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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 - 11. November 2021:

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***
  " THE CURRENT SITUATION AND CHALLENGES IN THE LABOUR MARKET FROM THE EMPLOYERS' PERSPECTIVE"
  The National Union of Employers

- ***Mario MOJŽIŠ***
  " CHALLENGES AND TRENDS OF HUMAN RESOURCES IN PRACTICE "
  Human Resources Manager, Enics Slovakia s.r.o.

Lunch **12^{00} - 13^{00}**

Conference sections **13^{00} - 15^{30}**

Section 1 (CP105) - Digital economy and education system changes within the labour market demand

Chair: Ing. Tatiana MASÁROVÁ, PhD.

- ***Linda ZUMMEROVÁ, Frédéric DELANEUVILLE***
  FRENCH DIRECT INVESTMENTS IN SLOVAKIA AND ITS IMPACT ON REGIONAL ECONOMIC DEVELOPMENT

- ***Monika VOJTEKOVÁ, Ján RUDY***
  EFFECTS OF THE COVID-19 PANDEMIC ON EMPLOYEES AND WORKPLACE RELATIONSHIPS

- ***Monika VOJTEKOVÁ, Ján RUDY***
  THE IMPACT OF THE COVID-19 PANDEMIC-RELATED WORK FROM HOME ON SELECTED ASPECTS OF HUMAN RESOURCE MANAGEMENT IN SLOVAKIA

- ***Eva RIEVAJOVÁ, Jakub HARMAN***
  GENDER EQUALITY AND ECONOMIC GROWTH – EVIDENCE FROM V4 COUNTRIES

- ***Ieva PETROKE, Valentinas NAVICKAS, Vaida BACIULIENE***
  THE DEVELOPMENT OF MANAGERS' CREATIVE ENERGY POTENTIAL IN THE SHARING ECONOMY AND THE INDUSTRIAL REVOLUTION 4.0

- ***Tomas SKRIPKIŪNAS, Valentinas NAVICKAS***
  SPATIAL DEPENDENCY OF APARTMENT MARKET VALUE INSIDE A CITY

- ***Tatiana MASÁROVÁ, Magdaléna TUPÁ, Rolf KARBACH***
  EMPLOYEE SKILLS AND ABILITIES IN DIGITAL ECONOMY

- ***Magdaléna TUPÁ, Tatiana MASÁROVÁ, Rolf KARBACH***
  DEVELOPMENT OF HEALTH IN HEALTHCARE AND ITS IMPACT ON THE SUSTAINABILITY OF PERSONNEL SECURITY OF MEDICAL FACILITIES IN THE SLOVAK REPUBLIC

Section 2 (CP205) - Industry 4.0 and Labor Market Changes

Chair: doc. Ing Adriana GRENČÍKOVÁ, PhD.

- ***Darina SAXUNOVA, Li YUANXIN***
  EMPLOYEES' WELL-BEING AND THE MULTINATIONAL COMPANY PERFORMANCE IN THE DIGITALISATION AGE

- ***Dušan ŠOLTÉS***
  THE FUTURE OF THE EU VIS-A-VIS COPENHAGEN CRITERIA

- ***Marián AMBROZY, Iveta FEKIAČ SEDLÁKOVÁ***
  TO WHAT EXTENT IS BUSINESS ETHICS AUTONOMOUS?

- ***Nataliia ANTONIUK, Michaela HARNIČÁROVÁ***
  TALENT MANAGEMENT SYSTEM IN EDUCATION

- ***Vilma TUBUTIENE, Denisas RUDNIKAS***
  FACTORS DETERMINING EMPLOYEE SATISFACTION IN THE PERFORMANCE APPRAISAL

- ***Jana ŠPANKOVÁ, Adriana GRENČÍKOVÁ, Martin ŠRÁMKA*** KOMPARÁCIA MINIMÁLNEJ MZDY V RÁMCI KRAJÍN EÚ V KONTEXTE VPLYVU NA ZAMESTNANOSŤ

- ***Veronika ŽÁRSKÁ, Jaroslav VYHNIČKA***
  LABOR MARKET IN THE CONDITIONS OF DIGITAL ECONOMY AND PANDEMIC COVID-19

- ***Adriana GRENČÍKOVÁ , Jana ŠPANKOVÁ, Matej HÚŽEVKA***
  VÝVOJ NA TRHU PRÁCE VPLYVOM PANDÉMIE COVID-19

- ***Vladislav BERKOVIČ, Karol KRAJČO***
  IMPACT OF INDUSTRY 4.0 ON CHANGES ON THE LABOUR MARKET

Section 3 (online MS TEAMS) – Human capital quality performance within the Slovak economy competitiveness

Chair: Ing. Jana MASÁROVÁ, PhD.

- ***Patrik LAHUTA, Erika MOŠKOVÁ***
  THE NEED FOR EDUCATION OF MANAGERS IN THE FIELD OF RISK MANAGEMENT AS A PART OF BUSINESS FLOW MANAGEMENT IN SLOVAK ENTERPRISES

- ***Erika MOŠKOVÁ, Michal BRUTOVSKÝ, Katarína BUGANOVÁ***
  RISK MANAGEMENT IS A TOOL FOR FLEXIBLE ADAPTATION TO CHANGES IN THE ENVIRONMENT AND INCREASING THE RESILIENCE OF THE ENTERPRISE

- ***Jozef BARTEK***
  ROBOTS AND OLDER PEOPLE WITHIN LABOR MARKET IN SLOVAKIA AND EUROPEAN UNION

- ***Mária HUDÁKOVÁ, Peter KARDOŠ, Patrik LAHUTA***
  THE IMPACT ON RISK MANAGER - THE IMPORTANT PROFESSION CURRENTLY

- ***Cecília OLEXOVÁ***
  ONLINE LABOUR MARKET

- ***Andrea HORVÁTHOVÁ***
  SOFT SKILLS AS NECESSARY NEED TO DEVELOP HUMAN CAPITAL IN THE TERMS OF DIGITAL ECONOMY

- ***František STRUNGA***
  HOME OFFICE A JEHO ODKAZ NA ZMENY V SPÔSOBE VÝKONU PRÁCE DO BUDÚCNOSTI

- ***Natália POZSONYIOVÁ, Eva RIEVAJOVÁ***
  DOES THE ELECTRONIC FORM OF COMMUNICATION IN EMPLOYMENT OFFICES INCREASE THE EFFECTIVENESS OF THEIR SERVICES?

- ***Natália POZSONYIOVÁ, Peter SIKA***
  DOES THE SOCIAL SECURITY SYSTEM INFLUENCE THE LEVEL OF EMPLOYMENT OF DISADVANTAGED GROUPS?

- ***Eva GRMANOVÁ***
  ECONOMIC INACTIVITY OF THE POPULATION AND POSSIBILITIES OF ITS REDUCTION

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

Chair: Ing. Marcel KORDOŠ, PhD.

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- ***S. B. BYSTRIANTSEV, O. L. KIM, A. I. SALOV, P. S. BYSTRIANTSEV***
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- ***Nickolay ZAKHAROV, Andrey KUZNETSOV, Marina PERFILJEVA***
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- ***Jana Marie ŠAFRÁNKOVÁ, Martin ŠIKÝŘ***
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- ***Marcel KORDOŠ***
  QUALITATIVE STRUCTURE CHANGES OF WORKERS WITHIN THE INDUSTRY 4.0 CONCEPT

- ***Marcel KORDOŠ***
  DIGITISATION CONCEPT IN HEALTHCARE SYSTEM WITHIN THE COVID-19 ISSUE

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Chair: doc. Yuriy BILAN, PhD.

- ***Rūta ADAMONIENĖ, Aurelija PŪRAITĖ, Kipras KUVEIKA***
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- ***Nikolay KARMAEV, Andrey LOGOSTEV***
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Úvod

Medzinárodná vedecká konferencia „*Výzvy, trendy a inšpirácie na trhu práce 2021*“ nadväzuje na predchádzajúce úspešné konferencie pod názvom „Vplyv Industry 4.0 na tvorbu pracovných miest“ z minulých rokov 2018, 2019 a 2020, ktorých zborníky sú evidované v databáze Web of Science spoločnosti Clarivate Analytics (rok 2020 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 Ing. Mário Mojžiš HR Manager Enics Slovakia 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 2021"* builds on previous successful conferences from previous years 2018, 2019 and 2020 entitled "The Impact of Industry 4.0 on Job Creation", of which proceedings are registered in the Clarivate Analytics Web of Science database (2020 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 Ing. Mário Mojžiš - HR Manager Enics Slovakia 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 IMPACT OF INDUSTRIAL DEVELOPMENT ON CAREER MANAGEMENT IN PUBLIC SECURITY INSTITUTIONS

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Abstract: *In an ever-changing world, as job opportunities increase, so does competition in the job market. All this has a greater impact on human activities and public security institutions. Career is one of the most important roles in human life. In order to establish oneself and be significant and beneficial to the organization, a person must develop his or her career, however career opportunities depend not only on the wishes and efforts of the individual, but on the organization itself and its leaders as well. The activities of public security institutions are regulated by the statute and other legal acts, which results in different recruitment procedures and strict requirements and career development opportunities. Therefore, the aim of the article is to reveal the managerial and legal aspects of career management and implementation in public safety institutions and to present a model of career management and implementation opportunities in the perspective of 4.0 industry development. The development of a career management and implementation model would enable to offer an effective and reasonable individual career system for officials, focused on the pursuit of high-quality, fair and equitable career development in public security institutions.*

Key words: *public security institutions, police officers, career management*

JEL Classification: *M12, J24, L26*

1. INTRODUCTION

In an constantly changing world, increasing job opportunities are accompanied by increasing competition in the labour market. All this increasingly affects the activity of a person and her career in the organization. Career is one of the most important roles in human life and lifelong continuous development. The more attention the individual pays to his professional activities, develops her career, does not stop learning and developing, renews her knowledge, the more opportunities there are for striving to establish himself and be significant and useful to the organization. Career opportunities depend not only on the wishes and efforts of the individual, but also on the organization itself and its leaders. Career management in public security institutions is different from organisations in other fields. Activities of the bodies ensuring public security are regulated by statute and other legal acts. This leads to different admission procedures and is characterized by strict requirements and career development opportunities.

Career management and implementation in institutions that ensure public security is a subject that is analysed to a narrow extent. Theoretically, a number of aspects of career management are being explored, but there are very few studies conducted such as career management in these institutions . Also, there are discrepancies between the current situation and regulatory legislation regulating career development opportunities. A new paradigm of thinking has been formed, and certain phenomena and processes have begun to cause concern and internal conflict in the institutions that guarantee public security, between lower and upper level officials, as a result of unfair career development determined by surrounding influencing

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factors. Actions, ways, methods and measures that would prevent adverse circumstances from affecting the achievement of a high-quality, fair and equitable career development in these institutions are not properly defined. Due to the influential negative circumstances, a new approach and adjustment of legal norms is necessary in order to improve the situation in the institutions ensuring public security, which requires an analysis of the problem and an analysis of the research, which determines the relevance of this topic.

The current problem presupposes the question of whether there are sufficient legal measures and ways to prevent the negative circumstances influencing the pursuit of quality, fair and equitable career development in public security institutions, what could be improved and what should be changed. One of the first to investigate the problems of managing the career of police and customs officials in the country is A. Laurinavičius (2003). Although a larger study was carried out, legal measures and methods to prevent adverse circumstances remained unexplored, as the aim of the study was to "clarify the problems of managing the career processes of statutory career civil servants, draw the attention of researchers and practitioners to the career needs of officials, the need of society (government) to support their legitimate interests (rights), taking into account the development trends of public relations. " Therefore, according to the further directions of the research, the aim is to analyze the possibilities of career management and implementation in the statutory institution by conducting the analysis of legal acts, documents and a questionnaire survey. The issues of the research topic were solved on the basis of scientific works of Lithuanian and foreign scientists (Petkevičiūtė, 2003, 2006, 2013; Valickas, 2012; Sakalas, Šalčius, 1997; Adamonienė, 2015; Stanišauskienė, 2016; Gumuliauskienė, 2002; Super, 1980; Arthur, Hall, Lawrence , 1989; Arnold, 1997; Reardon et al., 2000; Blyton, Jenkins, 2007) and the laws of the Republic of Lithuania (hereinafter - the Republic of Lithuania). The aim of the article is therefore to reveal the managerial and legal aspects of career management and implementation in institutions that ensure public security and to provide a model of career management and implementation opportunities in the industrial development perspective 4.0. The development of a career management and implementation model would enable to offer an effective and reasonable individual career system for officials, focused on the pursuit of high-quality, fair and equitable career development in public security institutions.

2. FEATURES OF CAREER AND LEGAL ASPECTS OF PUBLIC SECURITY INSTITUTIONS

Career is important in the life of each individual, it is a lifelong process, a person's time that does not stop, and it aims to develop a sequence of their work experiences. Career is distinguished by the fact that its possibilities depend not only on the person's own attitude and career aspirations, but also on the leaders of the organization. One of the most distinctive features of a career is that the career process is regulated differently. Career regulation depends on the organization or institution in which the career is developed. Most often, the legislation establishes the order of how an individual can develop and pursue a career. As a result, a career in public security institutions is different from career in other organisations, as recruitment procedures and career processes are strictly regulated by law.

The legislators list such institutions as public security authorities in the statute of the internal service of the Republic of Lithuania. In accordance with article 4 of this statute, these bodies are distinguished by three areas of government: statutory bodies of the Minister of the Interior, statutory bodies of the Minister of Justice, statutory bodies of the Minister of Finance. The following list of statutory bodies is presented in accordance with Article 4 of this statute and the management areas it distinguishes (see Figure 1).

Figure 1. Public security authorities

Source: compiled by the authors based on Article four of the statute of the internal service of the Republic of Lithuania

As is known from the law on the civil service of the Republic of Lithuania, a statutory civil servant is a civil servant whose service is governed by a statutory statute. The activities of statutory police officers are governed by the law of the Republic of Lithuania and the statute of the internal service of the Republic of Lithuania. Paragraph 1 of Article 7 of the statute of the internal service of the Republic of Lithuania states that "the staff of the statutory bodies consists of officials, other civil servants and employees working under employment contracts." This means that although the staff of the statutory body consists of other civil servants as well, their career opportunities are regulated by the law on the civil service of the Republic of Lithuania. Paragraph 1 of Article 20 of the Law on the Police of the Republic of Lithuania states that “the status of a police officer shall be acquired by a person admitted to the position of an officer in accordance with the Statute.” Part of this article refers to the Statute of the Internal Service of the Republic of Lithuania, which states that a person applying for internal service must be a citizen of the Republic of Lithuania and speak the Lithuanian language; be not less than 18 years of age and not more than 60 years of age; have an impeccable reputation; to be loyal to the state of Lithuania; have at least a secondary education; be in a state of health which enables him to hold office within the internal service. Health requirements are set by the Ministers of the Interior and Health; be of such physical fitness that will enable the person to perform his duties in the internal service system. The requirements for the physical fitness of officials are set by the Minister of the Interior in agreement with the Ministers of Finance and Justice.

The Statute of the Internal Service of the Republic of Lithuania distinguishes a section entitled “Career of Officials”. Article 27 of the Statute states that "police officers may be promoted by evaluation or selection on the basis of official performance". Officials of the same statutory body or of another statutory body seeking senior officials may participate in the selection of vacant senior positions. A statutory official who has expressed a wish to participate in the selection for a vacant higher position must meet not only the requirements for a statutory civil servant, but also the requirements for the position for which he is applying.

In accordance with the statute of the internal service of the Republic of Lithuania, by written request, a statutory official may be transferred to other vacant equivalent or lower positions in the same or another statutory body and, at the written request of two officials in equivalent positions, the duties may be changed to each other. However, when officials are transferred to other posts, they must meet the required level of education for the post and the requirements set out in the job description.

Article 33 of the Statute of the Internal Service of the Republic of Lithuania states that an official may be transferred to a lower position: when the position is revoked; implementing the proposal of the performance appraisal commission - to transfer to a lower position; after the imposition of an official penalty - transfer to a lower position; when there is a conclusion of the Central Medical Examination Commission that the official is unable to perform his or her duties due to his or her state of health; when an official who has previously held that office is reinstated in his current duties by a judicial decision; at the end of the relevant period of service; at his own request.

However, even if it is possible to transfer an official to an equivalent post, the transfer of an official to a lower post shall be subject to the commission's proposal for transfer to a lower post, subject to a penalty of service – transfer to a lower post, and at its own request. It shall also be prohibited to place a statutory official in a lower position in the statutory body in which his spouse, cohabitant (partner), close relative or a person connected with him or her by marriage, in so far as there is a direct subordination between them in the course of his or her duties.

The performance of officials is evaluated annually. The qualifications of officials, the results of their service activities and their suitability for a post or higher are assessed. The official activities of statutory officials are assessed by their direct superiors. Direct managers can estimate service activities very well, well, satisfactorily, unsatisfactorily. An official who does not agree with the conclusion of the evaluation provided by the direct supervisor has the right to apply to the jury with a reasoned request to review the conclusion of the evaluation of the performance of duty and to attend the hearing of the jury in its deliberations.

In summary, it can be seen that the Statute of the Internal Service of the Republic of Lithuania defines the requirements for persons wishing to become statutory officers, indicates the ranks of statutory police officers and describes in a separate section the career of officers performance appraisal requirements and procedures.

3. MODEL OF CAREER MANAGEMENT AND IMPLEMENTATION OPPORTUNITIES IN PUBLIC SECURITY INSTITUTIONS

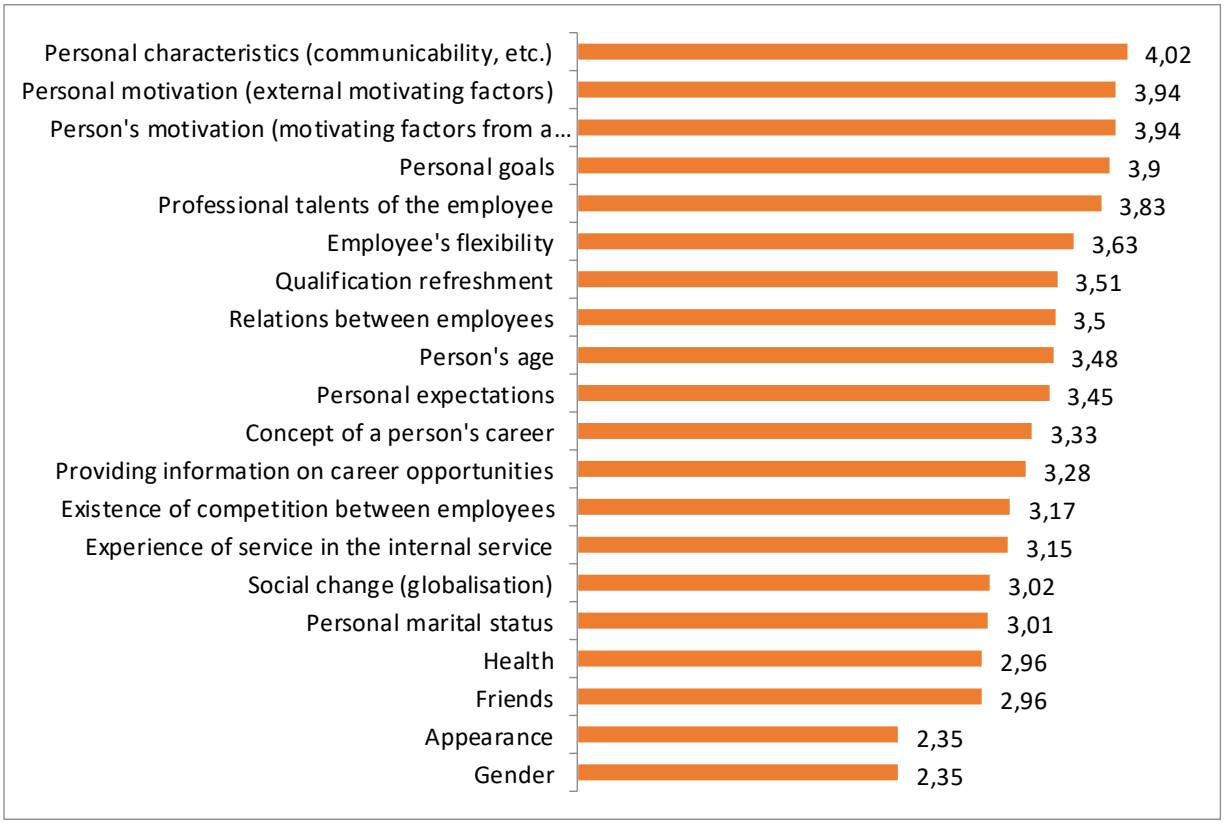
After analyzing the scientific literature and the thoughts of its authors, it became clear that career management and implementation are influenced by certain levels, which are divided into career management at the level of the individual and the level of the organization. In order to reveal the problems of career management and implementation opportunities, the study "Career Management and Implementation Possibilities in Institutions Ensuring Public Security" was conducted. The study used the method of analysis of the content of documents, the method of collecting empirical data, questioning and research. A questionnaire was compiled to conduct the study, consisting of 42 closed and 4 open questions. A web page was used to conduct the survey, indicating the purpose of the survey and ensuring the anonymity of the respondents, with no time limit.

The main groups of the questionnaire were related to the following issues: demographic issues; career perception; favorable career opportunities; career achievement; information on career development; opportunities for qualification refreshment; personal and organizational

careers; career opportunities; responsibility in the career management process; factors for career success.

Several problematic issues could be identified from the results of the study. First of all, in order to find out the factors influencing career success and their impact on career success, the study participants evaluated the factors presented to them (see Figure 2).

Figure 2. Factors influencing career success



Source: compiled by the authors based on research results

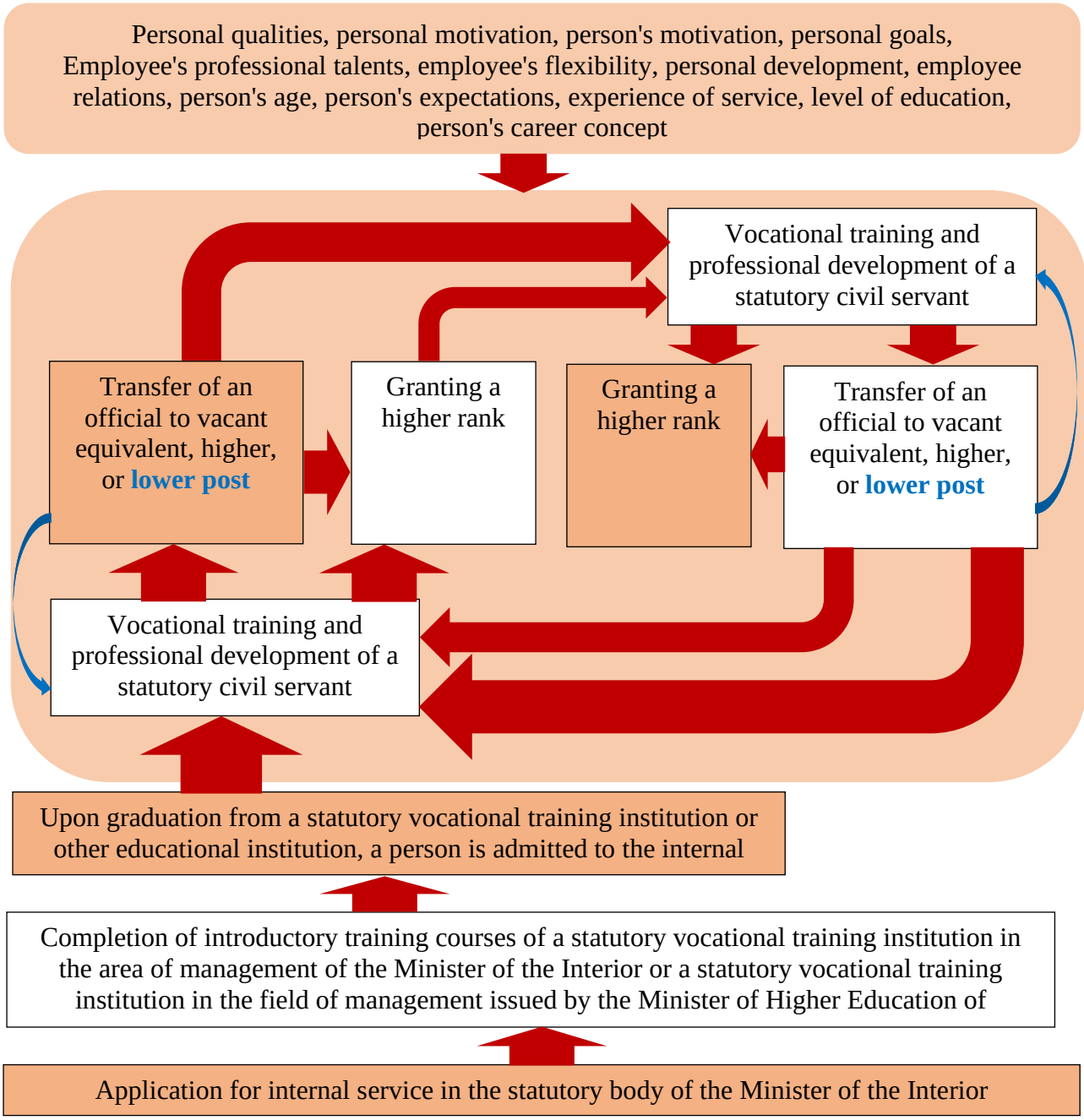
From the presented graph, it can be seen that career success is most influenced by: personal characteristics (communicability, etc.), personal motivation (external motivating factors), person's motivation (motivating factors from a person's internal beliefs), personal goals. The least influencing factors for career success are: gender, appearance, friends, health. Thus, it can be seen that the greatest influence on career success is the individual himself, his personal qualities, disposition and set goals, active and determined pursuit of them.

