet. V ČR, SR a Rumunsku je tento podiel výrazne nižší, avšak vo všetkých troch na rozdiel od Dánska stále dominuje priemyselná výroba. Avšak aj v priemyselnej výrobe vplyvom automatizácie a digitalizácie sa stále rozširuje počet pracovných miest, na ktorých je počítač a internet nevyhnutnou súčasťou práce. V Česku a na Slovensku bol v roku 2021 podiel zamestnancov, ktorí využívajú počítače a internet na celkovej zamestnanosti 50%, v Rumunsku to bolo 38%.

Tabuľka 2: Podniky, ktoré poskytovali odbornú prípravu na rozvoj/modernizáciu IKT zručností svojich zamestnancov - % podnikov

	2014	2015	2016	2017	2018	2019	2020
Česko	22	22	22	23	25	25	25
Dánsko	30	29	28	27	28	31	30
Slovensko	17	19	20	17	18	18	16
Rumunsko	5	5	5	4	5	6	6

Zdroj: Eurostat

Najvyšší podiel podnikov, ktoré poskytovali odbornú prípravu na rozvoj/modernizáciu IKT zručností svojich zamestnancov bol spomedzi sledovaných krajín v Dánsku (30% v roku 2020), kde bol zároveň najvyšší aj podiel zamestnancov, ktorí využívajú počítače a internet na celkovej zamestnanosti. Hoci v SR a ČR bol podiel zamestnancov, ktorí využívajú počítače a internet na celkovej zamestnanosti podobný, v ČR oveľa vyššie % podnikov zabezpečuje odbornú prípravu vedúcu k rozvoju IKT zručností svojich zamestnancov. Negatívne však vyznieva predovšetkým stav v Rumunsku, kde odbornú prípravu vedúcu k rozvoju IKT zručností svojich zamestnancov zabezpečovalo v roku 2020 iba 6% podnikov.

Tabuľka 3: Podiel inovujúcich MSP

		2014	2015	2016	2017	2018	2019	2020	2021
Podiel MSP zavádzajúcich produktové inovácie	**Česko**	23,6	23,6	23,6	23,4	23,4	24,1	24,1	25,2
	Dánsko	23,3	23,3	23,3	23,3	23,3	23,8	23,8	31,5
	Rumunsko	2,8	2,8	2,8	3,2	3,2	3,0	3,0	9,4
	Slovensko	13,1	13,1	13,1	11,2	11,2	12,5	12,5	14,0
Podiel MSP zavádzajúcich inovácie obchodných procesov	**Česko**	30,6	30,6	30,6	26,9	26,9	35,2	35,2	38,9
	Dánsko	34,7	34,7	34,7	31,3	31,3	34,1	34,1	46,2
	Rumunsko	18,3	18,3	18,3	10,1	10,1	7,9	7,9	7,6
	Slovensko	26,3	26,3	26,3	23,4	23,4	20,5	20,5	21,1

Zdroj: https://ec.europa.eu/docsroom/documents/46934

Kým do roku 2020 bol podiel MSP zavádzajúcich produktové inovácie v Česku a Dánsku takmer rovnaký, v roku 2021 sa situácia zmenila. V Dánsku sa tento podiel zvýšil na 31,5%, čo v porovnaní s predchádzajúcimi rokmi predstavovalo pomerne výrazný prírastok, zatiaľ čo v Česku dosiahol iba hodnotu 25,2%. Aj v Rumunsku došlo k skokovému zvýšeniu tohto podielu, avšak % MSP zavádzajúcich produktové inovácie tam zostáva v porovnaní s ďalšími krajinami stále nízke. Rumunsko sa však dosiahnutou hodnotou priblížilo k Slovensku, kde podiel MSP zavádzajúcich produktové inovácie dosahuje hodnotu 14%. Odlišná situácia bola zaznamenaná pri vývoji podielu MSP zavádzajúcich inovácie obchodných procesov. Zatiaľ čo v SR a v Rumunsku sa podiel týchto MSP od roku 2014 znížil, v Rumunsku dokonca výrazne, v Česku a Dánsku došlo v porovnaní s rokom 2014 k jeho zvýšeniu. Hoci časť zavádzaných inovácii mohla byť dôsledkom pandémie, nepredpokladáme, že pandémia bola jediným činiteľom, ktorý sa podpísal pod zmeny podielu inovujúcich MSP, nakoľko aj v čase pred príchodom pandémie boli v niektorých rokoch zaznamenané výraznejšie úbytky/prírastky podielu. Niektorí autori sú však toho názoru, že práve pandémia výrazne ovplyvnila inovačnú činnosť, pretože inovácie sú kľúčovým aspektom oživenia podnikov v období počas pandémie ako aj po pandémii (Caballero-Morales, 2021).

5. ZÁVER

Ak chcú jednotlivé krajiny zostať aj v 21.storočí konkurencieschopné a úspešné v hospodárskom rozvoji, musia venovať pozornosť globálnym trendom. Zmeny prebiehajúce v dôsledku rozvoja procesov súvisiacich s Industry 4.0, podnietené pandémiou Covid-19 či súčasnou hrozbou energetickej krízy, vyžadujú rýchle zavádzanie inovácii a digitálnych prvkov do všetkých oblastí. Vzrastá tak úloha výskumu v hospodárstvach všetkých krajín. Zriaďovanie výskumných a vývojových centier sa stáva predpokladom pokroku. V súvislosti s tým sa vo väčšine krajín zvyšuje podiel pracovníkov výskumu a vývoja na celkovom aktívnom obyvateľstve. Naďalej však existujú aj také, kde táto oblasť stagnuje, o čom svedčia aj veľké rozdiely vo výške výdavkov ktoré jednotlivé krajiny vynakladajú na výskum a vývoj v prepočte na obyvateľa. Podobné rozdiely možno nájsť aj v miere digitalizácie procesov či v zapojení podnikov do inovačných aktivít. Krajiny strednej a juhovýchodnej Európy väčšinou zaostávajú za európskymi lídrami, avšak v mnohých z nich už možno badať trend vzrastajúcej podpory tejto oblasti. Takýmto príkladom je Česko, kde v priebehu desiatich rokov došlo v porovnaní s ďalšími krajinami k pomerne výraznému nárastu podielu pracovníkov zamestnaných vo výskume a vývoji. Investície do tejto oblasti však zostávajú napriek tomu relatívne nízke. Podiel zamestnancov, ktorí využívajú pri práci počítače a internet je podobný ako v SR, avšak v ČR sa vyššie % podnikov zaujíma o rozvoj IKT zručností svojich zamestnancov. Tieto pozitívne trendy sa odrážajú aj vo vývoji podielu inovujúcich MSP. ČR sa v tomto ukazovateli približuje vyspelým západným krajinám.

Dodatok

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