Based on a study of career management and implementation opportunities in public security institutions and theoretical aspects of career management, the article presents a model of career management and implementation opportunities in public security institutions (see Figure 3).

The career of an individual begins with the stated desire to claim a statutory office in the field of management of the minister of internal affairs of the internal service. A person applying to become a statutory civil servant must be a citizen of the Republic of Lithuania and speak the Lithuanian language, not less than 18 years of age and not more than 60 years of age. Also, a person who has expressed a desire to work in a statutory institution must be of impeccable reputation, loyal to the Lithuanian state and be in a state of physical fitness and health that would allow him to hold office in the internal service system. If the person meets these

requirements, he or she enters a statutory vocational training institution, another educational establishment or passes an introductory training course at a statutory vocational training institution. After graduating from a statutory institution in the area of government of the Minister of the Interior, the head of the central statutory institution or a person authorized by him / her shall appoint a person to a position in a specific statutory institution by order and the person shall swear to serve in the Republic of Lithuania. Following these steps, a person acquires the status of a statutory police officer.

Figure 3. Model of career management and implementation opportunities



Source: compiled by the authors based on research results

After obtaining the status of a police officer, the person shall undergo initial vocational training in statutory vocational training institutions and must continuously improve his or her

qualifications and meet the physical fitness requirements set by the Minister or the head of the central statutory body authorized by him. On the basis of the created model, the official may be transferred to vacant equivalent posts, promoted to posts or transferred to lower posts. Also, a higher rank can be granted. Officials may be promoted to higher positions by evaluation or selection process. Officials of the same or another statutory body who are seeking a higher post in a lower post may take part in the said selection. Also, a person wishing to take part in the selection for vacant higher positions must meet the general and specific requirements for those posts.

Further stages of the development of career management and implementation opportunities for a police officer are repeated, the individual must actively work, qualify, participate in certain selections and, after gaining the relevant length of service in the internal service, he is granted ranks. The career ladder is climbed until the person has been granted the appropriate rank according to his or her position and length of service in the internal service. Also, the duties and rank of a police officer depend on the level of education available.

A study of career management and implementation opportunities in public security institutions has shown that various factors influence career management and implementation opportunities (see Figure 2). The study found that career development is influenced by the level of education and, in particular, the legal level of education. Also, careers are most influenced by personal characteristics, personal motivation, person's motivation, personal goals, employee professional talents, employee's flexibility, personal development, interpersonal relationships, personal age, personal expectations, and experience of service. The study found that in public security institutions, careers are also influenced by a circle of influential friends and relationships with a direct manager or senior official.

The model presented can be divided into certain stages. The first stage is the stage of entry into the internal service, when an individual acquires the status of a police officer in institutions that ensure public security. The second stage is the stage of achievement, when a police officer is promoted to a post or granted a higher rank. And the third stage could be called the growth stage, when a statutory officer gains experience in his job, improves as a person, qualifies, improves his skills and continues to rise in office or earn a higher rank, thus again moving to the second stage and climbing the career ladder every time.

In summary, career management of an individual wishing to pursue a career in public security institutions begins with a stated desire to acquire status. Once the status has been acquired, the individual may be granted a higher rank or promoted to vacant equivalent positions, promoted and transferred to a lower position. The stages of career development of a police officer are repeated and there are many factors that influence career development, but an individual who wants to achieve career heights must be active, develop his or her skills, and participate in certain selections. Also, the career of a police officer depends on the level of education he received and, in particular, the level of legal education.

Thus, it can be concluded that there are insufficient legal instruments and methods to prevent adverse circumstances affecting the pursuit of a high-quality, fair and equitable career development in institutions that ensure public security. To prevent these negative factors in career management, the formation of a new approach, the proper definition and coordination of actions, and the adjustment of regulatory legislation are necessary.

4. DISCUSSION

After analyzing the scientific literature and normative legal acts regulating career management and its implementation possibilities, and evaluating the results of the research conducted in institutions ensuring public safety, the conclusions are presented. Various factors influence career management and implementation opportunities in public security

institutions. These factors can be distinguished into factors influencing organizational career and individual career factors. Career is most influenced by personal qualities, motivation of a person and motivation and goals of the person himself. The least influence on career success has health, gender, appearance, friends. However, it was observed that although friends have the least influence on the career, it turned out that influential friends and acquaintances influence career opportunities.

Institutions ensuring public safety provide appropriate conditions for the development of individual skills that correspond to the specifics of the nature of employees' work. Career management is the responsibility of both the individual and the organization, as career success is influenced by the knowledge of the individual's capabilities, his personal qualities, disposition, as well as the goals of the individual and the organization, the development and implementation of the organization's strategies and plans.

The model of career management and implementation opportunities in institutions that ensure public security provides directions for development, which indicate that the beginning of an individual's career in these institutions is the result of a desire to acquire status. After gaining the status and becoming a police officer, career opportunities include gaining a higher rank or transfer to a vacant equivalent position, promotion, and transfer to a lower position. Many factors influence the management and implementation of the career of a police officer. A person who wants to achieve career heights and achieve career opportunities must be active, improve his skills, participate in selections, and pursue a legal education level.

5. CONCLUSIONS

Based on the results of the research, suggestions and further research directions are presented. As career management is the responsibility of both the individual and the organisation, it is recommended that police officers in public safety bodies draw up individual career plans which should reflect the exact knowledge and abilities of a particular police officer and indicate the motivations for achieving these goals. It is recommended that this be done in the presence of specialists from the personnel and training department, the direct manager and the employee.

It is recommended that employees newly admitted to the statutory body should be assignes virtual seminars, where each of them is acquainted with the normative legal acts regulating their career opportunities and take tests, during which employees are asked about career management and implementation processes in a specific public security institution. To carry out this process, it is recommended to appoint specialists from the personnel and training department

REFERENCES

[1] Adamonienė, R. (2009). *Management assumptions and opportunities of human resource formation.* Kaunas: VDU publishing office, pp. 13-40.

[2] Adamonienė, R., Gražulis, V., Račelytė, D., Dačiulytė, R., Valickas, A., Sudnickas, T. & Raišienė, A.G. (2015). *Žmogiškųjų išteklių valdymas*. Vilnius: MRU

[3] Balčiūnaitienė, A., Adamonienė, R. & Svolkinaitė, L.(2017). *Visuomenės saugumas ir darni plėtra: visuomenės saugumo aktualijos ir probleminiai klausimai.* Kaunas: MRU.

[4] Dagienė, A. (2010). *Asmeninės karjeros valdymas*. Mūsų socialinis kapitalas – žinios: 79 – 82.

[5] Gumuliauskienė, A., Augienė, D., Bobrova, L., Macaitienė, R & Eitutytė, D. (2002). *Karjera šiandien ir rytoj.* Šiauliai: VŠĮ Šiaulių universitetas.

[6] Jasiūnienė, I. (2019). *Profesinės karjeros metodologinių koncepcijų apžvalga*. Kaunas: Lietuvos žemės ūkio universitetas.

[7] Kardelis, K. (2017). *Mokslinių tyrimų metodologija ir metodai*. Vilnius: Mokslo ir enciklopedijos leidybos centras.

[8] Laurinavičius, A. (2003). *Tarnybinė teisė: statutinės valstybės tarnybos teisinis reguliavimas*. Vilnius: LTU.

[9] Petkevičiūtė, N. (2003). *Asmeninės karjeros projektavimas ir vystymas globalizacijos kontekste*. Profesinis rengimas: tyrimai ir realijos. Kaunas: VDU.

[10] Petkevičiūtė, N. (2003). *Research on vocational education and training*. Design and development of personal career in the context of globalization. Kaunas.

[11] Petkevičiūtė, N. (2006). *Karjeros valdymas: asmeninė / individualioji / perspektyva*. Kaunas: VDU.

[12] Petkevičiūtė, N. (2013). *Karjeros valdymas: organizacinė perspektyva*. Kaunas: VDU.

[13] Sakalas, A., Šalčius, A. (1997). *Karjeros valdymas*. Kaunas: Technologija.

[14] The Seimas of the Republic of Lithuania. (2021). *Lietuvos Respublikos pranešėjų apsaugos įstatymas*. [online]. [cit.2021-09-25]. Available at: https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/3832a702d8ea11e782d4fd2c44cc67af/asr; https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/cad5a783834211e89188e16a6495e98c/asr; ttps://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.111665/asr; https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/fae39102834511e89188e16a6495e98c/asr

[15] Stanišauskienė, V. (2016). Karjeros kūrimas. Kaunas: Technologija.

[16] Stanišauskienė, V. & Stundžė, L. (2006). *Lyčių studijos ir tyrimai.* Šiauliai: VŠĮ Šiaulių universiteto leidykla.

[17] Tidikis, R.. (2003). *Socialinių mokslų tyrimų metodologija*. Vilnius: Lietuvos teisės universitetas.

[18] Valackienė, A. (2004). *Sociologinis tyrimas*. Kaunas: Technologijos universitetas.

[19] Valickas, A., Chomentauskas, G., Dereškevičiūtė, E., Žukauskaitė, I. & Navickienė, L. (2012). *Karjeros valdymo vadovas studentui*. Vilnius: Žmogaus studijų centras.

[20] Valickas, A., Chomentauskas, G., Dereškevičiūtė, E., Žukauskaitė, I. & Navickienė, L. (2014). *Asmeninės karjeros valdymas dėstytojui.* Vilnius: Žmogaus studijų centras.

TO WHAT EXTENT IS BUSINESS ETHICS AUTONOMOUS?

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Abstract: *Richard Rorty, the eminent figure of philosophy, posed a relatively crucial question about the importance of philosophical ethics and metaethics in the realm of applied ethics. The present study aims at providing the answer to the posed question. The aim is achieved through the analysis of interrelations and interdependencies between philosophical ethics, metaethics, and applied ethics, specifically business ethics and managerial ethics. The study attempts to determine possible metaethical and philosophical foundations for certain attitudes on and models of conduct in business ethics and managerial ethics. Subsequently, the need for philosophical and ethical knowledge in resolving business-and-managerial-ethics-related problems is explained utilizing real and simulated examples. The attention is paid predominantly to decision-making in work-environment-related ethical dilemmas.*

Key words*:* *business ethics, ethical dilemma, ethical decision-making, managerial ethics*

JEL Classification: *A14, L26, L29*

1. INTRODUCTION

The former Eastern bloc witnessed the standstill of promising developments in business ethics due to the post-second-world-war geopolitical situation. Subsequently, the whole geopolitical region under the influence of the Soviet Union adopted the model of the political communist parties' monopoly. The communist bloc countries gradually changed the private ownership into state- and cooperative ownership of enterprises and production facilities, thus preventing business ethics from being enforced in any way. The entrepreneur was labeled as an exploiter, and if a group of entrepreneurs succeeded in gaining a foothold in the market, they had no chance to develop their business ethics. The pre-WWII development of business ethics elements was relentlessly suspended for four decades. The revival of the discipline can be observed in the early 1990s. Liberal heterogeneous ethics with a significant share of the market element also brought a sense of business ethics as an applied philosophical discipline. In the initial period of the economy getting rid of the directive influence of the state as a legal entity, an increase of hitherto unknown ethically controversial actions of entrepreneurs from various backgrounds can be observed. In this situation, business ethics proved to be extremely necessary. The return of certain ethical rules and boundaries to business practice has stimulated even stronger emphasis on business ethics. The need for theoretical foundation of behavior models of entrepreneurs, owners, employees is still relevant, at least with regard to conceptualizing the codes of conduct drawing on the needs of a particular entrepreneurship.

2. PROBLEM FORMULATION AND METHODOLOGY

Recently, the rules of conduct are verbalized in the code of ethics, a document bearing the following features: a) since any code of ethics cannot regulate the whole range of situations possibly arising in a certain company/enterprise, its implementation cannot be expected to replace the role of business ethics, (b) the introduction of a code of ethics is not beneficial in all cases, as there is also possibility of introducing a code of ethics which is either useless or

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harmful. Uselessness is caused either by an inappropriate type of code of ethics (e.g. an aspiration code that can act as a decoration without a direct impact on stakeholder conduct), harmfulness can be caused by misusing the code by its authors to achieve and pursue various obscure interests, and by not supporting the holistic benefit of the company/enterprise and society. An example is the impossibility of prohibiting further employment in line with the code of ethics, if this is *ex lege* acceptable, or prohibiting publishing in journals of a certain kind (e.g. in scholarly journals charging publication fees to authors), etc. The code of ethics shall not be a tool for achieving the author's obscure goals. Despite engaging stakeholder representatives and experts in applied ethics in developing the code of ethics, one cannot expect that this document will replace business ethics.

When examining the development of various ethical disciplines and subdisciplines, it is possible to identify various forms of their interconnectedness and interdependency e.g. the interrelatedness of bioethics and computer ethics as explicated by Hongladorom (2006). Despite the development of business ethics in the last three decades, the issue of interrelating the philosophical ethics and applied business ethics is not particularly at the forefront of the scholars' interest, such as merging the metaethics and applied ethics dealing with the ethical aspects of economic issues (business ethics and managerial ethics). The survey into available literary resources on the issue under discussion reveals that the scholarly papers on the topic are rather rare, especially in the countries of the former Eastern bloc. However, the growing scholarly interest into business ethics and managerial ethics and the increasing number of theoretical research works in the field do not imply the desirable change in the developments as the vast majority of scholarly works pay very little attention to the mutual interdependency and interconnectedness of philosophical ethics/metaethics and applied ethics dealing with economic issues.

Drawing on the above, the question to what extent the philosophical ethics and metaethics are necessary for delivering the business ethics as an integral part of any employment/production process, may be posed. The issue is dealt also by Richard Rorty, eminent figure of analytical philosophy, investigating the relevance of philosophy within the realm of applied ethics. The question under consideration is highly up-to-date with regard to the whole range of applied ethics subdisciplines including business ethics. Drawing on Rorty one can ask an expert in applied ethics about the theoretical concepts and theories serving as theoretical fundaments of their work. It is highly probable that the answer provided will not include all ethical concepts and theories. In such a case, the answer would be not merely incomplete, but also inconsistent with respect to the system of applied ethics. In this context, the possibility arises that the author would not rely on any eminent figure of philosophical ethics in order to avoid possible contradictions caused by incorporating the works and perspectives of Nietzsche, Aristipp, Kierkegaard and Lenin at once.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

Rorty's attempt at providing and an answer on the issue is remarkable as he claims that the prestige of philosophy has declined since the days of Humboldt and Hegel. Rorty explains this decline through the misuse of philosophy in the various ideologies causing the crimes, pointing out (irrelevant from the authors' point of view) low interrelatedness between the history of economic theories and philosophy and thus questioning the contribution of philosophical ethics to human moral progress. Rorty argues that the moral imagination as defined by Patricia Werhane is not related to philosophical knowledge competencies. In Rorty’s view, experts in applied ethics focusing on business and management do not necessarily need philosophical knowledge competencies as their skills-related needs are compatible with the needs of such occupations as journalists, and book writers.

Rorty is well-known for his pragmatic orientation, especially in his late philosophical works. Even if one tried to oppose him that a pragmatist perspective implies a clear ethics-oriented/based approach, he would probably counter-argue that the applied ethics does not need any pragmatism. Donelson does not even consider Rorty's metaethics to be feasible in his own philosophy (Donelson 2017, p. 292). If he were right, it would mean some inconsistency in Rorty's philosophy, however, it would have no effect on his answer to the question under discussion.

Dealing with the issue under consideration, the question about the relevance of metaethics to applied ethics may be posed. The question is metaphilosophical in its essence and similar to, for example, Joaquin's question interrogating whether logics has some metaphysical fundaments (Joaquin 2013, p. 87). The question implies several possible answers. In business ethics, divergent tasks may arise causing a decision problem – an ambiguous ethical problem implying inevitability to decide for a certain solution. The prescriptivist approach to the answer uses elements of reasoning-based critical reflection and intuitionism. The reasoning (critical-reflection-based) element should be superior to the intuitionism, their incompatibility possibly occurring in the collision of moral judgments. As this decision is usually ambiguous, it is necessary to identify indicators. The decision is an integral part of critical thinking with its guiding function, and presupposes the identification of interests and ideas about how to evaluate, anticipation of the decision impacts on the whole process under discussion, but predominantly the recognition of indicators and factors.

The metaethical perspective has been present in ethics since the times of classical Greek philosophy. As a subdiscipline of ethics, it was explicitly established at the beginning of the 20th century. Traces of a certain implicit metaethical view can be observed in philosophical views from the times of Empedocles, Plato, Plotinus and Porphyrius, through Shaftesburry to Wittgenstein and Moore, who address the problem explicitly as the issue of metaethics. Wittgenstein proclaimed the transcendental character of ethics in *Tractatus logico - philosophicus*, a book on ethics, as well as in a later well-known lecture on ethics. It is certain that Wittgenstein influenced the further development of metaethics to the extent that few philosophers have been able to do so.

In our view, direct ethical decision-making as an integral part of the work process including the labor market may be related to metaethical position. Problem-related ethical decision-making is not always demanding to the extent of a challenging divergent task. Prescriptivism may directly influence ethical decision-making. In this consideration Hare suggests recognizing the interests of stakeholders, considering the possibilities of the evaluation process and the possible consequences of various decisions. In this way, a situation chart is created anticipating the possible range of impacts and consequences of the decision. Managerial ethics and business ethics proceed in a similar way. The given mechanism, a prescriptivist model of decision-making as proposed by Hare is, in our view, applicable in applied ethics dealing with economic issues (business ethics and managerial ethics).

When examining the issue under consideration, Wittgenstein's influence on metaethics also deserves attention. Although Moore was a pioneer of metaethics, it was Wittgenstein who influenced it in a fundamental way. In his work *Principia Ethica*, Moore asks about the meaning of good concluding that good is unanalyzable. Ayer and Stevenson reduce whole ethics to metaethics, arguing that ethics is possible as a clarification of language, not as a theory. Wittgenstein perceives the terms good and evil as predicates of the subject, not as existing predicates. His views directly influenced Ayer, who argues that ethical sentences are only expressions of moral feelings, not of some knowledge. This statement expresses the position of non-cognitivism inspired by Wittgenstein and his *Treatise*.

In relation to the above, Wittgenstein's ethical position presented in *Philosophical Investigations* is completely different. Each language game has its own rationality lacking the

possibility of being evaluated through another language game. As Kratochvíl (2010, s. 165) argues, "Wittgenstein thus provides ethics with a powerful weapon against concognitivist defeatism and relativism". In Toolmin's view, rationality depends on life form as it is not autonomous. Ethical rationality is also contextual, not absolute. Wittgenstein also influenced non-naturalist realism, a philosophical view distinguishing the facts of morality from the facts of the natural sciences. Rationality arises from socialization into a language game, ethics is one such game, as Sabina Lovibond claims. In addition, Wittgenstein contributed to establishing the virtue ethics, which was further developed by G. E. M. Anscombe and A. MacIntyre discussing, for example, the transformation of ethical concepts throughout the time.

Specific cases require ethical decision-making being interrelated to metaethics, as Hare argues proposing the identification of interests, the consequences of decisions and the consideration of ideas in evaluation. David Ross's deontological ethics, in turn, can influence the creation of codes of ethics in terms of hypothetical imperatives. Promoting the pluralism of principles and duties (Remišová 2011, p. 37), Ross wants to create a system of hypothetical, conditional duties instead of Kant's wording of the categorical imperative. Within the discussion on the types of duties, diverse groups of duties can be distinguished, such as duties related to former action, duty of gratitude, duty of beneficence, etc. As Remišová argues, "all codes of ethics, including professional codes, build on the duty fulfillment principle" (Remišová 2011, p. 38). However, it may happen that duties determined by the code of ethics can come into conflict. It was Greek tragedies that tried to correct the axiological imperfections of the traditional Greek religion as a subject of interest to some young sophists. Ross naturally does not suggest going to *areios pagos*, because in his theory he does not interfere with *deus ex machina*. He proceeds with the use of Solomon-like position, arguing that one duty is of higher importance than another and can therefore be given temporal priority, but the other remains in force and will be enforced as soon as possible. With regard to the aforementioned, Ross strongly appeals to intuition, the task of which is to recognize which duty is to be chronologically prioritized (Remišová 2011, p. 38).

Within the fields of business ethics and managerial ethics, consequentialism is referred to as a very widespread position. In principle, a distinction can be made between utilitarian consequentialism and non-utilitarian consequentialism. It is only the consequences of the action being the focal point of its interest as it draws on the principle of consequences, the principle of utility, the principle of pleasure, and the social principle. Regarding the issue of action consequences, it is also necessary to consider Rawls's position due to his criticism targeted on utilitarianism for an insufficiently tackled problem of justice, as the utilitarian will also consider the increase in the volume of profit to be good, regardless of its specific distribution. Although non-utilitarian consequentialism evaluates deeds according to social consequences, it rejects the aspect of utility/usefulness.

Applied ethics stands in mutual relationship with the ethics of discourse, which is aimed at non-violent conflict resolution in accordance with the statement that man has the ability to internalize ethical principles and consequently resolve conflicts in a reasonable way. Habermas and Apel, as the founders of discourse ethics, distinguish between two stages of this type of ethical investigation, the first stage representing the level of basic norms and principles, the second stage covering situationally relevant norms and principles. Within the applied ethics, the ethics of responsibility proves its inevitability. Hans Jonas argues in favor of its non-anthropocentric nature, thus opposing Peter Singer's opinion. The ethics of responsibility featuring non-anthropocentric elements serves as a good axiological basis for ecologically oriented ethics. The concept of responsibility towards the environment and future generations is also applicable in business ethics and managerial ethics.

Following the development of innovations, it is necessary to address the issue of the need to increase the quality of life. If an increase in consumption will lead to a deterioration of the

environment, it has to be referred to as undesirable. Kassay (2014) argues that a product must eliminate its impact on the environment, giving the highest priority to innovations that lead to a healthy lifestyle. In his view, innovations need to be developed in the way so as to reduce material and energy consumption. Kassay criticizes the production of low-quality, short-lived products, which disadvantage quality products. The purpose of mass production of low quality products is often to create and maintain job positions. In Kassay's opinion, the resolution to the aforementioned problems lies in research and development.

Green innovations bringing a positive effect on the environment or replacing harmful factors are significantly beneficial in ecology. Eco-innovation stands for the production or use of goods that are new to the company or users and whose results are aimed at reducing environmental risks, pollution and negative impacts of resource use compared to existing alternatives (Arundel and Kemp 2009). Environmental taxes have also proved their worth (Csikosova, Culkova, Mokrisova 2015). Philosophical investigation can result in reasoning, clarifying and critically-based examining of the issues related to the absolutization of economic rationality, environmental pollution, ignoring the principle of human solidarity and cooperation, inappropriate treatment of animals for commercial purposes, remuneration of workers, redundancies, unfair wages, etc.

The business ethics fundaments include also the aforementioned ethics of discourse (Remišová 2011, p. 108). It also inspired Steinmann and Löhr, German representatives of applied ethics, focusing primarily on business ethics at the meso-level. In their opinion, "corporate ethics is aimed at developing a corporate (corporate) strategy capable of consensus" (Červená 2006, p. 72). They argue, that business ethics is a tool for the peaceful resolution of problems achievable through applying the principle of tolerance. Moreover, Steinmann and Löhr distinguish between argumentation and appellative language. The argument stands for a logical derivation of the consequences from the assumptions, the goal of the appellative speech is "skillful persuading of the counterpart with the deployment of persuasive techniques" (Bílek 2011, p. 139).

Dilemmas in terms of divergent problems cannot be resolved by time delays, as the resolution can cause contradiction. As Bednár claims, the manager is provided with five ethical theoretical models in a decision-making situation: consequentialism, ethics of duty, law (positive law, human rights, tradition), the theory of justice, relativistic views (Bednár 2019, p. 46). Ethically underpinned decision-making is highly challenging, as divergent tasks can hardly be included in a specific model of a corporate or professional code of ethics. Even within common law, it is necessary to find the right model as a generalization of a specific situation. Any enterprise can possibly generate a vast array of ethically relevant situations as divergent tasks possibly arising from numerous stakeholders' interests, their interrelationships and other circumstances. In our view, divergent task is to be considered a challenge for any type of code of ethics as controversial issues may be possibly dealt with generating more than one possible and right solution. In such a case, the code of ethics could also be misused, as it would impose only one possible and correct solution. For example, no code of ethics can prohibit an employee from working in another company as long as the second employment relationship is in accordance with applicable legislation and the employee fulfills all work-related duties with both employers. Although such an unreasonable prohibition may build on some kind of particularism within which the exclusive value of corporate identity is absolutized, such an understanding based on pragmatist ethics will seem ridiculous for both employees-colleagues and employees of other companies confronted with the justification of not accepting a job offer / filling vacancy. In a case that mobbing, sexual harassment, or even bossing occurs in the work environment, it is not really a dilemma, but a clearly solvable problem that can result in a change of job position, and in the extreme case in work-contract termination. A real dilemma may arise in a situation in which a young woman becomes pregnant during a three-month probationary period wishing to keep her position. The dilemma

is whether or not to report a pregnancy as a change in the status to a superior during the current probationary period. Of course, There are examples of decision making through critical thinking many, we can state the budget calculation and taste quality in decision making of university students in catering (Delayco, Biana, 2015).

The above presented opinions of scholars in philosophy and applied ethics may serve as tools for answering Rorty's question. An ethicist working in business practice can certainly use his knowledge of theoretical ethics and metaethics. The crucial factor in determining their influence is the extent to which they participate in formulating ethical norms and standards in the enterprise, resp. industry or profession. If this ethicist works only on the application level and never goes beyond its limits, then their profession necessarily includes only knowledge of applied ethics without the use of general ethical and metaethical knowledge. However, developing ethical norms and standards, performing an ethical audit, or scholarly investigating of issues in applied ethics, already require incorporating the theoretical knowledge of general ethics and metaethics.

4. CONCLUSION

The present study attempts to provide the answer to Rorty's question of whether and to what extent knowledge of metaethics and philosophical ethics is needed in addressing issues of business ethics and managerial ethics. The discussion unveils numerous thematic intersections and fully operative interrelations between the philosophical ethics and whole range of disciplines in applied ethics, predominantly interrelations between philosophical ethics and business ethics/managerial ethics. Drawing on the theoretical analysis and case studies exemplification we may arrive at the conclusion that scholarly and research-driven analysis of issues falling into business ethics and managerial ethics necessarily requires applying philosophical ethics and metaethics knowledge. Moreover, the two disciplines – philosophical ethics and metaethics – are inevitable in developing ethical norms and standards, in performing ethical audit, etc... Simpler tasks carried out within business ethics and managerial ethics may be performed even without deploying philosophical ethics. An expert in applied ethics does not need to solve a philosophical problem in ordinary decision-making processes, even of a divergent type, therefore the usual moral awareness achieved through education and supported by cultural environment without philosophical justification is sufficient. The problem could arise when developing ethical norms and standards, performing complex ethical audit, but also, for example, in tackling the issue of ethical-cultural-frameworks diversity requiring basic knowledge of philosophical ethics. If the job position involves proposing solutions to basic work environment-related ethical problems treated by applied ethics, it is not necessary to use philosophical ethics in these cases. However, more complex tasks require more complex philosophically grounded knowledge going beyond the scope of applied ethics.

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REFERENCES

[1] Arundel, A. & Kemp, R. (2009). *"Measuring eco-innovation"*, UNI-MERIT Research Memorandum, 2009-017.

[2] Bednár, M. (2019). *Vybrané kapitoly z manažérskej etiky*. Košice: UPJŠ, p. 111.

[3] Bílek, M. (2011). *Business ethics as an ethics of legal framework. Critical examination of the business ethics conception of Karl Homann*. Praha: KU, p. 163.

[4] Brestovanský, M. (2014). Metodologické otázky výskumu prosociálnosti. In I. Podmanický & A. Rajský (eds.). *Prosociálnosť a etická výchova. Skúsenosti a perspektívy*, Trnava: Typi Universitatis Tyrnaviensis, pp. 83 – 119.

[5] Csikosova, A. & Culkova, K. & Mokrisova, V. (2015). Ecological elements implementation in the tax systém. *Actual Problems in Economics*, vol. 164, iss. 2, pp. 253-261.

[6] Červená, K. (2006). Etika v podnikaní. *Manažment v teórii a praxi*, vol. 2, iss. 1, pp. 70 – 75.

[7] Delayco, M. L. C. & Biana, H. T. (2015). Dine in or out: Understanding the budgeting and eating out behavior of De la Salle University. *DSLU Business and Economics Review*, vol. 24, iss. 2, pp. 136-149.

[8] Donelson, R. (2017). Rorty´s Promise in Metaethics. *Contemporary Pragmatism*, vol. 14, iss. 3, pp. 292-306.

[9] Hongladarom, S. (2006). Ethics of bioinformatics: A convergence between bioethics and computer ethics. *Asian Biotechnology and Development Review*, vol. 9, iss. 1, pp. 37-44.

[10] Joaquin, J. J. (2013). Does logic rest on a metaphysical foundation. *Philosophia (Philippines)*, vol. 14, n. 1, pp. 86-103.

[11] Kassay, Š. (2014). Podnik a podnikanie V. Učenie a rast. Bratislava: Veda, p. 645

[12] Kratochvíl, M. (2010). Vlyv Wittgenstrinovy filosofie na vývoj etiky. *Filosofický časopis* (Extraordinary Issue 2), pp. 157-172.

[13] Remišová, A. 2011. *Etika a ekonomika*. Bratislava: Kalligram, p. 456.

TALENT MANAGEMENT SYSTEM IN EDUCATION

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Abstract*: The article discusses theoretical aspects of the formation of a talent management system in education, which must fit organically into the overall system of personnel management, rely on strategic goals and interact with all elements of the internal environment of the educational institution. It covers the essence of talent management as a factual direction in the management of educators, a new way to achieve organizational efficiency and a strategic holistic approach to the management of intellectual capital, which includes a set of tools for human resource management.*
They allow the educational institution to attract effective staff, integrate new staff, and implement programs to promote and preserve talent, which makes a significant contribution to the development of the educational environment. The main stages of talent management system development are substantiated, which allows creating long-term competitive advantage, increasing profitability, reducing costs and accelerating the innovation process. They also include: talent search and selection, talent identification and management, implementation of development and training program, productivity management, motivation and encouragement, preservation of talents in an educational institution. It is noted that in order to successfully build an effective talent management system in education, it is necessary to take into account some key principles and elements of working with promising employees. The educational institution must make every effort to create the most favorable conditions for the growth of its employees in a professional sense. We have developed a generalized talent management scheme, which is a powerful tool for talented employees, requires a focus on an individual approach to working with educators, the creation of new management technologies, allows you to create sustainable and effective competitive advantages for both employees and educational institution in the market. Supported by the SAIA grant program.

Keywords: *talent management, educational organization, talent in education, corporate culture*

JEL Classification: *M12, M14, M51*

1. INTRODUCTION

Over the recent decades, reforms in the educational environment have taken place in every country in the world. The impetus for this process is the development of technologies and transformations in approaches to personnel management. In view of this, at the close of the twentieth century, the mankind entered the post-industrial phase of development with knowledge and intelligence as its main productive resource. Intensive information development of the "K-society" or "knowledge society" has led to extension in the economic and cultural integration of mankind. The main means of development and formation of a person, a citizen, and a society is education. Under the conditions of development in the modern civilization, there is a controversy about the crisis in the field of education, pedagogical thinking, and management of educational staff. Modern scholars debate over the challenges in defining approaches to evaluating staff performance and managing talented employees in educational institutions.

2. PROBLEM FORMULATION AND METHODOLOGY

The problem of talent management in recent years has received much attention both by scientists (development of theoretical foundations of such management) and practitioners

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(implementation of various models of talent management and evaluation of their effectiveness). Research in the field of personnel management and talent management is the focus of numerous works of practitioners in the field of HR, especially in the United States, from where the term "talent management" originates. The article presents arguments in favor of the value that talent management has in modern educational organizations.

The analysis of the reference base of the research on this problem revealed that the topic of talent management in education is insufficiently studied and researched in world science. The importance of the problem, its socio-economic and pedagogical significance actualize the problems of scientific research in this direction. Since scientific knowledge involves finding out which structural units, states, phenomena, connections, relationships, interactions, elements, and transformations make up the object of study, it is mandatory to use analysis as a research method. However, it is worth noting that the analysis is impossible without applying of integration into its process of other empirical and theoretical methods of cognition: observation, comparison, experiment, classification and, absolutely, synthesis. It allows mental checking of how accurate analysis is by combining the parts into a whole.

The research uses dialectical logic with the objectivity of the study object, the principle of specificity, and the principle of historicism as the key methodological principles. Using the method of induction, we have identified a number of causal relationships and substantiated several hypotheses applied in analytical studies. Simultaneously, the study revealed the need to use deduction as an opposite process. It is worth noting that the most effective was the use of these methods in their interrelation and complementarity. The conducted analytical research was classified as quantitative and qualitative analysis. Concurrently, qualitative analysis guides the cognitive process not towards the structure and connections, but their essence and its interpretation. Qualitative methods are used in the study of social and psychological aspects, social groups, and individuals. They are indispensable in this study since they focus on the overall picture of the development of educational staff in the unity of its components and interaction between objective and subjective factors. However, lack of methodological understanding of the most high-quality research limits the scope of their use. Therefore, the application of qualitative methods took place in close unity and interaction with quantitative methods. They have a clear structure, and their result is a detailed fact in quantitative characteristics, which enable identification of the development patterns of a phenomenon.

Since the staff of an educational organization is a complex object, viewed as a system with its own peculiarities of functioning and development, this article is based on a systematic approach. Its application was manifested in: the study of the staff of an educational organization as a system, i.e. as a limited set of interacting elements; studying composition, structure and availability of innovative characteristics in educational staff and identifying relationships between them; studying the external relations of the system; as well as defining the functions of talented staff as a system. It also deals with the analysis of its role among other systems and identification of patterns and trends in the development of talented staff in the educational organization and more. As of today, scientific substantiation of the real state of managing talented personnel in educational institutions, identification of patterns and trends in its development, and justification of prospects concerning improvements in the efficiency of its management are of particular importance.

3. RESULTS AND DISCUSSION

To be successful and high-ranked today, educational organizations have to make full use of all human capital available to them. The presence of talented employees is the goal of the educational organization and its competitive advantage since leadership in the market of educational services under modern conditions is provided by talented staff. Talent

management as a professional term was popularized by HR professionals in the late 90's of the 20th century, when high-tech companies started "the war for talent". This term was coined by McKinsey in 1997 after he had studied this phenomenon and published a book with the same title (Michaels, Ed. 2005, p. 23). In order to be successful and ranked today, it is important for educational organizations to make full use of all the human capital available to them. The presence of talented employees is the goal of the educational organization and its competitive advantage, because in modern conditions the leadership in the market of educational services is provided by talented staff.

Talent management is a system aimed at increasing the level of competencies in critical, from the point of view of business, activities through the implementation and development of programs to attract, acquire, develop, promote and retain talent (Noskova, 2012). Talent management is the involvement of highly qualified employees, their adaptation, development and retention to achieve current and future business goals (Usheva, 2011). Josh Bersin defines "talent management" as "... the process aimed at attracting, managing, developing and retaining key employees of the company" (Usheva, 2011).

Talent management is a purposeful activity aimed at creating a system of recruitment, development, use, and retention of talented employees capable of achieving exceptional results in business (Shakhbazov, 2006 pp. 173-179). As it can be seen from the above definitions, talent management is viewed as: a process; a system; an activity. Each of the definitions shows that talent management is focused on specific actions with the staff. Moreover, the emphasis in talent management is on highly qualified or key employees. This fact has given rise to most scientific and practical debates on the nature of talent management and its connection to personnel management. In relation to the educational environment, we have our own vision of this definition.

Talent management in education is a set of personnel management tools that enable the organization to attract, use effectively, and retain researchers who make significant contributions to the development of an educational organization. Talent determines a high level of being gifted (Nikitin, 2011, pp. 127-137). It acts as an achievement other employees try to reach as well. Talent can excite the colleagues' interest with its enthusiasm and atypical creative approach to solving problems. It seems that there are only advantages of having a talent. However, in practice not everything is so explicit. First of all, talent should be "inscribed" in the team; otherwise, instead of the engine it may be the cause of differences in it. Secondly, talented employees have a number of qualities that make managing them not an easy task.

Talent in the field of education is a person who has high professionalism and competence, evaluated according to two parameters:
- professional competence - assessment of professional knowledge, skills, and work results;

- competencies that correspond to the level of management skill development, which, in turn, are determined by the strategic goals of the educational organization and meet the requirements for personal characteristics and motivation of each employee.

It is important for each educational organization to develop approaches which assess the effectiveness of an employee in the educational institution. We refer to it as an efficiency matrix, which is a set of indicators for evaluation. Indicators can be measured and evaluated monthly, quarterly, annually. In addition, depending on the needs, the set of indicators can be adjusted.

A large group of Western scholars (Stahl, G., Björkman, I., Farndale, E., Morris, S., Stiles, F., Trevor, J., and Wright, P.M.) consider talent management to be synonymous with human capital management, recognizing the provision of talent to organizations as the most important problem. These authors question whether talents are developed or selected in the

organization, whether it is necessary to manage their productivity, whether they require special pay, encouragement and retention in the workplace (at least), etc. J. Immelt even states that "talent management system is the most powerful tool for talent realization " (Immelt, 2010, pp. 75–84). A modern paradigm of the 21st century changes perceptions of talent, from war to cultivation in organizations. The theory that talents make their way themselves is outdated, being replaced with talent management, which has managed to become a trend in pre-crisis times (Robertson, 2004).

Talent management in education is based on a number of specific principles, in particular: responsibility of all managers and each of the researchers for talents, talent management as the main priority of managing educational organizations, etc. To implement these principles in the context of the proposed methodology of participation in "the war for talent", the leadership of the educational organization should implement a number of actions to attract talent:

- develop a standard set of competencies for talents in education;
- take an active part in the selection and management of talents in education;
- assess the potential of educational staff;
- motivate targeting of the talents of managers at all levels of the hierarchy in the educational organization;
- provide resources for the development of talents in the research environment;
- take personal responsibility for search and development of educational talents;
- adjust the salary policy for talent.

As a business process, talent management in education comprises numerous components, in particular: career development and promotion management; organizational educational management; motivation as a process; training - management of knowledge and skills (Table 1).

Table 1. Comparison methods of talent management in education

Parameters of contrasting	Used to be in practice	Now offered
Responsibility for personnel management in education	Specific unit	Everyone, starting with the head of the educational institution
Current ways of motivation	Salary	All types
Nature of hiring	Purchasing	Marketing
Directions of development	Via training programs, competency testing, certification, obtaining scientific degrees, academic titles	Via the formation of educational competencies throughout the lifetime
Nature of the relationship	With everyone	Differentiated

Source: own elaboration

To a large extent, educational organizations do not notice any benefits or advantages of talent management services, as they view them as excessive work no one needs. According to the evaluation of the consultants, full implementation of the talent management system in the educational organization takes up to one or two years.

Typical management models used for talent management in some countries include: American (the end result of management is estimated); German (bureaucratization of the

process); French (focus on the human factor - talent); Japanese or Korean (hierarchy, work for the future) (Robertson, 2004).

The development of a talent management system involves three main stages:

1. Search for educational leaders with high potential in the team. This stage of identifying talented staff implies employee evaluation which allows confirming or denial of the employee's potential.
2. Implementation of the development program in education (process of lifelong learning and talent development). After the evaluation, those who can be included in the personnel reserve for further training and development are selected for further building of the talent management system in terms of managerial positions.
3. Use and retention of employees in the educational organization (differentiation and inspiring people).

Unlike personnel processes in operational management and work with the staff in education, talent management always focuses on certain procedures and has a strategic focus.

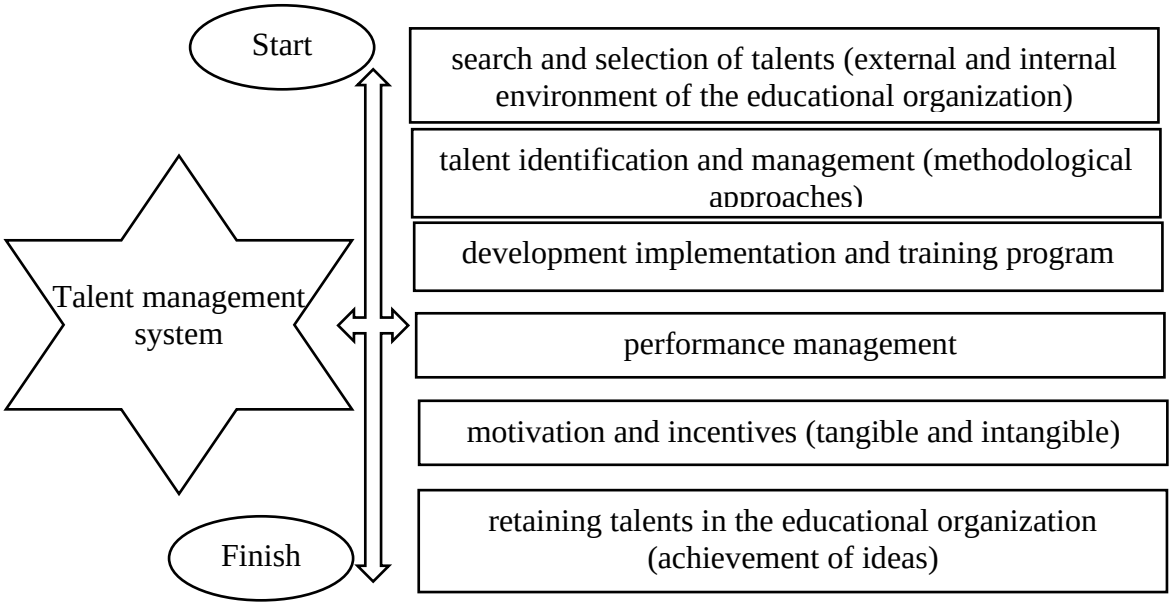
The potential of talent management mostly owes to the corporate culture – the reason why people become members of the educational organization, how relationships between them are built, and which principles and methods of providing services are used in the activities of the educational organization.

Any educational organization has a system of values, which is a value itself: people enjoy communicating with each other, want to work in an educational organization for a long time, help colleagues grow professionally, share knowledge and experience, being eager to do much for the organization to grow and develop. A favorable corporate climate is one of the motivating moments for employees of any organization. Ethical and reputational aspects of an educational organization are the elements of corporate culture that contribute to inspiring and retention of talented educators. Corporate culture, implemented by talented and gifted educators, allows them to realize their value for the educational organization, build up loyalty to it as well as motivation to work and taking personal initiative.

Thus, the corporate culture of an educational organization is what unites talents into a single structure, where they combine to multiply each other's potential. A well-developed corporate culture promotes the adoption of "orientation at the talent" by the management and staff of the educational organization, development of corporate traditions, etiquette of business relations, and so on.

Educational organization finds it important to create an attractive environment for users of educational services. One of the available tools is attraction and development of talents. We offer the main stages of development for a talent management system, which allow creating a long-term competitive advantage, increasing profitability, reducing costs and accelerating the innovation process (Fig. 1).

Figure 1. Talent management scheme



Source: own elaboration

This generalized scheme of talent management is a powerful tool for talented employees, it requires a focus on an individual approach to working with educators, creating new management technologies, and allows creating sustainable and effective competitive advantages both for employees and the institution in the market.

4. CONCLUSION

Practical implementation of proposals and implementation of a systematic approach will develop a corporate culture and create favorable climate for implementation of the talent management system. With the help of a method of identifying and retaining talents in the educational organization, it is possible to eliminate the existing problems of selecting highly effective personnel. Proposals developed in the study can significantly increase the effectiveness of ongoing activities and restructure the system of talent management in accordance with the current characteristics of the educational organization.

REFERENCES

[1] Michaels, Ed. (2005). *The war for talent* – "Mann, Ivanov, and Ferber," 116 p.

[2] Noskova, K.A. (2012). Talent management of the innovative organization. *Modern Research and Innovations*, vol. 20, iss. 12, pp. 14. (In Russ)

[3] Usheva, M. (2011). *Talent management in modern human resource management.* Marketing and management of innovations, vol. 2. iss. 3, pp. 173-179.

[4] Shakhbazov, A. (2006). *Talent management. Western whim or the future of Russian business*. Business education in Russia and abroad. [online]. [cit.2021-10-02]. Available at: http://ubo.ru/articles/?cat=132&pub=1112.

[5] Nikitin, A. (2011). On modern approaches to understanding the phenomenon of talent. *World of psychology*, vol. 65, iss. 1, pp.127–137.

[6] Immelt, J. (2010). GE writes the "Book of Changes. *Harvard Business Review*, 75–84 pp.

[7] Robertson, A. (2004). *Talent management.* Balance-club. 176 p.

ROBOTS AND OLDER PEOPLE WITHIN LABOR MARKET IN SLOVAKIA AND EUROPEAN UNION

Jozef BARTEK[8]

Abstract: *The utilization of employment potential of older people in the labor market is considered to be one of the importatnt challenges on labor market in the view of the growing trend of aging populations. As a basic indicator of the utilization of the employment potential of older people in the labor market is chosen the employment rate of older people (55-64 years) for 2015-2021Q1, which is compared with the average density of installed robots in the manufacturing industry for 2015-2019 as an indicator of Industry 4.0 implementation for Slovakia and the European Union. The examination of the data showed that the employment rate of older people and the average density of installed robots in the manufacturing industry were growing over the entire specified period in both monitored regions. The comparison finds that the mere increase in installed robots in the manufacturing industry does not reduce the employment rate of older people in the labor markets.*

Key words: *employment, labor market, older people, robotics*

JEL Classification: *J00, J14, O15, O33*

1. INTRODUCTION

Global labor market challenges currently include the COVID-19 pandemic (Sus & Sylwestrzak, 2021; Krajňáková & Vyhnička, 2021; Silberg, 2021; Stankevičiūtė & Adamonienė, 2021), populations aging (Dudel & Myrskylä, 2017; Neary, et al., 2019; Horváthová & Éhn, 2020; Jeníček & Foltýn, 2003; Hardy, et al., 2018; Ćwirlej-Sozańska, et al., 2018; Vaňo, 2020; Kostrová & Grmanová, 2018), Industry 4.0 (Tupá, 2020; Volek & Novotna, 2017; Jašková, 2021), labor migration (Shvindina, et al., 2021; Grmanová, 2020; Ivanová & Grmanová, 2021; Krajňáková, 2019; Bajzík & Nováček, 2020; Škrovánková & Grmanová, 2018), forms of universal/uncoditional basic income (UBI) that stimulate labor market participants in various ways (Cabrales, et al., 2020; Misztal, 2019; Specianova, 2017; Woś, 2017) and global warming as a factor in labor migration (Heinisch, et al., 2021; Ahmed, et al., 2021; Mueller, et al., 2020).

It is considered to be equally topical and no less important from the point of view of the globally growing trend of population aging the topic of utilizing the employment potential of older people in the labor market and the effective evaluation of their human capital, which contribute to the economic performance and competitiveness of economies. The employment rate of older people (55-64 years) is chosen as the basic indicator of the utilization of the employment potential of older people in the labor market. The indicator is considered to be the starting point for examining the topic because it clearly defines active working life. The indicator of employment rate of older people is compared with the average density of robots in manufacturing industries as one of the indicators of the implementation of Industry 4.0 for Slovakia and the European Union. The purpose of the comparison is to answer the question of how the increase in installed robots in the manufacturing industry corresponds with the employment rate of older people in the labor markets.

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2. LITERATURE REVIEW

The literature review is focused on the phenomena that occur during the implementation of robots in relation to the labor market and to older people in labor markets. Robots work in almost any industry. There are robots with artificial intelligence that have their Hi-Tech labor market - capable of doing hi-tech work (Bryndin, 2019), but this article is focused more on automated industrial robots that perform welding, laying, painting and other high precision operations (ibid.) and especially routine manual work (Bharadwaj & Dvorkin, 2019). Research in horticulture in Australia found that robots will replace work as picking, packaging, lifting in horizont of 10-15 years (Ejsmont, 2021), which on the one hand relieves workers of monotonous and physically demanding work and on the other hand has an impact on employment or cancellation of jobs. It is clear that robotization causes the demise of some professions or substitutes job positions (Sus & Sylwestrzak, 2021; Angeloska, et al., 2021; Misztal, 2019) and it can cause uncertainty in the labor market (Anelli, et al., 2019). The numerical evaluations for the US labor markets are interesting from the point of view of the changes. Fitzgerald (2017) claims that one robot will reduce employment in the US labor markets by 5.6 workers. Acemoglu & Restrepo (2020) investigated that in the US labor markets one robot per thousand workers will reduce employment by 0.20% and wages by 0.42%.

The macroeconomic view of the relationship between robotics and employment in developed economic units is positive with regard to the development of employment. Employment in the manufacturing industry has a significant positive association with robotics in the EU between 1995 and 2015 from a macroeconomic point of view and persists when non-manufacturing industries are taken into account (Joint Research Center, 2020). Similar findings in the 2009-2017 US labor markets were made by Rodgers III & Freeman (2019) who say that robots have a negligible effect on overall national employment, but have negatively affected some sectors, regions and groups of workers. Given the ongoing pandemic and its impact on economies, Graetz & Michaels (2017), who researched the 1970-2011 recession find that unemployment in the recovering economies of developed countries outside the United States is not caused by the implementation of robots.

The consequences of robotisation cannot be generalized and probably depend on the type of sector, the region and the socio-economic context. Cabrales et al. (2020) found in experimental research in Spain that the threat of replacing an employee with a robot does not affect his effort and it is not reduced even by the UBI or the robot tax. Research on workers, companies and robots in Denmark showed that the loss of welfare caused by robots was sustained by older production workers (Humlum, 2019). This phenomenon may be interesting for comparing the well-being of older people in the labor market of Slovakia, because geographically, Denmark is a similar country in terms of total area and population. In contrast, research into the relationship among local labor markets and industrial robots of an economy several times larger what Germany is showed that because of robots young workers usually leave from manufacturing to the service sector, while the robots implementation benefits managers or technicians (Dauth, et al., 2021).

Findings on the benefits of robotics by a certain group of people in the labor markets support research in the field of personnel management and human resources aimed at defining the required qualities of human capital in the implementation of Industry 4.0. Labor market requirements for the quality of human capital are evolving due to robotics, and competencies sought by HR managers include: digital skills (Vidová, 2021; Grmanová, et al., 2021; Žárská & Holomek, 2021), mental balance, adaptability, creativity, self - development, critical thinking, leadership (Weise, et al., 2018; Sus & Sylwestrzak, 2021), agility (Silberg, 2021) and technical skills (Grenčíková, et al. , 2021).

It seems that robotics and automation do not favor the older workforce, and it is the aging of the population that can stimulate the growth of robotics. A survey of Dutch data on workers in companies undergoing automation found that older workers (50+) had a drop in income due to longer unemployment, higher costs of automation than younger workers and more likely to be early retired (Bessen, et al., 2019). Acemoglu & Restrepo (2018) in the research of automation and aging concluded that aging leads to a higher degree of automation and to a greater use and development of robots as well.

3. PROBLEM FORMULATION AND METHODOLOGY

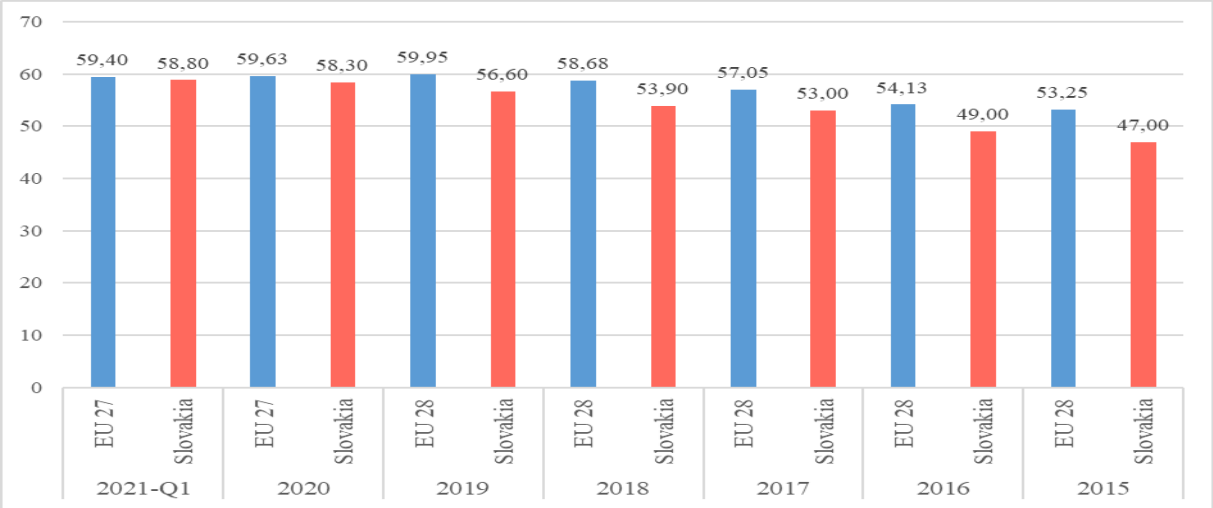
The article is aimed to partially map the utilization of employment potential of older people (55-64) in the labor market through the employment rate indicator in Slovakia and European Union which is compared with the average density of robots in the manufacturing industry per 10,000 employees in Slovakia and in Europe. The research question is: "Does the increase in installed robots in industry reduce the employment of older people in the labor market?" The data of employment rate of older people in the population aged 55-64 in Slovakia and the European Union (EU) come mainly from the databases of Eurostat, the Statistical Office of the Slovak Republic. The data of the average density of robots in the manufacturing industry per 10000 employees in Slovakia and in Europe come mainly from the annual reports of the International Federation of Robotics. According to the definition given by Milton Guerry (IFR, 2021) “robot density is the number of operational industrial robots relative to the number of workers” and “this level measurement allows comparisons of countries with different economic sizes in the dynamic automation race over time”. The following methods were used in the research: literature analysis, synthesis, abstraction, induction, deduction, comparison, descriptive statistics including mean values.

4. RESULTS

The analysis of employment rate of older people (55-64) on the labor market is carried out for the period 2015-2021-Q1 in Slovakia and in the EU in Figure 1. It has a growing trend in both monitored geographical units. It is found by comparing the values that in Slovakia the employment rate of older people in each monitored period is below the EU average, but gradually converging and reducing the difference of 6.25% between Slovakia and the EU from 2015 to 0.60% in 2021-Q1.

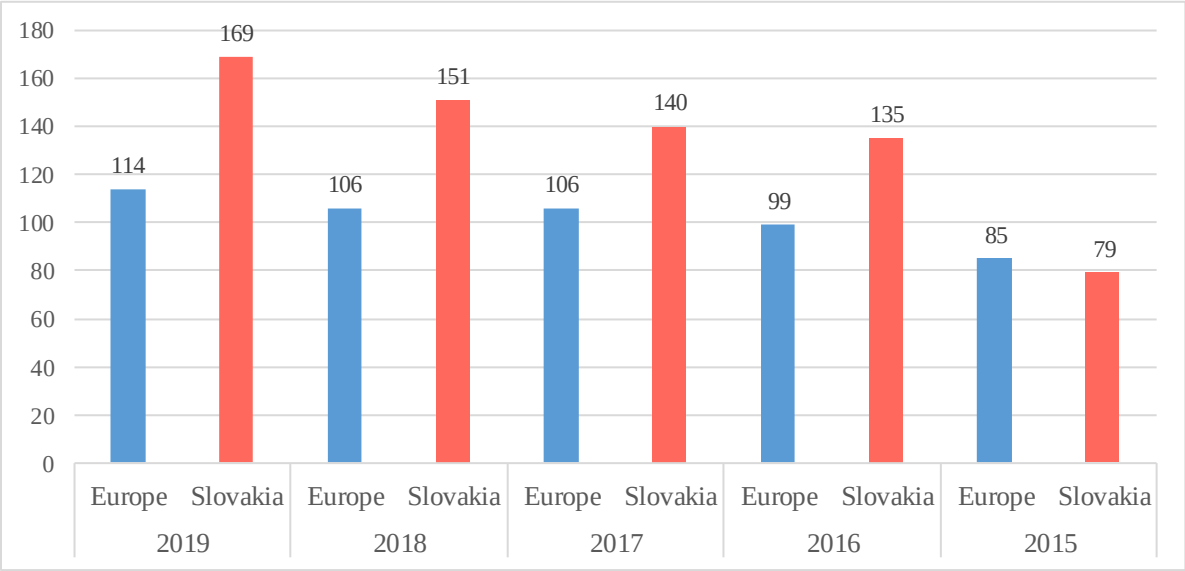
The study of the development of average robot density growth in the manufacturing industry per 10000 employees is carried out for the period 2015 - 2019 in Slovakia and in Europe (see Figure 2), because data for 2020 and 2021 have not yet been available. The data show that the growth of the monitored indicator has an upward trend in both regions. While the values in Slovakia in 2015 were below the European average, in the following year 2016 they exceeded them by a third and in the following years 2017-2019 it maintains this growing third trend with a slightly rising character compared to the European average.

Figure 1. Employment rate of older people (% of population aged 55-64) in Slovakia and EU 2015-2021-Q1



Source: Eurostat (2021), Bartek (2020) and authors' calculations based on Eurostat (2021)

Figure 2. Average robot density in the manufacturing industry per 10000 employees in Slovakia and Europe 2015-2019

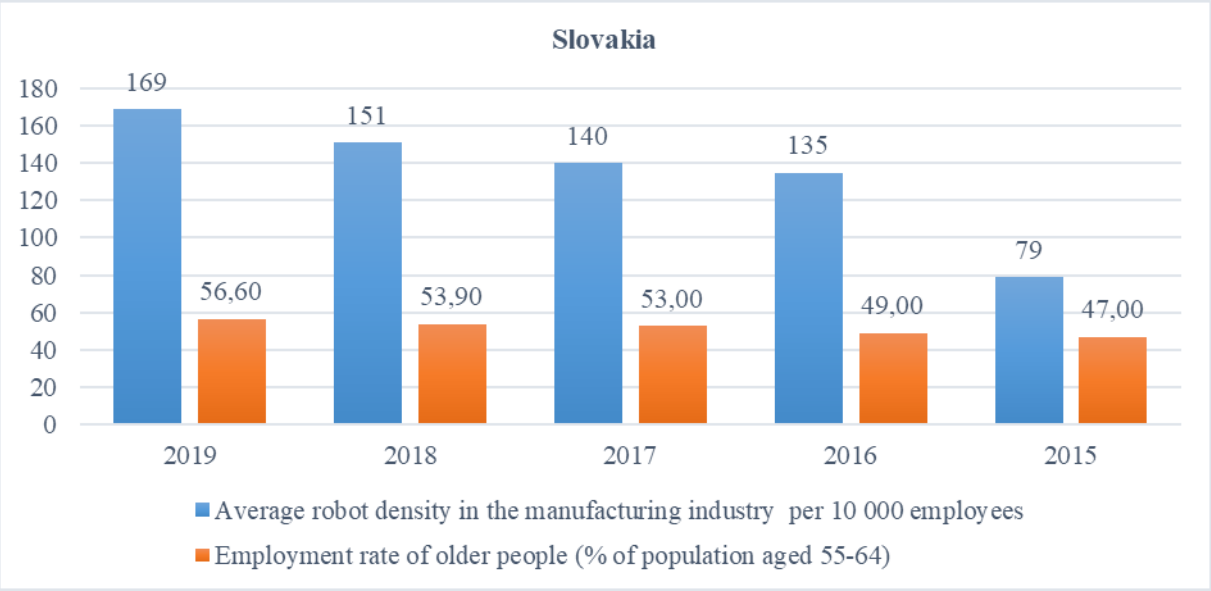


Source: IFR (2020), Denník N (2019), IFR (2018), IFR (2017), IFR (2016) and authors' calculations based on cited sources

Comparison of the data in Figure 3 average robot density in the manufacturing industry per 10000 employees and employment rate of older workers (% of population aged 55-64) in Slovakia shows that both monitored values increase during the monitored years.

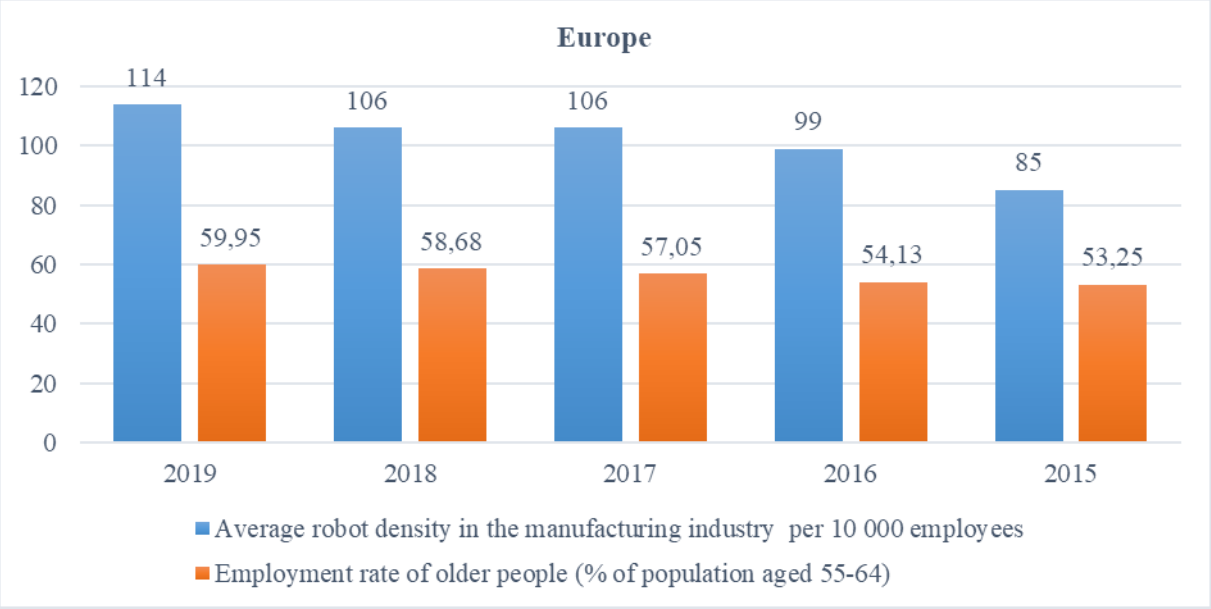
A comparison of the data in Figure 4 average robot density in the manufacturing industry per 10000 employees for Europe and the employment rate of older workers (% of population aged 55-64) for the EU shows that both monitored values increase during the monitored years.

Figure 3. Comparison of average robot density and employment rate of older people in Slovakia 2015-2019



Source: Eurostat (2021), Bartek (2020) and authors' calculations based on Eurostat (2021), IFR (2020), Denník N (2019), IFR (2018), IFR (2017), IFR (2016) and authors' calculations based on cited sources

Figure 4. Comparison of average robot density and employment rate of older people in Europe 2015-2019



Source: Eurostat (2021), Bartek (2020) and authors' calculations based on Eurostat (2021), IFR (2020), Denník N (2019), IFR (2018), IFR (2017), IFR (2016) and authors' calculations based on cited sources

5. CONCLUSION

Comparison of the two monitored indicators average robot density and employment rate of older people in Slovakia and the EU for the years 2015-2019 suggests a similar trend as confirmed by researches on the relationship between robotization and employment, which show that robotics does not clearly reduce total employment (Joint Research Centre, 2020; Rodgers III & Freeman, 2019). Although in some sectors or regions there may be a decrease

in the employment of older people in relation to the use of robots (Humlum, 2019; Bessen, et al., 2019), we have not identified a total reduction in the employment rate of older people in Slovakia or the EU. The employment rate of older people (55-64) and the average robot density increased in the monitored periods which is a sign of a positive trend of utilization of employment potantial of older people in the labor market and the implementation of robots. The expectation of future development in Slovakia and EU is similar according to the phenomenon observed in the USA while the aging of the population leads to a higher degree of automation and robotization (Acemoglu & Restrepo, 2018).

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REFERENCES

[1] Acemoglu, D. & Restrepo, P. (2018). Demographics and Automation. *NBER Working Paper 24421*, pp. 1-52. [online]. [cit. 2021-10-09] Available at: https://www.nber.org/system/files/working_papers/w24421/w24421.pdf.

[2] Acemoglu, D. & Restrepo, P. (2020). Robots and Jobs: Evidence from US Labor Markets. *Journal of Political Economy, 128*(6), pp. 1-57. [online]. [cit. 2021-10-09] Available at: https://economics.mit.edu/files/19696.

[3] Ahmed, Y. N., Huang, D., Belford, C., Shaker, V., & Abdelrahaman, N. A. (2021). An estimate of the potential economic impacts of climate change on Egypt's agriculture: a multi-market model approach. *Climate and Development, 13*(3), pp. 228-241, doi:10.1080/17565529.2020.1754156.

[4] Anelli, M., Giuntella, O. & Stella, L. (2019). Robots, Labor Markets, and Family. *IZA DP*(12820), pp. 1-38. [online]. [cit. 2021-10-09] Available at: https://ftp.iza.org/dp12820.pdf.

[5] Angeloska, A., Spaller, E., & Vasa, L. (2021). Foreign Direct Investment, Digital Skills and Employability – Comparison Between Eastern and Western Europe. In M. Kordoš (Ed.), *Proceedings of scientific papers from the international scientific conference The Impact of Industry 4.0 on Job Creation 2020*. Trenčín: Publishing House Alexander Dubček University in Trenčín. pp. 31-38. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[6] Bajzík, P. & Nováček, P. (2020). Employment of Foreign Labor Force in Slovakia. *Sociálno-Ekonomická Revue* (4), pp. 12-19. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=290.

[7] Bartek, J. (2020). Employment and Life Expectancy of Older People in Slovakia and European Union. In A. Korombel, O. Lawińska, & M. Okreglicka (Ed.), *Proceedings Of The 3rd International Conference Contemporary Issues In Theory And Practice Of Management CITPM 2020*. Czestochowa: Wydawnictwo Politechniki Częstochowskiej. pp. 40-47. [online]. [cit. 2021-10-09] Available at: http://citpm.wz.pcz.pl/files/CITPM-2020.pdf.

[8] Bessen, J., Goos, M., Salomons, A. & van der Berge, W. (2019). Automatic Reaction –What Happens To Workers at Firms that Automate? *Law & Economics Series Paper*, pp. 1-62. doi:10.2139/ssrn.3328877.

[9] Bharadwaj, A. & Dvorkin, M. A. (2019). *Federal Reserve Bank of St. Louis*. The Rise of Automation: How Robots May Impact the U.S. Labor Market. [online]. [cit. 2021-10-09] Available at: https://www.stlouisfed.org/publications/regional-economist/second-quarter-2019/rise-automation-robots.

[10] Bryndin, E. (2019). Robots with Artificial Intelligence and Spectroscopic Sight in Hi-Tech Labor Market. *International Journal of Systems, 4*(3), pp. 31-37. doi:10.11648/j.ijssam.20190403.11.

[11] Cabrales, A., Hernández, P. & Sánchez, A. (2020). Robots, labor markets, and universal basic income. *Humanities and Social Sciences Communications, 7*(185), pp. 1-8. doi:10.1057/s41599-020-00676-8.

[12] Ćwirlej-Sozańska, A., Wiśniowska-Szurlej, A., Wilmowska-Pietruszyńska, A., Sozański, B. & Woloszyn, N. (2018). Assesment of Psychological Capacities for Professional Work in Late Middle Age and at the Beginning of Old Age. *Medycyna Pracy, 69* (4), pp. 375-381. doi:10.13075/mp.5893.00680.

[13] Dauth, W., Suedekum, J., Findeisen, S. & Woessner, N. (2021). The Adjustment of Labor Markets to Robots. *Journal of the European Economic Association*, pp. 1-50. doi:10.1093/jeea/jvab012.

[14] Denník N. (2019). *V priemysle máme viac robotov, ako je priemer v Európe, viac než Česi*. (N Press s.r.o.). [online]. [cit. 2021-10-09] Available at: https://e.dennikn.sk/minuta/1602709.

[15] Dudel, C. & Myrskylä, M. (2017). Working Life Expectancy at Age 50 in the United States and the Impact of the Great Recession. *Demography* (54), pp. 2101-2123. doi:10.1007/s13524-017-0619-6.

[16] Ejsmont, K. (2021). The Impact of Industry 4.0 on Employees—Insights from Australia. (E. C. Tortia, Ed.) *Sustainability* 13, (3095), pp. 1-31. doi:10.3390/su13063095.

[17] Eurostat. (2021). *Employment by sex, age and citizenship (%)*. [online]. [cit. 2021-10-09] Available at: https://ec.europa.eu/eurostat/databrowser/view/LFSQ_ERGAN__custom_1313668/default/table?lang=en.

[18] Fitzgerald, J. (2017). *National Bureau of Economic Research*. [online]. [cit. 2021-10-09] Available at: https://www.nber.org/digest/may17/robots-and-jobs-us-labor-market.

[19] Graetz, G. & Michaels, G. (2017). Is Modern Technology Responsible for Jobless Recoveries? *CEP Discussion Paper No 1461*, pp. 1-21. [online]. [cit. 2021-10-09] Available at: https://cep.lse.ac.uk/pubs/download/dp1461.pdf.

[20] Grenčíková, A., Kordoš, M., Bartek, J. & Berkovič, V. (2021). The Impact of the Industry 4.0 Concept on Slovak Business Sustainability within the Issue of the Pandemic Outbreak. *Sustainability* 13, (4975). doi:10.3390/su13094975.

[21] Grmanová, E. (2020). Zamestnanie cudzincov podľa vykonávanej profesie v SR. In M. Kordoš (Ed.), *Conference Proceedings: The Impact of Industry 4.0 on Job Creation 2019.* Trenčín: FSEV TnUAD. pp. 123-132. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/konferencia2019/Zbornik.pdf.

[22] Grmanová, E., Bartek, J. & Gullerová, M. (2021). Changes in the Digital Skills of the Slovak Senior Citizens in the European Context. In M. Kordoš (Ed.), *The Impact Of Industry 4.0 On Job Creation*. Trenčín: Publishing House Alexander Dubček University in Trenčín. pp. 159-166. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[23] Hardy, W., Kiełczewska, A., Lewandowski, P. & Magda, I. (2018). Job Retention Among Older Workers in Central and Eastern Europe. *Baltic Journal of Economics, 18* (2), pp. 69-94. doi:10.1080/1406099X.2018.1514562.

[24] Heinisch, K., Holtemöller, O. & Schult, C. (2021). Power Generation and Structural Change: Quantifying Economic Effects of the Coal Phase-Out in Germany. *Energy Economics* (95), pp. 1-29. doi:10.1016/j.eneco.2020.105008.

[25] Horváthová, A. & Éhn, J. (2020). Analysis of the Expected Development of Demographic Factors and Their Adaptation to the Labor Market in Slovakia. *Sociálno-ekonomická Revue* (01), pp. 40-50. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=272.

[26] Humlum, A. (2019). Robot Adoption and Labor Market Dynamics. *Job Market Paper*, pp. 1-78. [online]. [cit. 2021-10-09] Available at: https://static1.squarespace.com/static/5d35e72fcff15f0001b48fc2/t/5dcf78576d59eb44eac86f63/1573877848584/humlumJMP.pdf.

[27] IFR. (2017). *World Robotics.* [online]. [cit. 2021-10-09] Available at: https://ifr.org/news/robot-density-rises-globally/.

[28] IFR. (2018). *Executive Summary World Robotics 2018 Industrial Robots.* [online]. [cit. 2021-10-09] Available at: https://ifr.org/downloads/press2018/Executive_Summary_WR_2018_Industrial_Robots.pdf.

[29] IFR. (2020). IFR Press Conference. In C. Müller, W. Kraus, S. Bieller, & M. Guerry (Ed.), *IFR Press Conference*. Frankfurt Main: International Federation of Robotics IFR. pp. 1-32. [online]. [cit. 2021-10-09] Available at: https://ifr.org/downloads/press2018/Presentation_WR_2020.pdf.

[30] IFR. (2021). *Robot Race: The World´s Top 10 Automated Countries*. [online]. [cit. 2021-10-09] Available at: https://ifr.org/ifr-press-releases/news/robot-race-the-worlds-top-10-automated-countries.

[31] Ivanová, E. & Grmanová, E. (2021). The Sustainability of EU Labor Immigration in Terms of Poverty Inequalities and Employment. *Sustainability* (13) 4, 2265. doi:10.3390/su13042265.

[32] Jašková, D. (2021). Changes in the Labour Market in the Regions Of Slovakia. *Sociálno-ekonomická Revue* (1), pp. 16-24. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=300.

[33] Joint Research Centre. (2020). *Science for policy briefs.* [online]. [cit. 2021-10-09] Available at: https://ec.europa.eu/jrc/sites/default/files/fairness_pb2020_wave04_robotization_jrc_b5.pdf.

[34] Kostrová, J. & Grmanová, E. (2018). Older People in the Labor Market and Their Employment in Selected Countries of the European Union. *Sociálno-ekonomická Revue* (3), pp. 30-38. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=200.

[35] Krajňáková, E. (2019). Migrácia občanov Slovenska za prácou do zahraničia v kontexte európskych migračných tokov pracovnej sily. *Sociálno-ekonomická Revue* (4), pp. 15-24. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=259.

[36] Krajňáková, E. & Vyhnička, J. (2021). The Importance of Industry 4.0 for Job Creation in Conditions Covid-19. *Conference proceedings: The Impact Of Industry 4.0 On Job Creation 2020*. Trenčín: FSEV TnUAD. pp. 253-261. [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[37] Misztal, P. (2019). Unconditional Basic Income as an Instrument for Reducing Income Inequalities. The Case of Poland. *Acta Oeconomica, 69* (1), pp. 63-79. doi:10.1556/032.2019.69.1.4.

[38] Mueller, V., Sheriff, G., Dou, X. & Gray, C. (2020). Temporary Migration and Climate Variation in Eastern Africa. *World Development* (126), pp. 1-16. doi:10.1016/j.worlddev.2019.104704.

[39] Neary, J., Katikireddi, S. V., Brown, J., Macdonald, E. B. & Thomson, H. (2019). Role of Age and Health Perception of Returning to Work: a Qualitative Study. *BMC Public Health, 496* (19), pp. 1-10. doi:10.1186/s12889-019-6819-9.

[40] Rodgers III, W. & Freeman, R. (2019). How Robots are Beginning to Affect Workers and Their Wages. *The Century Foundation*. pp. 1-24. [online]. [cit. 2021-10-09] Available at: https://production-tcf.imgix.net/app/uploads/2019/10/22171153/Robots_Final.pdf.

[41] Shvindina, H., Bilan, Y. & Lyeonov, S. (2021). Job Creation and Labour Migration: Causes, Consequences and Possible Solutions Within the Industry 4.0. *Conference proceedings: THE IMPACT OF INDUSTRY 4.0 ON JOB CREATION 2020*. Trenčín: Publishing House Alexander

Dubček University in Trenčín. pp. 398-408). [online]. [cit. 2021-10-09] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[42] Silberg, S. (2021). Agility - the Key Ability for Industry 4.0. In M. Kordoš (Ed.), *Conference proceedings: The Impact Of Industry 4.0 On Job Creation 2020*. Trenčín: Publishing House Alexander Dubček University in Trenčín. pp. 419-428. [online]. [cit. 2021-09-10] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[43] Specianova, J. (2017). Unconditional Basic Income - What Can(not) It Guarantee and in What Way Is It Different? *Politicka Ekonomie, Vol. 65* (5), pp. 601-622. doi:10.18267/j.polek.1164.

[44] Stankevičiūtė, Ž. & Adamonienė, R. (2021). Work-Family Enrichment and Task Performance While Working Remotely During Covid-19 Lockdown. In M. Kordoš (Ed.), *Conference proceedings: The Impact Of Industry 4.0 On Job Creation 2020*. Trenčín: Publishing House Alexander Dubček University in Trenčín. pp. 436-445. [online]. [cit. 2021-09-10] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[45] Sus, A. & Sylwestrzak, B. (2021). Evolution of the Labor Market and Competency Requirements in Industry 4.0 versus the Covid-19 Pandemic. *European Research Studies Journal, XXIV* (1), pp. 494-506. [online]. [cit. 2021-09-10] Available at: https://econpapers.repec.org/article/ersjournl/v_3axxiv_3ay_3a2021_3ai_3a1_3ap_3a494-506.htm.

[46] Škrovánková, K. & Grmanová, E. (2018). Changes on the Labour Market in Slovak Republic in Context of Population Ageing. *Sociálno-ekonomická Revue* (4), pp. 94-102. [online]. [cit. 2021-09-10] Available at: https://fsev.tnuni.sk/revue/single.php?lang=svk&id=217.

[47] Tupá, M. (2020). Impact of Industry 4.0 on the Labor Market of the Slovak Republic in the Context of Labor Migration. In M. Kordoš (Ed.), *Vplyv Industry 4.0 Na Tvorbu Pracovnych Miest 2019*. Trencianske Teplice, Slovakia: Alexander Dubcek University, Trencin. pp. 414-422. [online]. [cit. 2021-09-10] Available at: https://www-1webofscience-1com-110bsvkow0c8a.hanproxy.cvtisr.sk/wos/woscc/full-record/WOS:000532485800050.

[48] Vaňo, B. (2020). Dôsledky zmien reprodukčného správania na vekové zloženie obyvateľstva. *Slovenská štatistika a demografia, 30* (4), pp. 3-12. [online]. [cit. 2021-09-10] Available at: https://slovak.statistics.sk/wps/wcm/connect/73aee7fb-ad69-480e-95ff-7857490519f6/Slovenska_statistika_a_demografia_4_2020.pdf?MOD=AJPERES&CVID=nlk9EJ8.

[49] Vidová, J. (2021). Digital Skills in the Era Of Industry 4.0. *Conference proceedings: THE IMPACT OF INDUSTRY 4.0 ON JOB CREATION 2020*. Trenčín: Trenčianska univerzita Alexandra Dubčeka v Trenčíne. pp. 494-502. [online]. [cit. 2021-09-10] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

[50] Volek, T. & Novotna, M. (2017). Labour Market in the Context of Industry 4.0. *11th International Days Of Statistics And Economics*. Prague, Czech Republic: Melandriumfugnerova 691, Slany, 27401, Czech Republic. pp. 1790-1799. [online]. [cit. 2021-09-10] Available at: https://www-1webofscience-1com-110bsvkow0c8a.hanproxy.cvtisr.sk/wos/woscc/full-record/WOS:000455325300178.

[51] Weise, M. R., Hanson, A. R., Sentz, R. & Saleh, Y. (2018). *Robot-Ready: Human+ Skills for the Future of Work.* [online]. [cit. 2021-09-10] Available at: https://apo.org.au/sites/default/files/resource-files/2018-11/apo-nid209116.pdf.

[52] Woś, E. (2017). Unconditional Basic Income (UBI). *Aspen. Review Central Europe* (2), pp. 116-121.

[53] Žárská, V. & Holomek, J. (2021). The Need for the Development of Human Capital, the Focus of Education and the State in the SR In The Context Of Industry 4.0. *Conference proceedings: The Impact Of Industry 4.0 On Job Creation 2020*. Trenčín: Alexander Dubček University in Trenčín. pp. 541-546. [online]. [cit. 2021-09-10] Available at: https://fsev.tnuni.sk/konferencia2020/Zbornik.pdf.

VPLYV INDUSTRY 4.0 NA ZMENY NA TRHU PRÁCE

IMPACT INDUSTRY 4.0 ON CHANGES IN THE LABOR MARKET

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Abstrakt: *Tento príspevok popisuje zmeny, ktoré sa uskutočňujú na trhu práce, ale aj naprieč celou spoločnosťou a aký vplyv budú predstavovať tieto zmeny na organizácie a na ľudí. Ozrejmujeme v ňom tempo zmien, ktoré sa takto uskutočňujú a sú priamo závislé na technologických možnostiach, ktoré Industry 4.0 prináša. Výskum je zameraný na súčasnú situáciu nedostatku pracovnej sily v organizáciách ktoré začínajú postupne prvky Industry 4.0 do svojich procesov implementovať..*

Kľúčové slová: *Priemysel 4.0, štruktúra pracovných miest, budúcnosť pracovných miest*

Abstract: *This article describes the changes that are taking place in the labor market, but also across society, and how these changes will affect organizations and people. In it, we clarify the pace of change that takes place in this way and is directly dependent on the technological possibilities that Industry 4.0 brings. The research is focused on the current situation of labor shortages in organizations that are gradually beginning to implement elements of Industry 4.0 into their processes.*

Key words: *Industry 4.0, structure of jobs, future of jobs*

JEL Classification: *F66, J21, J23, Q55*

1. ÚVOD

Štvrtá priemyselná revolúcia je pojem, ktorý vychádza z nemeckého konceptu Industrie 4.0. Odborníci sa nie celkom zhodujú čo bude výsledkom zavedenia tejto koncepcie. Základom štvrtej etapy je internet vecí. V najbližších rokoch budú všetky stroje i niektoré súčiastky v nich schopné spolu komunikovať. V spojení s ďalšími technológiami ako digitálnym podnikom, inteligentnými robotmi spolupracujúcimi s ľuďmi, obrovským množstvom spracovávaných dát, strojovým učením či prvkami umelej inteligencie bude získavať výroba stále väčšiu schopnosť samoriadenia a samoorganizácie. Pôjde o systém s decentralizovaným riadením a autonómnym rozhodovaním. Vznikne inteligentná továreň, ktorú odborníci označujú pojmom *kyberneticko-fyzikálny systém*. Tieto zmeny ovplyvnia zásadne život ľudskej spoločnosti preto je potrebné zmeny očakávať vo všetkých oblastiach života.

Pandémia COVID-19 urýchlila mnohé procesy digitalizácie a do online sveta sa presunulo obrovské množstvo činností. Masívny presun do online priestoru sa týkal najmä školstva a procesu výučby vôbec, obchodovania, nakupovania, výberu zamestnancov a talentov a dokonca čiastočne aj niektorých foriem zábavného priemyslu a športových aktivít. Táto nečakaná situácia nám ukázala, ako bude dôležité byť pripravený na takýto spôsob vykonávania činností. Podniky, organizácie aj jednotlivci budú v období, keď to bude pre ich bezpečnosť výhodnejšie, uprednostňovať virtuálny online priestor kde je jednoduché dodržiavať sociálny odstup.

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Táto revolúcia takisto môže viesť k prehĺbeniu rozdielov hlavne pre nepriaznivé zmeny na trhu práce tak, že automatizácia nahradí manuálnu prácu. V celej ekonomike nerovnováha pracovníkov ku strojom môže zväčšiť priepasť medzi ziskami z vlastníctva kapitálu a ziskami pracujúcej triedy. Na druhej strane, takisto je možné, že zmeny v pracovných príležitostiach, ktoré budú zapríčinené touto technológiou povedú k celkovo k nárastu počtu pracovných príležitostí ktoré budú bezpečné a veľmi lukratívne. Teraz sa ešte nedá predpokladať ktorý scenár sa uskutoční a naša minulosť naznačuje, že výsledok bude zrejme kombinácia viacerých prognóz.

Nesmieme opomenúť skutočnosť, že zavádzaním inteligentného priemyslu sústavne vznikajú nové pracovné pozície, ktoré predtým neexistovali. Tieto pozície môžu mať priamy, ale aj nepriamy súvis zo zavádzaním Industry 4.0. Priamy tak, že práve vývoj a implementácia Industry 4.0 vytvárajú nové pracovné miesta, kde pracovníci nachádzajú svoje uplatnenie a to na širokom poli vedecko-technických činností a podporného servisu. Nepriamo tak, že ľudia majú viac voľného času a svoje prostriedky sú ochotní investovať do nových činností, ktoré predtým pestovali skôr ako záľubu (voľnočasové aktivity, šport, vzdelávanie, rôzne služby) a tu sa otvára obrovské pole pôsobnosti pre nové pracovné miesta.

Téma konkurencieschopnosti priemyslu bude kľúčová pre životnú úroveň ľudí v celom štáte, keďže priemysel ovplyvňuje tretinu pracovných miest v rámci slovenského hospodárstva. Priemysel na Slovensku vytvára pevný základ pre zmenu z nákladovej konkurencieschopnosti smerom ku konkurencieschopnosti založenej na výstupoch. Podiel priemyslu na zamestnanosti v slovenskom hospodárstve je jedným z najvyšších v rámci EÚ a v súčasnosti dosahuje 23,7 %. Avšak rovnako ako v iných štátoch EÚ, aj na Slovensku klesá podiel priemyslu ako celku na trhu práce - pokles je tiež badateľný v priemyselnej výrobe (počas obdobia rokov 2000-2014 o takmer 3%). Pokles počtu pracovných miest v priemyselnej výrobe je podmienený zvýšením podielu kapitálovo náročných priemyselných odvetví a značným nárastom produktivity práce, ktorá je v súčasnosti jednou z najvyšších v EÚ. Okrem toho je predpoklad, že dôjde k zániku mnohých tradičnejších profesií v dôsledku automatizácie a optimalizácie procesov. Odhaduje sa, že náhrada práce ohrozí 55 % pracovných miest na Slovensku. (FREY & OSBORNE, 2015) V reakcii na tieto zmeny, bude potrebné vykonať kroky, ktorými sa Slovensko prispôsobí tomuto veľkému posunu na trhu. (Ministerstvo hospodárstva SR, 2016)

Uzatvárania ekonomík vyvolané pandémiou COVID-19 a súvisiaca globálna recesia v roku 2020 vytvorili veľmi neistý výhľad trhu práce a urýchlili nástup budúcnosti práce. Svetové ekonomické fórum zverejnilo dokument Budúcnosť pracovných miest 2020 ktoré mapuje pracovné miesta a zručnosti budúcnosti a sleduje tempo týchto zmien. (WEF, 2020)

2. CIEĽ A METODOLÓGIA

Cieľom tohto článku je zisťovanie aktuálneho nedostatku pracovnej sily v závislosti od študijného odboru a stupňa vzdelania a očakávaní zamestnávateľov. K dosiahnutiu tohto cieľa sme zvolili dotazníkovú metódu zisťovania. Dotazník patrí medzi jednu z najčastejšie používaných metód vo výskume. Používa sa v spoločenských vedách na hromadné a rýchle zisťovanie faktov, názorov, postojov, preferencií, hodnôt, motívov, potrieb, záujmov a i. (GAVORA, 2010). Dotazník bol vytvorený a následne realizovaný na internete ako stránka. Na túto stránku sa respondenti, ktorí dostali e-mailovú pozvánku mohli prostredníctvom internetu pripojiť a elektronicky vyplniť jednotlivé otázky.

Popis štruktúry dotazníka

V členení dotazníka je často využívaným kritériom delenie podľa veľkosti podniku. Pre jednoznačnosť kritériá pre mikropodnik, malý podnik, stredný podnik a veľký podnik sme

veľkosti definovali v zmysle členenia Štatistického úradu Slovenskej republiky, ďalej ŠÚ SR a to nasledovne:

- podniky do 9 zamestnancov mikropodnik,
- podniky od 10-49 malý podnik,
- podniky od 50-249 stredný podnik,
- podniky od 250 zamestnancov veľký podnik.

Pri tomto členení pre zjednodušenie sme nebrali ohľad na obrat podniku a to aj z dôvodu, že výskum sa zameriava na. predpokladané zmeny v množstve a kvalifikovanosti pracovníkov v podnikoch. Oslovili sme 65 podnikov a odpovede na dotazník zaslalo 34 podnikov.

Dotazník dostal názov *„Koho budeme po zavedení inteligentného priemyslu hľadať a koho už potrebovať nebudeme“* Tento názov sme zvolili z toho dôvodu, aby bolo z názvu respondentovi zrejmé k čomu sa v dotazníku bude vyjadrovať. Cieľom bolo zistenie aktuálneho stavu poznania koncepcie Priemyslu 4.0 v podnikoch Slovenskej republiky, mieru jeho aplikovania, zistenie súčasnej štruktúry výrobných a nevýrobných pracovníkov a pohľad týchto podnikov na budúcu potrebu pracovníkov v súvislosti s nástupom Priemyslu 4.0.

3. VÝSLEDKY PRIESKUMU

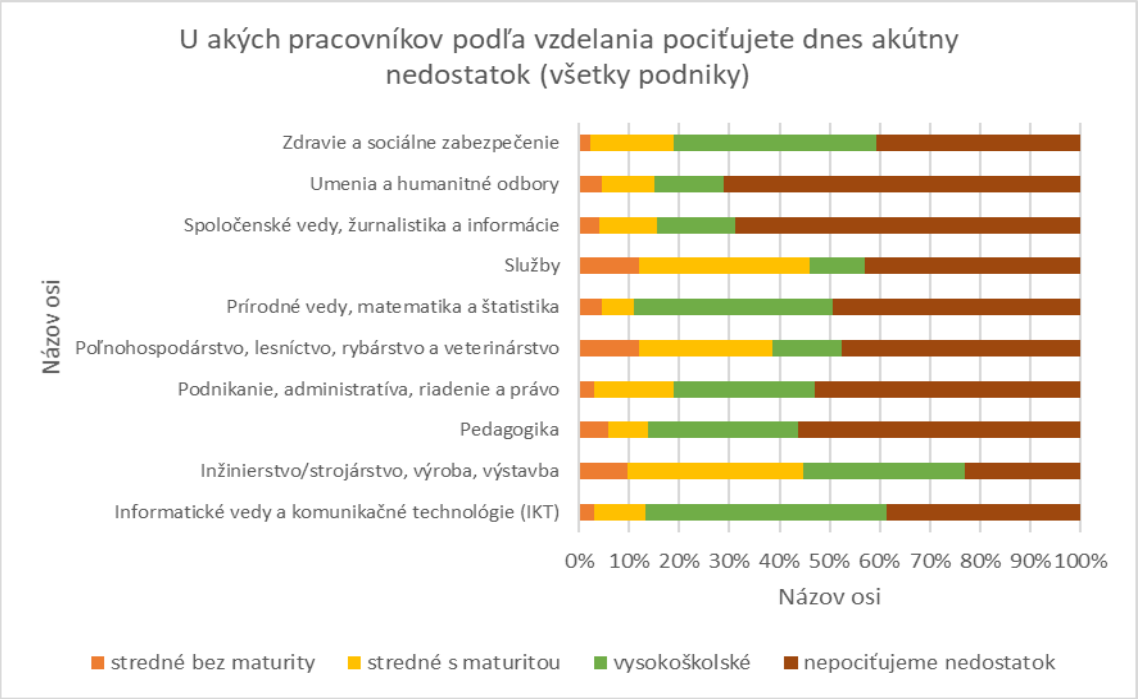
Dotazník roku 2020 bol realizovaný v jarných mesiacoch. Začiatok zberu údajov bol 9.3.2020 a ukončený bol 28.5.2020. Dotazníkový formulár otvorilo 918 respondentov a 175 respondentov vyplnilo a odoslalo dotazník. Pomer návštev k vyplneným dotazníkom bola na úrovni 19%. Keďže neboli overené jedinečné prístupy je možné sa domnievať, že niektorí respondenti dotazník otvorili viac ako jeden krát a z toho dôvodu tento pomer nemožno jednoznačne určiť ako úspešnosť vyplnenia dotazníka. Priebeh dotazníkového prieskumu ovplyvnila aj zhoršujúca sa epidemiologická situácia ktorá v Slovenskej republike už od 13.3.2020 postupne paralyzovala mnohé oblasti hospodárskeho života. Postupne sa začali zatvárať školy, obchody, zariadenia služieb a nakoniec aj mnohé podniky. Predpokladá sa teda, že aj výsledky tohto dotazníkového skúmania boli značne ovplyvnené aktuálnou situáciou a odzrkadľujú sa v nej aj významné zmeny priorít, ktoré podniky v takejto situácii vnímali. Tiež sa mohli líšiť názory respondentov na začiatku dotazníkového zberu v čase začínajúcej „Korona-krízy“ a na konci zberu údajov, ktorý sa uskutočňoval už v čase čiastočne sa uvoľňujúcich opatrení na zamedzenie šírenia vírusu SARS-CoV-2, ktorý spôsobuje ťažké respiračné ochorenie COVID-19. Postupne sa zisťovali a overovali možnosti výučby, práce a správy štátu pomocou on-line platforiem. Tento skokový prechod overil pripravenosť jednotlivých oblastí na prechod do takéhoto režimu. Taktiež organizáciám odhalil slabé miesta a preveril ich možnosti rýchlej adaptácie sa na nové podmienky. Všetky vyššie spomenuté skutočnosti mohli ovplyvniť odpovede respondentov. Preto tieto odpovede dotazníka 2020 je potrebné posudzovať aj v tomto kontexte.

Graf nižšie poukazuje na nedostatok pracovníkov podľa vzdelania u všetkých podnikov bez rozdielu veľkosti a odboru podnikania, je to teda sumár všetkých respondentov. Najväčší nedostatok pracovnej sily a to z

Obrázok **1** vyplýva jednoznačne je po pracovníkoch z odboru inžinierstva/strojárstva, výroby a výstavby. Tento odbor vykazuje enormný nedostatok pracovníkov kumulatívne až na úrovni takmer 80%. Najhľadanejší v takmer rovnakom pomere sú pracovníci z tohto odboru vysokoškolsky a úplne stredoškolsky vzdelaní v hodnote 70% a pohľadávka je aj po 10% pracovníkov so stredným odborným vzdelaním bez maturity. O pracovníkov z tohoto odboru vzdelania neprejavuje záujem 20% podnikov, čo je ale vzhľadom k štruktúre zloženia podnikov v hospodárstve a aj štruktúre zloženia respondentov ktorí v roku 2020 odoslali vyplnený dotazník prirodzené.

Druhá oblasť kde sa ukázal najväčší dopyt po pracovnej sile v súčasnosti sú informačné vedy a komunikačné technológie. Tu sa dopyt orientuje viac na vysokoškolsky vzdelaných pracovníkov, ktorý predstavuje až tri štvrtiny celkového dopytu. Celkový dopyt po pracovníkoch IKT je na úrovni 62% čo znamená, že dva z troch podnikov má problém zabezpečiť pracovníkov z tejto oblasti vzdelania. Ďalšou významnou oblasťou kde zamestnávatelia pociťujú nedostatok pracovníkov je oblasť zdravia a sociálnych služieb. Dopyt po pracovníkoch z tejto oblasti vzdelania možno spájať aj s aktuálnou pandemickou situáciou u nás a vo svete, kde nápor na zdravotný systém ukázal slabé miesta a upozornil na už predtým avizovaný nedostatok pracovníkov v zdravotníckych službách a v službách sociálnej starostlivosti. Tiež prihliadnuc na skutočnosť, že výskumu sa zúčastnilo 30% priemyselných podnikov u ktorých je malá pravdepodobnosť, že pracovníkov v odbore zdravia a sociálneho zabezpečenia hľadajú, môžeme konštatovať, že požiadavka na pracovníkov v tomto odbore je mimoriadne vysoká. Ďalšími odbormi vzdelania, kde nadpolovičná väčšina zamestnávateľov pociťuje nedostatok pracovníkov, sú služby, prírodné vedy, matematika a štatistika, poľnohospodárstvo, lesníctvo, rybárstvo a veterinárstvo. Na opačnej strane spektra sú odbory vzdelania, u ktorých zamestnávatelia pociťujú najmenší nedostatok. Sú to pracovníci s umeleckým vzdelaním a vzdelaním v humanitných odboroch a tiež absolventi spoločenských vied, žurnalistiky a informácií. V oboch prípadoch sa takmer 70% respondentov vyjadrilo, že nepociťuje nedostatok pracovníkov, ktorí tieto odbory vyštudovali. Ak tieto výsledky zhrnieme, pri pohľade na všetky podniky slovenský trh práce prioritne potrebuje pracovníkov technického zamerania z oblasti strojárenstva, výroby, stavebníctva, odborníkov informačných vied a komunikačných technológií a odborných pracovníkov do všetkých oblastí zdravotníctva a sociálnej starostlivosti.

Obrázok 1. Nedostatok pracovníkov podľa vzdelania



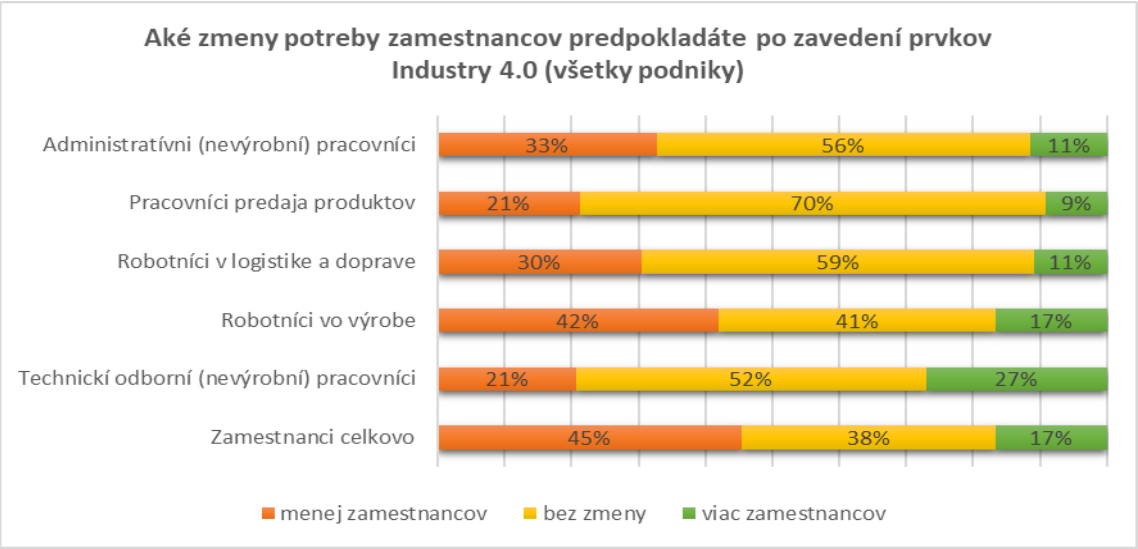
Zdroj: Vlastné spracovanie

Táto časť výskumu ukazuje, v ktorých odboroch a na akom stupni vzdelania je potrebné podporiť a rozšíriť vzdelávanie budúcich pracovníkov a tiež dovzdelávať, prípadne rekvalifikovať voľných pracovníkov na trhu práce, ako aj súčasných zamestnancov. Tiež poukazuje na odbory vzdelania kde dopyt po pracovníkoch nie je vysoký a to najmä

v spoločenských vedách, administratíve a práve, v pedagogike, v prírodných vedách a štatistike. Tradične vysoký dopyt po vzdelanej pracovnej sile je v oblasti informatiky, strojárenskej výroby a výstavby čo odpovedá aj orientácií slovenského priemyslu.

Ak chceme vedieť akým smerom sa Industry 4.0 bude uberať, teda ktoré oblasti podnikovej štruktúry budú prioritné pre zavádzanie Industry 4.0 je potrebné vedieť čo tu uprednostňujú samotné podniky. Vzhľadom na štruktúru nášho hospodárstva, ale aj vzhľadom k celosvetovému trendu a neposlednom rade aj názvu tejto fázy technickej revolúcie (Industry 4.0) nie je prekvapujúce, že podniky, ako hlavný dôvod zavádzania Industry 4.0 uviedli výrobu, ktorú ako hlavnú oblasť zavádzania Industry 4.0 vidia všetky podniky bez ohľadu na ich veľkosť. Na druhej priečke u stredných a veľkých podnikov je logistika. Tieto podniky si uvedomujú že optimálny tok tovarov, materiálov a služieb bude popri zdokonalenej výrobe kľúčom k zachovaniu konkurencieschopnosti podniku. Naproti tomu sa u malých podnikov na druhom mieste umiestnila oblasť komunikácie so zákazníkom. Obr. 2 je zostrojený tak, aby sa dala porovnať priemerná hodnota všetkých podnikov s názorom jednotlivých podnikov podľa veľkosti. V oblasti komunikácie so zákazníkom je zreteľné, že malé podniky budú mať mimoriadny záujem na tom, aby im prvky inteligentného priemyslu pomohli najmä v oblasti komunikácie so zákazníkom. Tretiu priečku zaujalo zavádzanie Industry 4.0 do oblasti administratívy. Už v súčasnosti podniky spracovávajú stále väčšie objemy dát a ich spravovanie vyžaduje stále viac úsilia. Nie je reálne, no ani hospodárne, aby podniky na spracovávanie stále pribúdajúcich dát prijímali viac a viac administratívnych pracovníkov, preto sa hľadá nové riešenie. Toto sa dá do budúcnosti riešiť len automatizovaním procesov, no nie automatizáciou pomocou strojového spracovania, ale automatizáciou s použitím umelej inteligencie kde mnohé rutinné úkony, ale aj rozhodnutia budú za človeka robiť zariadenia s umelou inteligenciou. Oblasť online predaja v procese zavádzania Industry 4.0 je násobne dôležitejšia pre malé podniky.

Obrázok 2. Zmena potreby zamestnancov po zavedení Industry 4.0



Zdroj: Vlastné spracovanie

Cieľom nášho výskumu je vytvoriť zo získaných údajov od zúčastnených podnikov predpoklad zmien v štruktúre pracovných miest do budúcnosti a to najmä vplyvom zavedenia Industry 4.0. Pohľad všetkých podnikov na zmeny v štruktúre pracovných miest sme rozdelili do piatich kategórií z ktorých dve sú administratívne, nevýrobné kategórie a tri kategórie sú výrobné, prípadne poskytujúce rôzne služby.

V kategórii administratívnych pracovníkov je na základe odpovedí všetkých podnikov predpoklad, že 56% objemu pracovných miest žiadne zmeny nečakajú. Nárast pracovných miest a teda aj zvýšený dopyt po pracovnej sile v administratíve očakáva 11% všetkých podnikov no čo je najdôležitejšie je, že 33% všetkých podnikov očakáva, že zavedením inteligentného priemyslu bude potrebovať menej zamestnancov. Možno to chápať tak, že ak v 56%-ách podnikov nenastane zmena v zamestnanosti na tejto pozícii a zvýšená potreba je vykázaná o 11% a znižovanie stavu o 33% saldo dopytu po pracovnej sile je u tejto skupiny pracovníkov na úrovni -22%. Pravdepodobne to neznamená, že 22% administratívnych pracovníkov všetkých podnikov príde o prácu. No znamená to, že takto veľká skupina bude musieť svoje uplatnenie diverzifikovať a to či už v rámci zmeny pracovnej pozície v podniku, zmenou, zvýšením kvalifikácie na inú, žiadanejšiu odbornosť, najmä prispôsobiť svoje zručnosti a schopnosti novým požiadavkám trhu práce.

Taký istý predpoklad je aj u ostatných pracovných miest, kde saldo dopytu po pracovnej sile u pracovníkov predaja produktov je na úrovni -12%. U robotníkov v logistike a doprave sa predpokladá saldo -19% u robotníkov vo výrobe -25%. U technických pracovníkov je dokonca saldo dopytu po pracovnej sile kladné na úrovni 6%. Aby sme mali predstavu koľko percent pracovníkov má svoje pracovné miesto ohrozené je potrebné zistiť štruktúru pracovných miest v našom hospodárstve jednak na základe veľkosti podnikov a aj podľa pracovného zaradenia. Štatistický úrad SR takto štruktúrovanou databázou nedisponuje no iste sa dá táto prognóza aplikovať na jednotlivé podniky samostatne, aby sa dala budúcnosť pracovných miest aspoň z časti ukázať. Podniky samotné disponujú vlastnou a často veľmi presnou štatistikou štruktúry pracovných miest, preto z podnikových štatistík môžu dať tieto prognózy najrelevantnejšie výstupy.

Nesmieme pri vyslovovaní týchto prognóz opomenúť skutočnosť, že zavádzaním inteligentného priemyslu sústavne vznikajú nové pracovné pozície, ktoré predtým neexistovali. Tieto pozície môžu mať priamy, ale aj nepriamy súvis zo zavádzaním Industry 4.0. Priamy tak, že práve vývoj a implementácia Industry 4.0 vytvárajú nové pracovné miesta, kde pracovníci nachádzajú svoje uplatnenie a to na širokom poli vedecko-technických činností a podporného servisu. Nepriamo tak, že ľudia majú viac voľného času a svoje prostriedky sú ochotní investovať do nových činností, ktoré predtým pestovali skôr ako záľubu (voľnočasové aktivity, šport, vzdelávanie, rôzne služby) a tu sa otvára obrovské pole pôsobnosti pre nové pracovné miesta (Kordos, Berkovic, 2020; Kordos, 2020).

pozitívnemu rastu zamestnanosti prostredníctvom zvyšovania produktivity. Zvýšenie produktivity práce vedie k nižším cenám tovarov a služieb; a nižšie ceny zvyšujú dopyt, čo následne zvyšuje úroveň zamestnanosti (aj keď množstvo práce na jednotku kleslo). Rast produktivity sa môže uskutočňovať v danom sektore alebo medzi sektormi. Existujú skutočne pôsobivé dôkazy o tom, že krajiny, ktoré v roku 2012 čelili vyššiemu priemernému riziku automatizácie, zaznamenali v nasledujúcom období tiež vyšší rast produktivity. (Georgieff & Milanez, 2021)

4. ZÁVER

Štvrtá priemyselná revolúcia nezmení iba to čo sme, čo robíme, ale aj kto sme (SCHWAB, 2018). Ovplyvní našu identitu a všetky s tým spojené aspekty. Náš zmysel pre súkromie, naše chápanie vlastníctva, naše konzumné zvyky, čas ktorý venujeme práci a zábave a spôsoby ako si budujeme kariéru, spôsoby akými cibríme naše schopnosti, ako stretávame ľudí ako udržiavame vzťahy. Zmeny na trhu práce sú podmienené rôznymi vplyvmi, jednak demografickým vývojom, výkonom v ekonomických cykloch a v neposlednej rade zavádzaním nových technológií. Nová vízia priemyslu bude mať vplyv na požadovanú kvalifikáciu pracovnej sily a na trh práce všeobecne, čo povedie k novým princípom organizácie práce, ku zmene úlohy zamestnávateľa, k zmenám v štruktúre väčšiny profesií.

Úlohou riešenia je skúmanie všeobecných a špecifických vplyvov Industry 4.0 na fungovanie jednotlivých procesov na trhu práce a vplyvov na zmeny v štruktúre pracovných miest. Cieľom riešenia je na základe spracovanej metodológie analyzovať vzťah medzi zavádzaním nových technológií a zmenami na trhu práce. Výsledkom dizertačnej práce môže byť navrhnutie inovačných postupov pri vytváraní a obsadzovaní pracovných miest v organizácií ako aj postupov pre rozvoj pracovnej sily a stabilizáciu pracovnej sily v organizácií. Medzi odporúčané kroky na dosiahnutie uvedeného cieľa bude patriť analýza skúmania súčasného stavu riešenej problematiky, na základe uvedenej analýzy zistiť dopady zavádzania nových technológií na produktivitu organizácií a tvorbu pracovných miest z kvalitatívneho a kvantitatívneho pohľadu. Odporúčania budú smerovať najmä na spôsob získavania a udržania kvalitnej pracovnej sily a procesu neustáleho rozvoja pracovnej sily v organizácií. Predpokladaný vedecký prínos bude systematizácia teoretických poznatkov a praktických skúsenosti pre odbor manažment ĽZ, identifikácia kľúčových faktorov v organizácií v dôsledku očakávaných zmien. V rámci získavania a zhromažďovania informácií plánujeme využiť metódy: analýza dokumentov, dotazníkové techniky, pozorovanie a porovnávanie. Pre spracovanie údajov bude vhodné využiť metódy kvantitatívneho a kvalitatívneho vyhodnotenia, komparatívna metóda, metóda, metóda tvorby databáz, historická metóda. V rámci riešenia problému sú vhodné niektoré z metód intuitívneho prístupu, metóda indukcie, dedukcie, syntézy, abstrakcie a modelovania. Pre nasledovné vyhodnotenie riešenia bude vhodné využiť porovnávaciu a expertnú metódu. Podstatou výskumu bude experimentálne overenie výsledkov riešenia.

Predpokladáme, že trh práce sa bude meniť rýchlejšie ako si dnes vieme predstaviť. Vplyvom zavádzania Industry 4.0 bude ubúdať pracovných miest v priemysle a mnohé pracovné miesta sa budú presúvať do sektoru služieb. Nástup pandémie a mnohé vynútené zmeny s ním spojené nám za posledný rok ukázali nezvratnosť zmien. Do online priestoru sa boli nútené presunúť vzdelávacie činnosti, administratívne odborné a podporné služby, a obrovský rozvoj zaznamenala oblasť online predaja. Predpokladáme, že sa pod vplyvom týchto zmien budú meniť požiadavky na zručnosti pracovnej sily. Tiež sa zásadne zmenia požiadavky na vzdelávanie, kde už dnes zaznamenávame disparity, na ktoré v mnohých prípadoch už bolo potrebné reagovať pred niekoľkými rokmi. Včasná identifikácia potreby zmien vo vzdelanostnej štruktúre pomôže nášmu hospodárstvu sa v konečnom dôsledku udržať konkurencieschopným.

Jedným z kľúčových zistení ktoré chceme overiť je očakávaná budúca štruktúra pracovných miest. Tento parameter budeme skúmať s ohľadom na veľkosť organizácií v ktorých sa majú uskutočniť. Ďalším parametrom ktorý budeme pri zmenách štruktúry pracovných miest posudzovať bude oblasť hospodárstva v ktorej dopytovaný subjekt pôsobí. Budeme brať aj zreteľ na to v akom štádiu zavádzania prvkov inteligentného priemyslu sa jednotlivé podniky nachádzajú a ako to vplýva na rozdiely v zmenách štruktúry pracovných miest. Zisťovanie aktuálneho stavu poznania koncepcie priemyslu 4.0 v priemyselných podnikoch Slovenskej republiky, mieru jeho aplikovania, zistenie súčasnej štruktúry výrobných a nevýrobných pracovníkov a pohľad týchto podnikov na budúcu potrebu pracovníkov v súvislosti s nástupom Priemyslu 4.0 nám pomôže porozumieť zmenám ktoré trh práce čakajú.

Literatúra

[1] Armstrong, M. (1999). *Personální management.* Praha: Grada Publishing.

[2] Armstrong, M. & Taylor, S. (2015). *Řízení lidských zdrojů. Moderní pojetí a postupy.* Praha: Grada Publishing, a.s.

[3] Boxal, P. F. (1992). Strategic Human Resource Management: Beginnings of a New Theoretical Sophistication? *Human Resource Management Journal*, vol. 2, iss. 3, pp. 60-79. doi:10.1111/j.1748-8583.1992.tb00260.x.

[4] Frey, C. B. & Osborne, M. (2015). *Technology at Work: The Future of Innovation and Employment.* Oxford Martin School. [online]. [cit.2021-09-25]. Available at: https://www.oxfordmartin.ox.ac.uk/downloads/reports/Citi_GPS_Technology_Work.pdf

[5] Gavora, P. (2010). Elektronická učebnica pedagogického výskumu. Bratislava.

[6] Georgieff, A. & Milanez, A. (2021). What happened to jobs at high risk of automation? *OECD Social, Employment and Migration Working Papers, No. 255.* Paris: OECD Publishing. Dostupné na Internete: https://doi.org/10.1787/10bc97f4-en

[7] Gonzales Vazquez, I. (2019). The Changing nature of work and. Luxembourg.

[8] Gonzalez Vazquez, I. & a kol. (2019). The changing nature of work and. Luxembourg.

[9] Grenčíková, A. & Navickas, V. (2013). *Správanie ľudí v organizáciách.* Plzeň: Aleš Čeňek.

[10] Grmanová, E. (2006). *Základy zo štatistiky - praktikum.* Trenčín: Trenčianska univerzita Alexandra Dubčeka v Trenčíne.

[11] Kordos, M. & Berkovic, V. (2020). Applying Automation in Slovak Tourism Industry - Benefits and Issues. AD ALTA-Journal of Interdisciplinary Research, vol. 10, iss. 1, pp. 132-138.

[12] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[13] Koubek, J. (2015). *Řízení lidských zdrojů.* Praha: Management Press.

[14] Kútik, J. & Klierová, M. (2016). *Metodika vypracovania záverečných prác.* Trenčín: Fakulta sociálno-ekonomických vzťahov, TnUAD.

[15] Lane, M., & Saint-Martin, A. (2021). *The impact of Artificial Intelligence on the labour market: What do we know so far?* OECD Social, Employment and Migration Working Papers, No. 256. Paris: OECD Publishing. Dostupné na Internete: https://doi.org/10.1787/7c895724-en.

[16] McKinsey & Company. (2021). *Future of Work.* McKinsey & Company. [online]. [cit.2021-09-25]. Available at: https://www.mckinsey.com/featured-insights/future-of-work.

[17] Ministerstvo hospodárstva SR. (2016). *Koncepcia inteligentného priemysliu pre Slovensko.* Bratislava: Vláda SR.

[18] Nedelkoska, L. & Quintini, G. (2018). *Automation, skills use and training.* OECD Social, Employment and Migration Working Papers, No. 202. Paris: OECD Publishing. ISSN: 1815199X.

[19] OECD. (2020). *OECD Skills Strategy Slovak Republic: Assessment and Recommendations.* Dostupné na Internete: OECD Skills Studies: [online]. [cit.2021-09-25]. Available at: https://doi.org/10.1787/bb688e68-en.

[20] O'reilly, T. (2018). *WTF? Co přinese budoucnost a jak ji přežít.* Brno: Jan Melvil Publishing.

[21] PwC. (2016). *Industry 4.0: Budovanie digitálneho podniku.* Bratislava: PwC.

[22] Schwab, K. (2018). *The Fourth Industrial Revolution.* Cit. 8. 5 2018. Dostupné na Internete: https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution.

[23] Toffler, H. (1996). *Utváranie novej civilizácie.* Bratislava: Open Windows.

[24] Vojtovič, S. (2011). *Koncepce personálního řízení a řízení lidských zdrojů.* Praha: Grada Publishing, a.s.

[25] WEF. (2020). *The Future of Jobs Report 2020.* World Economic Forum. [online]. [cit.2021-09-25]. Available at: https://www.weforum.org/reports/the-future-of-jobs-report-2020/digest.

THE WELFARE OF THE REGION IS THE MOST IMPORTANT SOCIO-ECONOMIC REFERENCE FOR MODERNIZATION, INNOVATIVE AND SCIENTIFIC AND TECHNICAL DEVELOPMENT IN THE CONDITIONS OF THE FOURTH INDUSTRIAL REVOLUTION INDUSTRY 4.0

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Abstract: *This article discusses the importance of increasing the well-being of the regions, which can be achieved through economic growth, social, environmental, and political aspects, as well as through the digital transformation of society. In addition, the article focuses on the fact that in order to increase the well-being of the regions and the country as a whole, it is first of all necessary to achieve the effectiveness of social protection; create conditions for entrepreneurship, coordinate the labor market and reduce the stratification of society. The above tasks should be solved within the framework of the Industry 4.0 concept, through the creation of digital platforms and information resources that will contribute to building the work of industry information systems, providing services to citizens and the business community, making more effective decisions based on online data, as well as improving the effectiveness of public authorities at the regional level.*

Key words: *The welfare of the region, the fourth industrial revolution, socio-economic development, labor market coordination, digital transformation of society.*

JEL Classification: *J48, M59, O15*

1. INTRODUCTION

The fourth industrial revolution ("Industry 4.0") represents fundamental changes in human life and relationships between people. The speed, breadth, and depth of the ongoing transformations lead to a rethinking of how countries develop and what place a person occupies in these processes. The concept of "Industry 4.0" implies the complete automation of most production processes, and, as a result, an increase in labor productivity, economic growth, competitiveness, and welfare of the country.

The fourth industrial revolution is not only about technological change, it is something more - it has enormous potential and provides humanity with a real opportunity to go beyond technology and find ways to increase the well-being of all groups of the population. At the same time, well-being is understood as a good physical, material, and spiritual condition, and an increase in its level is the result of the development of countries and regions.

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2. PROBLEM FORMULATION AND METHODOLOGY

To solve the problems of increasing prosperity, it is necessary to have a clear and specific plan for the development of the country, taking into account the requirements of the modern digital world. The use of technological innovation should contribute to the development of infrastructure, production, health care, education, environmental safety of citizens, regardless of the geographic location of the country or region, the availability of minerals or the level of economic development.

In the Russian Federation, there is currently a need to conduct a competent state policy based on digital innovations, together with market activity, compliance with law, freedom, and transparency in the implementation of innovations which should become priority areas for improving the well-being of the population. It should be noted that it is important to assess the level of social welfare, both by subjective and objective factors, considering the innovative nature of the focus of the Russian economy. The development of society stimulates innovative technologies, which in turn raise the quality of life and the level of social welfare to an even higher level. In Russian regions with a favorable investment and legal climate, business support, the population feels comfortable and highly evaluates their well-being.

An obstacle to achieving a scientific and technological progress in the country is the acute problem of separating science from production. The Government of the Russian Federation provides a large number of social programs to improve living standards: support for a socially unstable stratum of the population; an increase in pensions, scholarships, social benefits; support for orphans, disabled people, and others. However, now it is necessary to improve the situation with investments in the private sector, provide more support to entrepreneurs, and also actively introduce technological innovations. Thus, the problem of increasing welfare in society, ways to improve it in the context of Industry 4.0 is relevant and needs further research.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

In modern conditions, an important part of the country's development strategy in the context of Industry 4.0 should be the development of a unified regional policy, which will be aimed at achieving the main goals facing the country in the long-term future. This is the provision of the population with digital, material, spiritual, and other benefits, that is, information, items, services, and conditions that satisfy human needs. As already noted, according to the requirements of the modern digital world, the category of "well-being" is becoming more and more important. The well-being of the country directly depends on the well-being of the regions and is ensured through economic growth, social, environmental, and political aspects, as well as through the digital transformation of society.

Since the development of a region is a multidimensional and long-term process to achieve a set of social, economic, and political goals, it must be considered from different points of view.

Socio-economic development manifests itself and includes:

- Growth in production and income;
- Changes in public consciousness, traditions and habits;
- The level and quality of life of the population, residents of the regions;
- Improving the health of the population, increasing the level of education;
- Increasing the degree of freedom of people and more.

In parallel with the achievement of the goals of socio-economic development, the transformation of public administration is taking place, within the framework of which digital platforms and information resources are created that contribute to building the work of industry information systems, providing services to citizens and the business community, making more effective decisions based on online data, as well as increasing the effectiveness of the activities of public authorities at the regional level.

There are also some categories of social welfare that explain its achieved level: favorable climate, convenient geographic location, availability of natural resources, population size, human capital, level of economic development, confident actions of regional, federal and municipal authorities for the benefit of the population, economic growth, effective social politics. However, the most important indicators of modern times should also include the degree of implementation of digital innovations.

The well-being of the country depends on the awareness of the importance of innovations, expressed in the innovative, scientific, and technological development of the country. Changes in these spheres have a huge impact on the development of social life, as well as the position of the region and the country for the better. Of course, awareness of innovations comes only in that society where basic human needs are satisfied. The emergence of new technologies requires a developed infrastructure, affordable education, and a high level of human capital development, as well as a high level of development of economic and social institutions for the implementation of innovations.

To analyze the level of well-being, many indicators are calculated, among them, there are such as:

- The index of the real per capita gross domestic product (it determines material well-being, the level of income per capita);

- Index of the level of the population's education;

- Index of life expectancy at birth and others.

Also, one of the important factors affecting the well-being of the population is the degree to which the monetary incomes of citizens correspond to the established subsistence level in the country. Considering that quarantine restrictions associated with the coronavirus infection pandemic have been affecting the world for a long time, the population that falls under the criterion of income below the subsistence level is constantly changing, and it is not known in which direction. At the same time, it is obvious that only a reasonable balance between strict quarantine measures and economic preferences, as well as the study of anti-crisis programs and forms of anti-crisis response, will provide an opportunity for the Governments of various countries to quickly find the optimal way to keep economic stability and maintain the achieved level of well-being of the population. The COVID-19 pandemic also demonstrated how effectively countries are able to apply technological innovations to combat the emerging problems. After all, it is the use of digital technology that has made it possible to move education and work from schools and offices to homes, as well as provide more efficient ways of organizing processes in companies and governments.

However, if we turn to the results of the rating of “quality and living standards” criterion in the countries of the world, held by the UN, in the period from 2005 to 2020the Russian Federation rose in this rating from 62 to 52 place. Accordingly, it can be concluded that Russia has never occupied a leading position and today has not risen very high in the rating. There is much to strive for, provided that the state fulfills its responsibilities, and society develops and proposes new ideas. At the same time, the actions of the authorities must be decisive and have a strategic character.

It should also be noted that in Russia the rates of socio-economic development in different regions differ a lot: there is depopulation of the periphery and the pulling of the population towards large centers. The direction and pace of transformations in the country, social, economic and political stability in the society depend on how quickly these problems are resolved.

Also, do not forget that the dominant position in the new economy is currently occupied by scientific work, which makes it possible to create high-tech products and innovative technologies. A high level of competition is present not only in the market for material goods, but also in the market for non-material goods (knowledge, software, patents for new inventions, etc.). Accordingly, the level of well-being of the population is closely related to innovative changes in the country's economy. Against the background of the fact that knowledge now plays a key role, there is a process of rational distribution of incomes of the population, contributing to the growth of well-being, the expansion of science-intensive reproduction, a sustainable economy, and others. By developing the regions, the country will develop and the well-being of its population will increase (Selyutina Maleeva, Frolova, 2019).

As noted earlier, the role of the state in the development of the level of the population's well-being largely depends not only on the socio-economic model of the country but also on the effectiveness of state regulation, as well as the level of digital transformation of society. Accordingly, within the framework of the implementation of the "Regional Development" goal, the executive and legislative authorities develop state policy and legal regulation in the field of socio-economic development of the country's constituent entities and municipalities. Today, many tasks are being solved, and activities are carried out in several directions:

- Strategic planning of spatial development;
- Territorial planning;
- Urban development;
- Methodological support for achieving national goals at the regional level;
- Formation of individual plans for the development of territories and others.

When developing strategic and program documents, the principles of sustainable development are taken into account. The implementation of the concepts of sustainable development at the regional level presupposes the progressive dynamics of the level and the population's quality of life. However, the strong differentiation of the level of economic development and the quality of territorial planning between different regions and municipalities within the regions interferes with the full achievement of sustainable development of the regions.

Now, for Russian cities, the issues of sustainable development management are of great importance, including the competent definition of a system of priorities and the establishment of effective interaction between various structural divisions of city administrations.

Leading companies with their large corporate projects play a special role in promoting the positions of cities. International standards are also being developed in the area of sustainable development. The use of “Smart Cities” technology is a promising direction in the development of Russia in the fight against the problems of technological backwardness, low awareness of state and municipal employees, as well as ensuring a sufficient educational level of the country's population (Zakharov, Kuznetsov, Perfilyeva, 2021).

On the other hand, one can single out a pronounced problem of the entire regional policy - most of the developed strategies and development programs remain on paper. The implemented programs of socio-economic development of the regions have a number of shortcomings and methodological errors, as a result of which it is impossible to make optimal use of the financial, organizational and resource potential (Karmaev, 2021).

Thus, the increase in the well-being of the population of the regions can be ascribed to the most important strategic task of the country's development. The solution to this problem is possible through mitigating the social inequality of the regions, as well as through digital transformation of all spheres of society. At the same time, the priority tasks should include (Tatarnikova, Frolova, 2020):

1. Effective social protection (an increase in the size of social payments to the population, benefits and others; a decrease in the pronounced differentiation of the population in terms of income).

2. Creation of conditions for entrepreneurship (improvement of the situation with long-term investment for Russian companies; provision of sectors of the economy with professional specialists, personnel; export support).

3. Reducing the stratification of society.

The above tasks should be solved through the creation of digital platforms and information resources that will help build the work of industry information systems, provide services to citizens and the business community, make more effective decisions based on online data, as well as improve the performance of public authorities at the regional level.

4. CONCLUSION

To sum up, it should be noted that an increase in the well-being of the country's population, a stable improvement in the quality of life, and an increase in competitiveness are possible through the implementation of national development priorities, ensuring sustainable economic growth, as well as the effective use of scientific, technical and innovative developments.

REFERENCES

[1] Karmaev, N. (2021). Human Capital For Industry 4.0: Partnerships With Employers In Vocational Education. In: *Vplyv Industry 4.0 na Tvorbu Pracovných Miest 2020.* Trenčín: Dubček University in Trenčín, pp. 207-213.

[2] Selyutina, L.G., Maleeva, T.V. & Frolova, N.N. (2019). Acceleration of Regional Housing Development In Russia on the Basis of Industrial Housing Construction Modernization. In: *XXII International Scientific Conference "Construction The Formation Of Living Environment" (FORM-2019),* Electronic edition. Cep. «E3S Web of Conferences» 2019.

[3] Tatarnikova, M. & Frolova, N. (2020). Corporate Social Responsibility Of Business As A Factor In The Development Of The Region Of Presence. *Economics and entrepreneurship,* vol. 115, iss. 2, pp. 1283-1286.

[4] Zakharov, N., Kuznetsov, A. & Perfilyeva, M. (2021). The Impact Of Industry 4.0 On The Labour Market In Russia. In: *Vplyv Industry 4.0 na Tvorbu Pracovných Miest 2020.* Trenčín: Dubček University in Trenčín, pp. 454-456.

REMOTE WORK: LESSONS LEARNED DURING THE COVID-19 AND SUSTAINABILITY PARADIGMS

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Abstract: *Remote work has become an intrinsic component in labour market during the Covid-19. There are number of publications recently devoted to remote work and sustainability (Brynjolfsson, et.al., 2020, Galanti, et.al., 2021, Fana, et.al., 2020, van Zoonen, 2021, Franken, 2021, Molino, 2020, Rymaniak, 2021) and are reflecting both positive and negative issues related to the topic. Yet there is still limited research on the employees opinions to continue working on remote principles after the Covid-19, moreover – interaction of remote work and sustainability. The aim of the paper is to explore theoretical aspects of remote work and its interaction with sustainability and evaluate employees' willingness to work on remote principles after the Covid-19. The research methods used: theoretical analysis and a survey comprising of 400 employed persons with experience on working remotely. Cronbach's alpha coefficient calculated for checking the internal consistency of the survey sample. Descriptive statistics (central trends and location measures) as well as correlation analysis are used in analyzing the survey results. The research results prove that more than 75% of the employees surveyed are willing to work on remote principles 2-3 days per week after the pandemia. Remote work has succeeded in using number of digital tools and reducing paper use, thus promoting sustainability.*

Key words: *remote work, Covid-19, values of employees, sustainability*

JEL Classification: *J8, F8, J2*

1. INTRODUCTION

Remote work has become an intrinsic component in labour market during the Covid-19. There are number of publications recently devoted to remote work and sustainability (Brynjolfsson, et.al., 2020, Galanti, et.al., 2021, Beland, et.al., 2020, van Zoonen, 2021, Minervini, 2020, Franken, 2021, Rogers, 2020, Molino, 2020) and are reflecting both positive and negative issues related to the topic. Yet there is still limited research on the employees opinions to continue working on remote principles after the Covid-19, moreover – interaction of remote work and sustainability.

Early estimates from Eurofound) suggested that due to the pandemic, approximately 50% of Europeans worked from home (at least partially) as compared with 12% prior to the emergency (Ahrendt, et al., 2020), as a consequence of the COVID-19 pandemic, about 72% of employees worldwide were required to switch overnight to working from home (Chavez-Dreyfuss, 2020). Firm-wide remote work caused the collaboration network of workers to become more static and siloed, with fewer bridges between disparate parts. Furthermore, there was a decrease in synchronous communication and an increase in asynchronous

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communication. Together, these effects may make it harder for employees to acquire and share new information across the network (Yang, et.al. 2021).

Remote work has lead to changes in number of paradigms. Roughly three-quarters of people using digital channels for the first time during the pandemic say they will continue using them when things return to "normal," according to McKinsey Consumer Pulse surveys conducted around the world (Lund, et.al, 2021). Changes towards remote work influence daily lives.

The aim of the paper is to explore theoretical aspects of remote work and its interaction with sustainability and evaluate employees' willingness to work on remote principles after the Covid-19. The research methods used: theoretical analysis and a survey comprising of 400 employed persons with experience on working remotely. Cronbach's alpha coefficient calculated for checking the internal consistency of the survey sample. Descriptive statistics (central trends and location measures) as well as correlation analysis are used in analyzing the survey results.

2. PROBLEM FORMULATION AND METHODOLOGY

Recent studies have found both positive and negative aspects related to remote work. One of the most prominent job resources of remote work is job autonomy (Bakker, et.al., 2017, Schaufeli, et.al, 2004) which is the extent of independence and discretion permitted while performing professional tasks. Job autonomy is a major job resource for employees and, in the right doses, it encourages profitable innovations at work (Zappala, 2020).

Remote work is referred to have positive impact on sustainability. Transportation is the largest contributor to greenhouse gas emissions in the US, and more than half come from personal vehicles. Close to 90% of people drive to work – usually alone – and the daily back and forth accounts for nearly 30% of the miles American workers drive in a year. Doing away with millions of workers' daily commutes seems like an easy climate win. Carbon dioxide emissions from transportation dropped 15% last year as people hunkered at home (Schupak, 2021).

However, the same article notes that hybrid working could create a "worst-case scenario", according to a June study from the Carbon Trust and Vodafone Institute for Society and Communications. "This split could result in consuming more energy and emitting more emissions as both homes and offices are fully operating to enable teleworkers and office workers to do their jobs," the report warned (Schupak, 2021).

There are several opinions both supporting and denying the remote work impact on sustainability. One of the factors agreed by most of the studies analysed, is the decrease of paper use while working on remote work principles.

During the period of reduction in paper usage, improvements in digital technologies made it much easier to edit, comment and share collaborative documents like contracts, proposals and reports. Examples of such technologies include text editors that enable concurrent document editing, as well as enterprise content management systems, cloud document storage, bigger and sharper computer screens, and faster networks, to name just a few (Lavenda, 2021).

Despite its benefits for both organizations and workers, remote working entails negative consequences, such as technostress (Molino, et.al. 2020), namely the stress that users experience as a result of application multitasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, continual relearning and consequent job-related insecurities, and technical problems associated with the organizational use of ICT (Tarafdar, 2010).

Technostress is defined as the phenomenon of stress experienced by end users in organizations as a result of their use of ICTs (Ragu-Nathan et al., 2008, quoted by Spagnoli,

et.al. 2020). 'Forced flexibility' has meant that organisations and their employees have had to adapt swiftly to new requirements and arrangements for how work is done (Franken, 2021). In this context of crisis, leadership is crucial in sustainably managing and supporting employees, especially employees with workaholic tendencies who are more prone to developing negative work and health outcomes (Spagnoli, 2020). The most negative effects tend to concentrate on the most vulnerable and disadvantaged workers in low productivity services. It seems reasonable to assume that the workers more likely to lose their jobs because of the lockdown in the short run, and face a particularly high uncertainty in the mid-term (Fana, et.al., 2020). Thus enterprises should instruct their employees to ensure that they maintain an undisturbed work environment by consciously avoiding family distractions, creating an independent workspace and keeping family members informed about their work schedule. For employees who lack the necessary resources, enterprises should provide assistance, including financial subsidies for essential office equipment (Yu, 2021). Both challenge stressors and hindrance stressors have negative impact on adjustment to remote work, whereas hindrance stressors are more strongly negatively related to social support (van Zoonen, 2021). Furthermore there is hardly any buffering impact of job control, work structuring, and communication technology use on the implications of these work stressors (Van Zoonen, 2021).

Previous research works conclude that younger people were more likely to switch to remote work. Furthermore, states with a higher share of employment in information work including management, professional and related occupations were more likely to shift toward working from home and had fewer people laid off or furloughed (Brynjolfsson, 2020).

Taking into account the afore-mentioned a survey was performed in 2021 and 1016 respodents participated. All of them had participated in life-long learning courses on remote principes, were at the age group 25+ (thus checking the age group older than the one to be characterised as young people). 43% of the respondents indicated they had worked on remote principles for at least one month. Their resonses were filtered for further analysis. Internal consistency - Cronbach's alpha coefficient proved to be 0.86 for the aspects of remote work – personal attitute and 0.74 for remote work – digitalisation.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

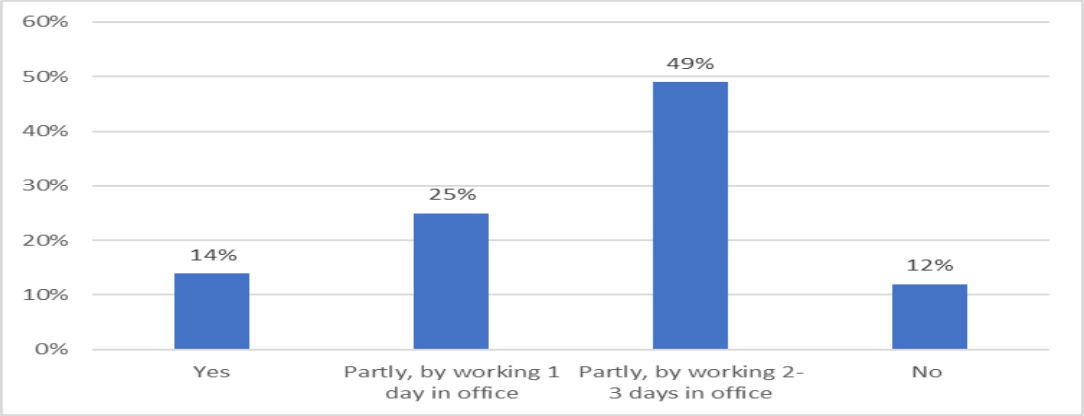
Remote work is closely related to digitalisation – the term that has been of importance in the European Commission long before the Covid-19. There are

- Europe 2020. Strategy for Smart, Sustainable and Inclusive Growth) (European Commission, 2010a);
- Digital Agenda for Europe) (European Commission, 2010b) ;
- Digital Agenda for Europe – Driving European Growth Digitally) (European Commission, 2014);
- European eGovernment Action Plan 2011–2015. Harnessing ICT to Promote Smart, Sustainable and Innovative Government) (European Commission, 2017a);
- Ministerial Declaration on eGovernment) (Tallinn Declaration, 2017);
- Enterpreneurship 2020 Action Plan (European Parliament, 2013);
- Cybersecurity Strategy of the European Union: An Open, Safe and Secure Cyberspace) (European Commission, 2013);
- European Strategy for a Better Internet for Children) (European Commission, 2012a).

Meanwhile, since the remote work has started playing significant role since the Covid-19, a survey was performed, by its results proving that many of the respondents would be willing to

continue on remote principles, yet by combining the remote work with office work. Almost half of the respondents would be willing to work 2-3 days in office and the remaining days at home. 74% of the respondents would be willing to work 1-3 days in office and the remaining time on remote principles. More detailed results are reflected in figure 1.

Figure 1. Respondents answers on their willingness to work on remote principles after the Covid-19.



Source: Authors' calculations, 2021, n=436

The survey results prove to be in line with theoretical aspects – people are willing to keep the autonomy the remote work provides, at the same time they seek for social contats and communication with colleagues.

One of the main aspects related to to the remote work interaction with sustainability was found as less use of paper – 36% of the respondents fully agreed and 19% more agreed that the use of the paper has decreased while working on remote principles. 21% indicated that this question is not related to their job.

There were more than 1000 comments provided in the open question of the survey, leading to conclusions that there are both positive and negative aspects people relate to remote work. Among the clallenges the respondents named the following – necessity to improve digital skills and knowledge of the IT systems and computer safety, importance of providing clear planning and communication with colleagues while working on remote principles.

4. CONCLUSION

Remote work has been analysed in number of publications in recent literature, finding both positive and negative challenges. More than 75% of the employees surveyed are willing to work on remote principles 2-3 days per week after the pandemia. Remote work has succeeded in using number of digital tools and reducing paper use, thus promoting sustainability – 55% of the respondents agreed they use less paper since the Covid-19 started (21% of the respondents acknowledged this question is not related to their job). Both previous studies and the research perfomed by the authors conclude that temote work requests for improvement for digital skills and capacities – both for individual workers and entrpeneurs.

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REFERENCES

[1] Ahrendt D, Cabrita J, Clerici E, et al. (2020). *Living, Working and COVID-19.* Luxembourg: Publications Office of the European Union, 1–80.

[2] Bakker AB, Demerouti E. (2017). Job demands–resources theory: taking stock and looking forward. *J. Occup. Health Psychol*, vol. 22, pp. 273–285.

[3] Bevan S., Mason B., Bajorek Z. (2021). IES Working at Home Wellbeing Survey. [online]. [cit.: 10-17-2021]. Available at: https://www.employment-studies.co.uk/resource/ies-working-home-wellbeing-survey.

[4] Brynjolfsson, E., Horton, J. J., Ozimek, A., Rock, D., Sharma, G. & TuYe, H-Y. (2020). *COVID-19 and Remote Work: An Early Look at US Data*. National Bureau of Economic Research.

[5] Chavez-Dreyfuss, G. (2020). *Permanently remote workers seen doubling in 2021 due to pandemic productivity – survey*. [online]. [cit.: 10-17-2021]. Available online at: https://www.reuters.com/article/uk-health-coronavirus-technology-idUKKBN2772P8.

[6] European Commission. (2010a). Europe 2020. Strategy for smart, sustainable and inclusive growth.

[7] European Commission. (2010b). Digital Agenda for Europe.

[8] European Commission. (2013). Cybersecurity Strategy of the European Union: An Open, Safe and Secure Cyberspace.

[9] European Commission. (2014). Digital Agenda for Europe – Driving European Growth Digitally.

[10] European Commission. (2017). European eGovernment Action Plan 2011–2015, Harnessing ICT to promote smart, sustainable and innovative Government.

[11] European Parliament. (2013). Enterpreneurship 2020 Action Plan.

[12] European Strategy for a Better Internet for Children. (2012a), European Commission.

[13] Fana, M., Torrejón Pérez, S. & Fernández-Macías, E. (2020). Employment impact of Covid-19 crisis: from short term effects to long terms prospects. *J. Ind. Bus. Econ, vol.* 47, pp. 391–410.

[14] Franken, E., Bentley, T., Shafaei, A., Farr-Wharton, B., Onnis, L., & Omari, M. (2021). Forced flexibility and remote working: Opportunities and challenges in the new normal. *Journal of Management & Organization*, pp. 1-19.

[15] Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work From Home During the COVID-19 Outbreak. The Impact on Employees' Remote Work Productivity, Engagement, and Stress. *J Occup Environ Med*, vol. 63, iss. 7, pp. e426–e432.

[16] Lavenda, D. (2021). Are We Finally Headed to a Paperless Office? [online]. [cit.: 10-17-2021]. Available at: https://www.reworked.co/digital-workplace/are-we-finally-headed-to-a-paperless-office/.

[17] Lund, S., Madgavkar, A., Manyika, J., Smit, S., Ellingrud, K., Robinson, O. (2021). The future of work after COVID-19. [online]. [cit.: 10-17-2021]. Available at: https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19.

[18] Ministerial Declaration on eGovernment. (2017). Tallinn Declaration.

[19] Molino, M., Emanuela I., Fulvio S., Amelia M., Giancaspro, M.L., Russo, V., Zito, M. & Cortese. C.G. (2020). Wellbeing Costs of Technology Use during Covid-19 Remote Working: An Investigation Using the Italian Translation of the Technostress Creators Scale. *Sustainability*, vol. 12, iss. 15, art. n. 5911.

[20] OECD. (2021). Policy Responses to Coronavirus (COVID-19). Teleworking in the COVID-19 pandemic: Trends and prospects. [online]. [cit.: 10-17-2021]. Available at: https://www.oecd.org/coronavirus/en/policy-responses

[21] Ragu-Nathan T. S., Tarafdar M., Ragu-Nathan B. S. & Tu Q. (2008). The consequences of technostress for end users in organizations: conceptual development and empirical validation. *Inf. Syst. Res*, vol. 19 pp. 417–433.

[22] Schaufeli, W.B. & Bakke,r A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *J Organ Behav*, vol. 25, pp. 293–315.

[23] Schupak, A. (2021). *Is Remote Working Better for the Environment? Not Necessarily.* [online]. [cit.: 10-17-2021]. Available at: https://www.theguardian.com/environment/2021/aug/02/is-remote-working-better-for-the-environment-not-necessarily.

[24] Spagnoli, P., Molino, M., Molinaro, D., Giancaspro, M. L., Manuti, A., & Ghislieri, C. (2020). Workaholism and Technostress During the COVID-19 Emergency: The Crucial Role of the Leaders on Remote Working. *Frontiers in psychology*, vol. 11.

[25] Tarafdar M., Tu Q. & Ragu-Nathan T. S. (2010). Impact of technostress on end-user satisfaction and performance. J. Manag. *Inf. Syst*, vol. 27 pp. 303–334.

[26] Van Zoonen, W., Sivunen, A., Blomqvist, K., Olsson, T., Ropponen, A., Henttonen, K., & Vartiainen, M. (2021). Understanding stressor–strain relationships during the COVID-19 pandemic: the role of social support, adjustment to remote work, and work–life conflict. *Journal of Management & Organization*, pp. 1–22.

[27] Vander Elst T, Verhoogen R, Godderis L. (2020). Teleworking and employee well-being in corona times. *J Occup Environ Med*, vol. 62, pp. e776–e777.

[28] Yang, L., Holtz, D., Jaffe, S. et al. (2021). The effects of remote work on collaboration among information workers. *Nat Hum Behav*.

[29] Yu, J., & Wu, Y. (2021). The Impact of Enforced Working from Home on Employee Job Satisfaction during COVID-19: An Event System Perspective. *International journal of environmental research and public health*, vol. 18, iss. 24.

[30] Zappalà, S., Toscano, F., Polevaya, M.V. & Kamneva, E.V. (2020). Personal initiative, passive-avoidant leadership and support for innovation as antecedents of nurses' idea generation and idea implementation. *J Nurs Scholarsh*, vol. 53, pp. 96–105.

ECONOMICS OF PUBLIC SECTOR AND OWNERSHIP RELATIONS REGULATION AT THE MUNICIPAL LEVEL

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Abstract: *Modern society and economy enter into a new stage of development. Peculiarities of socio-economic basis of municipal economy increased the meaning of public sector in the economy. Economics of public sector continues to be a market one, but it puts forward the goals for the leadership of municipal entities which don't coincide with market rationality. There appears the necessity to study the possibility of management of the ownership institute – municipal, corporative and private. This specifies certain requirements to the leadership of the municipal entities.*

Key words: *municipal political economy, economics of public sector, ownership institution, right to ownership, bundle of rights.*

JEL Classification: *D80, L19, R30*

1. INTRODUCTION

The formation of a new socio-economic order in the XXI century cannot go unnoticed. In the first decade of the new century there were many speculations and suppositions about the economy of the future century, we are witnessing now swift transformation of the world economy. This acceleration is incentivised by the fight against the COVID infection. Restoration of the world economy and the economy in different countries including Russia is going on on new bases. The role of state and state institutions in social life increased in conditions of pandemic and fight against the infection. It is the state that has an opportunity to correct the activity of such social spheres as health care, education, housing and utilities infrastructure in cities due to the unforeseen circumstances. In all the world regions, whether they are European, Asian or American regions, state increased its role in development of social sphere economy which has the major importance for each person. Social sphere economy acquires major importance in the society life.

This tendency should be conceptualized by the economic science. In the course of importance increase of social sphere the social sphere economy should form into a full-rate scientific field. Possible title of this field - "municipal political economy". Studying of "municipal political economy» should become a part of the curriculum in preparation of state and municipal employees.

To form this new field it is necessary to solve a number of important methodological questions. The major question - we should define, what is the "social sphere» of the economy, fix definitely the sphere of practical activity and theoretical research. Certainly this is the level and competences of the local administration whose task is to ensure high level of welfare, services provision, good quality of life of people outside of material production. That is the aggregate of material assets, organizations and establishments which ensure life at the territory of a municipal entity. First of all this is housing resources and ensuring of its functioning, corresponding cultural and life conditions of the territorial entity ; various

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educational establishments, such as educational programs for young children and educational establishments of higher professional level ; health care establishments which can be enlarged in case of emergency ; social security establishments, including trade organizations of housing and utilities infrastructure ; various passenger transport ; material basis for sports and health destination, etc. We can present social sphere economy as a common core which is regulated by municipal government and management institutions. Material basis of this core is the passive part of basic funds which are territorially fixed for municipalities. This is what forms dimensionally the sphere of vital activity of people. Inevitably there appear organizations and enterprises of various branches of social sphere and the results of their activity - public services for population, education and health care. Regulatory and legal framework for regulation of public behavior of population is a socio-political part of the "municipal political economy".

2. RESULTS AND DISCUSSION

"Municipal political economy» must become an integral part of the "development state" model. In J.M.Keynes opinion, this model appeared as a result of a more than a century state development as a social institution which compensate for the market imperfections. As well as development of markets themselves, International and local. "Municipal political economy» will allot the model democratic traits which combine effective modern market practices and social justice.

The scientists from the Economy Institute of the Russian Academy of Sciences suggested a model of a "play-maker state" (Ananyin et al., 2018). This model was developed on the basis of observation of development of market and state coexistence in the Eastern Asian countries which successfully fulfilled the modernization projects of development on the basis of harmonic partnership of administration, business and population. Effective and sometimes tough market policy of "Eastern Asian Tigers» is based on "their ability to resist egoistic destructive private groups and take care of national interests", on taking measures to assist and encourage instead of prohibitions and restrictions (Streeten, 1996). “Play-maker state" model should be supplemented with representation of ties between the market and territorial entity.

Municipal political economy as well as the public sector economy hasn't yet formed into the autonomous sphere of scientific research. But we can definitely speak about definite bounds of this sphere. This is a territorial attachment - here belong people who satisfy their needs here, institutions and organizations, material and social relations, connected with a certain territory. Besides municipal political economy is stipulated by legal norms which constitutionally singled out local branch of power from the state branches. Political landscape at the local level differs considerably from what we see at the level of autonomous subject of state-political action. Probably there are no municipalities in Russia that haven't accede to the "European chart of local governance", ratified by the Federal law N 55-FL "About the ratification of European chart of local governance" in 1998 (Legal Collection, 1998). According to the chart provisions local government in the framework of the law has a free hand in exercising the strategy aimed at satisfaction of needs of local population in material benefits. This public branch of power is the most close to formation of people's life style, to the questions of life satisfaction, equality / unequality, possession and use of ownership, social balance as a whole.

It is here that we should look for "political economic» constituent of municipal life. These are mixed relations of distribution and exchange. They could be qualified as macroeconomic, but for considerable political and legal basis of these relations. Political economic approach makes possible to look for harmonic forms of relations between public, private and individual interests in determining and production of public benefits. This approach gives possibility to

study optimal models of combining the categories of efficiency and justice. Municipal political economy most objectively reflects sensibility and involvement of people who live at the certain territory in macroeconomic processes in the course of realization of social interests as a whole.

Ownership institution is an indispensable institution of the market economy. This is the institution, development of which is the estimation criteria of socio-economic system as a whole. From our point of view real content of the ownership institution has not only economic and legal essence. Ownership reflects social and individual personal portrait. Personality and ownership are connected directly. From the point of view of methodology of political economy micro and macro levels of economic action should constitute a consistent system. In our case this is a system of realization of ownership in public sector. Description of socio-economic society structure coincides with the ownership distribution and fixes the position of social groups. To a great extent ownership determines the goal-setting of production activity and the ways of approach to efficiency. As a whole ownership characterises economic form of production, distribution and exchange. These questions should be also considered by the economics of social sphere ("municipal political economy").

The civil society instructions which are still at the stage of establishment in Russia are developing on the principles of self organization make it possible to use population activity to increase the ownership volumes and to develop and strengthen democratic principles in the state. That makes ownership good empirical factor in study and extension of subject sphere of municipal political economy. In conditions of market economy ownership can characterise:

- qualitative forms of social-economic relations of public sector,

- crystallization of public interests on the basis of ownership, formation of interest groups and their influence on the real economy sector, on the public benefits market,

- interests of preservation and build-up of ownership predetermine the ways of influence of social institutions on economic subjects decisions concerning the production of public benefits,

- ownership reflects economic cyclicity of economic development, is connected with inflation, unemployment and employment, with level of poverty.

Ownership gives people possibility to use freely the resource which is always limited. Legal form defines such situation for the subject according to civilization level of development and economic conditions. But ownership is a dynamic phenomenon and it is difficult to fix it's meaning legally. Even formulated judgement about the "right to ownership» comprises not only formal rights of use, but also various not fixed social norms, which regulate essentially people's behavior who use ownership subject.

Economic activity of people, extension of "public benefits" sphere recently make timely the notion of indifiniteness and indivisability of rights to ownership going back to the Roman law. Specification and "attenuation» of rights to ownership, splitting of rights to ownership pervade. In conditions of territorial resources constraints these limitations are appropriate. Municipalities start to use this specification of rights to ownership, becoming an institution which determines the rights and solve the conflicts concerning valuable social rights in the sphere of shared access.

Ever growing amount of rights to ownership in territorial entities demands splitting, dissemination. Each separate competence which constitute a so called bundle of rights can become a shared use or a subject of market manipulations. They can unite to constitute new models, "bundles", changing the configuration of ownership. Municipalities should tend to maximize the value of the resource, to diminish the transaction expenses so that the rights to ownership go over to the person for whom the value of them is higher. Ronald Coase, the

creator of the theory of "bundle of rights» presupposed such situation: "With the help of market transactions it is always possible to change the initial legal division of ownership. And if these transactions are executed without expenses, such redistribution of rights will be always if it opens the way to growth of production value" (Coase, 1988).

At the municipal level as well as in macroeconomics ownership relations are presented in the form of two polar types: private and public property. Managing municipal economy it is necessary to find opportunity to make private as well as public property fill the public sector with activity, goods, services. Though private property is more efficient at the local level, it should play the leading role. Its efficiency is characteristic for small and medium business which function at the territorial entity level, they constantly appear at this level and develop. Business in municipal entities is impossible without private property of small and medium business. Even in conditions of Soviet economy which didn't allow private initiatives as well as private property private sector was represented by private services in housing renovation, personal services, tutoring, private medical practices.

Ownership institution is flexible. It can transform under the influence of political and cultural factors. One of the main tendencies of the XX-th century was the development of large corporative unions and corporativity in management. Powerful and large corporations absorbed ownership distributed between many economic agents. Individual entrepreneurs and owners disappeared from the economic life. Bureaucratic and technological administration institutions dominated which was enshrined in Soviet legislation. But the same tendency could be seen in the developed capitalist countries. Relations between the state and corporations become close at the national and local level. Symbiotic association of state and corporations became more close in the period when information economy appeared and intellectual ownership started to develop quickly. Intellectual welfare is hard to become a product at the market without the state's help. The state has an opportunity to turn intellectual property into a product at the market and ensures it legal defense. Private ownership turns into its opposite - public ownership. This is mostly visible at the macrolevel, but inevitably it includes lower level, municipal socio-economic structures.

Economy and legal practice unite in the ownership institution because ownership relations cannot exist without legal documentation. They also have no sense without people's relations concerning material and other welfare. Economic relations of ownership institution concerning welfare and services exchange is the meaningful side of ownership, but they are impossible without legal documentation, this is the legal side of ownership. This peculiarity of ownership institution reveals itself at the state level as well as at the municipal level. The more circumspected documentation of material ownership at the municipal level, the more favorably develop economic relations in the territorial entity, the more welfare can be presented to population. Finally this is reflected in status value of life in this or that municipality, in people's satisfaction with life conditions, in population trust towards administration of the municipality.

3. CONCLUSION

In public sector of municipal economy market transaction gives access to exploitation of resources existing in this entity. As a rule this is the access to limited territorially and in time social services and welfare. In the process of buying and selling in the market the sides exchange "bunches» of rights (Coase, 1960). These rights can extend to ownership in material, virtual, digital or intellectual form. The scope of mandate of "bunch of rights» is specified by "specification of ownership object".

In diversified life and functioning of municipal social economy "bunch of rights" can be divided between the economic subjects. In particular this concerns municipal land ownership

which is one of the most complicated ownership object. R. Coase ideas on ownership rights were developed by the economists of the institutional trend (Once, 1961). It is known that E.Honore suggested, that it is possible to make a list of about 1,5 thousands variants from a list of separate rights. This covers all demands of combined market economy growing in the modern society. Summarizing legal and judicial practice Honore singled out a list of competences which can be found and used in municipal economy. The list of ownership rights according to Honore:

1) the right to possess ;

2) the right to use ;

3) the right to manage ;

4) the right to the income of the thing ;

5) the right to the capital, that is subtraction, change or annihilation of thing ;

6) the right to security ;

7) the right of transmissibility ;

8) the right of absence of term;

9) the duty to prevent harm;

10) liability to execution ;

11) the incident of residuarity (Once, 1961).

The use of possibilities of flexible ownership institution gives possibility to effectively administer, react to the dangers of modern market mechanism and modern global social life. It requires new rules of administration, new objectives and paradigms (Zakharov, Kuznetsov, Kolesnikova, Sokol. 2021).

REFERENCES

[1] Ananyin, O.I., Voeikov, M.I., Glouveli, G.D., Gorodetskiy, A.E., Grinberg, R.S., Rubinstein, A.Ya. (2018). *Towards a new economic theory of the state*. Moscow: Institute of Economics of the Russian Academy of Sciences - RAS.

[2] Streeten, P. (1996). *Governance of the Global Economy, Paper presented at the International Conference on 'Globalisation and Citizenship*. Geneva: United Nations Research Institute for Social Development..

[3] Coase, R. (1960). The Problem of Social Cost. *Journal of Law and Economics*, vol.3, n2, pp. 1-44.

[4] Once A. (1961). *Ownership.* Oxford: Oxford Essays in Jurisprudence.

[5] Zakharov, N., Kuznetsov, A., Kolesnikova, A., Sokol. J. (2021). A new paradigm of personnel management in regional oriented systems in the context of the IV technological order. In: *The impact of industry 4.0 on job creation 2020*. Trenčín: Publishing House A.Dubcek University in Trencin, 2021.

[6] Legal Collection. (1998). Federal law of 11.04.1998 N55-FL "About the ratification of European chart of local governance" In: RF Legal Collection - April 13 1998 (N 15).

[7] Coase, R. (1988). *The Firm, the Market and Law*. Chicago: The University of Chicago Press.

FISCAL POLICY AND LABOR MARKET IN THE COVID-19 PANDEMIC

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Abstract: *The research is based on the hypothesis of a relationship between fiscal policy and labor market, which occurs as a result of financial and other flows. The COVID-19 pandemic negatively affected the labor market of Ukraine by reducing employees and terminating the activities of individual entrepreneurs; by reduction of tax revenues to the Consolidated budget of Ukraine and extra-budgetary funds. In 2020-2021 the generalization of the implemented fiscal measures of Ukraine is carried out. It was concluded that Ukrainian fiscal measures are in line with the practice in foreign countries and the recommendations of international financial organizations and experts, but need improvement in the direction of targeted cash payments, improving of social responsibility to the vulnerable groups and preventing abuse of tax benefits in highly profitable economic activities.*

Key words: *budget expenditures, COVID-19, fiscal policy, labor market*

JEL Classification: *G18, H32, J21, J28*

1. INTRODUCTION

The COVID-19 pandemic produced the need for change in medicine, economics, public administration in some countries and international relations, etc. The labor market is not an exception. It was one of the first that responded to anti-epidemiological measures to prevent the spread of COVID-19 pandemic. National quarantine in Ukraine was introduced on April 12, 2020. The second quarter of 2020 is characterized by a decrease in employment to 50.3%, which is 1.4 percent of the level of the first quarter of 2020. It is very close to the indicators in the EU. Global trends in the global labor market correspond to national changes in employment and unemployment (Shamileva, Khandii, 2020).

More than 1% of employment rates were lost from restrictive government measures in Estonia (2.9 ppt), Ireland (4,1 ppt), Spain (3,5 ppt), France (1,1 ppt), Lithuania (1,6 ppt), Hungary (1,0 ppt), Malta (1,7 ppt), Netherlands (1,1 ppt), Austria (1,3 ppt), Portugal (1,9 ppt), Slovenia (1,5 ppt), Slovakia (1,2 ppt), Iceland (2,1 ppt), Switzerland (1,3 ppt), Turkey (1,7 ppt) (Eurostat, 2020). In Ukraine, as of the end of 2020, employment rates were 49.9% with the largest reduction in the employed population in agriculture and industry, wholesale and retail trade, accommodation and food service activities (Ukrstat, 2019a).

The COVID-19 pandemic and the negative change which occurs under its influence in the labor market highlight the need to develop policy to restore employment and stabilize the labor market through fiscal policy.

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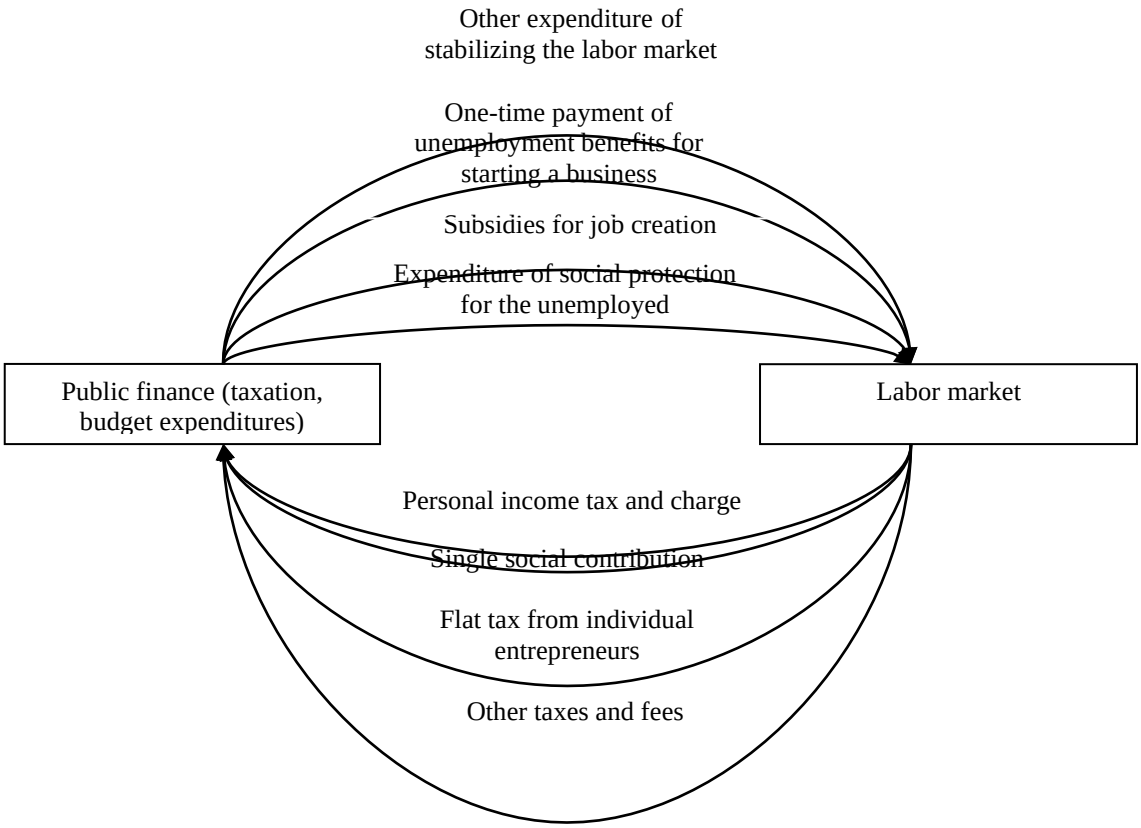
2. PROBLEM FORMULATION AND METHODOLOGY

The research is based on the hypothesis of a relationship between fiscal policy and labor market, which occurs as a result of financial and other flows in the economy. The main financial flows between public finance and labor market (Figure 1) indicate, firstly, the payment of employees to the budget and public funds personal income tax, single social contribution, other taxes and fees, which depend on the effective demand of the population for goods and services. Secondly, social protection of the unemployed and their families, as well as various targeted job creation programs are financed from budget expenditures and public funds expenditures.

Figure 1. Public finance and labor market: experience of Ukraine in the before the COVID-19 pandemic period



Source: author's elaboration

The methodological basis of the research is general scientific and special methods of research, in particular, regression analysis is applied to determine the dynamics of fiscal indicators and labor market indicators, Pearson's correlation coefficient is applied to determine the presence and density of the relationship between fiscal indicators and labor market indicators.

To determine the impact of changes in labor market indicators on the formation of tax revenues of the budget multiple linear regression is used.

$$PIT_{wages} = \beta_0 + \beta_1 E + \beta_2 W + \beta_3 TR + \varepsilon \quad (1)$$

where**:** PIT_{wages} – revenue of personal income tax from income in the form of wages in the Consolidated budget of Ukraine, β_0 – intercept (constant term), $\beta_{1,2,3}$ – slope coefficients for

each explanatory variable (*E, W, TR*), *E* – number of employees in economy, *W* – average salary in economy, *TR* – personal income tax rate, ε – the model's error term.

3. RESULTS

Fiscal policy is the use of government spending and taxation to influence the economy. The role and objectives of fiscal policy gained prominence during the recent global economic crisis, when governments stepped in to support financial systems, jump-start growth, and mitigate the impact of the crisis on vulnerable groups (Horton, El-Ganainy, 2020). An empirical analysis of taxation in the field of labor market in Ukraine was carried out.

The modern tax system of Ukraine is characterized by the presence of a direct income tax on employee income (personal income tax), military charge as a part of personal income tax, a single tax on self-employed persons, a single social contribution. Before the COVID-19 pandemic period (2015-2019) revenues of the Consolidated Budget of Ukraine were formed mainly due to domestic taxes on goods and services (excise tax and value-added tax), taxes on revenue and income (personal income tax and corporate profit tax), non-tax revenues (property and entrepreneurial activity income, administrative fees and charges, receipts from noncommercial economic activity). The share of domestic taxes on goods and services in the revenues of the Consolidated Budget of Ukraine decreased from 43.1% in 2016, 42.8% in 2017-2018 to 40.0% in 2019 (State Treasury Service of Ukraine, 2015-2021). During this period, the role of direct personal and corporate taxation, including income earned in the labor market, was strengthened. To prove this statement, we use the data of the State Treasury Service of Ukraine on the receipt of personal income tax from income in the form of wages, military charge, flat tax on individuals (Table 1).

Table 1: Revenue from the taxation of labor income in Ukraine, 2015-2019

Індикатор	2015		2016		2017		2018		2019	
	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]
Personal income tax and charge	99983	15,3	138782	17,7	185686	18,3	229901	19,4	275458	21,4
Personal income tax paid by tax agents on the taxpayer's income in the form of wages	73463	11,3	106091	13,6	149396	14,7	186861	15,8	224407	17,4
Military charge	9154	1,4	11457	1,5	15067	1,5	18723	1,6	22426	1,7
Flat tax on individuals	6744	1,0	10327	1,3	15447	1,5	19876	1,7	24953	1,9
Single social contribution	185690	-	131827	-	180805	-	228025	-	273480	-
Разом	275051	-	259701	-	360716	-	453485	-	545266	-

%[1] – percentage of the Consolidated budget of Ukraine revenue

Source: author's calculations on fiscal data (the State Treasury Service of Ukraine, 2015-2021)

Personal income tax and charge were important for the formation of the Consolidated budget of Ukraine revenue in 2015-2019. In terms of budget revenues, only the value-added tax out of 11 taxes and fees was inferior. Personal income tax should be considered as a budget-forming tax (the main direct budget-forming tax) for budgets of different levels (Boiko, Drahan, 2016)..

The share of personal income tax from income in the form of wages in the Consolidated budget of Ukraine revenue has been increased by an average of 1.7 ppt in 2015-2019, which

is confirmed by the trend line (R^2 = 0.981) and indicates an increase in fiscal efficiency of personal income taxation in the form of wages. Revenue of personal income tax from income in the form of wages (PIT_{wages}) are also described by the trend line (R^2 = 0.999) with an average annual increase of UAH 38,266 mln (Formula 2).

$$PIT_{wages} = 38266\,t + 33246 \tag{2}$$

Modeling of personal income tax revenues from income in the form of wages in Consolidated budget of Ukraine revenue by the trend line (Formula 1) identifies revenues in 2020 in the amount of UAH 262,842 mln against UAH 242,102 mln (actual receipts of personal income tax from income in the form of wages, Table 2). Thus, in 2020 budget revenues received about 92% of potential personal income tax from income in the form of wages. Also in 2020 not received personal income tax from income in the form of wages according to our calculations is UAH 38,435 mln.

Table 2. Revenue from the taxation of labor income in Ukraine, 2020-2021

Індикатор	2020Q1		2020Q2		2020Q3		2020Q4		2021Q1	
	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]	mln UAH	%[1]
Personal income tax and charge	68796	24,5	135293	20,7	209733	21,5	295107	21,4	74621	22,6
Personal income tax paid by tax agents on the taxpayer's income in the form of wages	57123	20,4	113761	17,4	172760	17,7	242102	17,6	62911	19,0
Military charge	5567	2,0	10973	1,7	17041	1,7	23929	1,7	6084	1,8
Flat tax on individuals	7304	2,6	13460	2,1	19965	2,0	27627	2,0	8384	2,5
Single social contribution	69398	-	138153	-	209930	-	294381	-	76646	-
Разом	139392	-	276348	-	419696	-	588039	-	154025	-

%[1] – percentage of the Consolidated budget of Ukraine revenue

Source: author's calculations on fiscal data (the State Treasury Service of Ukraine, 2015-2021)

As a component of the personal income tax, a military charge of 1.5% was introduced (Law of Ukraine № 1621-VII of July 31, 2014). This fiscal measure increased personal income taxation, as a result attracted additional revenues to the budget (from 1.4% to 1.7% of Consolidated budget of Ukraine revenue in 2015-2019). Receipts of military charge are also described by a trend line with an average annual increase of UAH 3,656 mln. The modeling of military charge revenues for 2020 indicates that only 81% of revenues were actually received. According to our calculations, the military charge of UAH 7,289 mln was not received in 2020.

Flat tax on individuals is a form of personal income taxation of entrepreneurs and self-employed individuals who have chosen a simplified system of taxation of Groups 1, 2, 3. In Ukraine, flat tax on individuals is paid mainly by representatives of trade, services (including households), lawyers, auditors, architects, etc. The contribution of flat tax on individuals was insignificant in the formation of the Consolidated budget of Ukraine revenue in 2015-2019, but the dynamics of revenues was positive: the average annual increase in revenues was UAH 4,597 mln. According to our calculations, the amount of flat tax on individuals that was not received was UAH 4,306 mln in 2020 and the level of revenues was 94%. The highest percentage of revenues from the analyzed taxes is explained by the fixed amounts of flat tax,

which do not depend on the amount of income of entrepreneurs. Thus, the COVID-19 pandemic contributed to the reduction of tax revenues to the budget of Ukraine and the shortfall in taxes from the labor market by about UAH 50,030 mln.

Based on data on the receipt of the basic tax from employees in the labor market (personal income tax from income in the form of wages, PIT_{wages}), number of employees in economy (E), average salary in economy (W), personal income tax rate (TR) the importance of changing each of the factors (Formula 3 and Formula 4) was determined. Firstly, the personal income tax rate (TR) hasn't been changed in the analyzed period and amounted to 18%. This simplifies Formula 1.

$$PIT_{wages\,2015-2019} = 73212.2 - 17.3E + 24.6W \quad (3)$$

$$PIT_{wages\,2015-2020} = 93133.7 - 20.2E + 24.0W \quad (4)$$

Secondly, before the COVID-19 pandemic period (2015-2019) the impact of the dynamics of the average salary in economy (W) was more important than the impact of the dynamics of the number of employees in the economy (E), but in the COVID-19 pandemic period the impact of the dynamics of the number of employees in economy has been increased. Pearson's correlation coefficient between personal income tax from income in the form of wages (PIT_{wages}) and the number of employees in economy (E) in 2015-2019 was 0.778 and has been increased to 0.853 during the COVID-19 pandemic.

In 2020-2021 to balance the labor market and minimize the negative impact of the COVID-19 pandemic on the labor market, governments implemented fiscal policy measures both to reduce tax pressures and to increase budget expenditures to support employment (Table 3).

Table 3: Main fiscal measures on the labor market in Ukraine, 2020-2021

<table>
<tr><th colspan="2">The experience of Ukraine</th><th rowspan="2">The international experience</th></tr>
<tr><th>2020</th><th>2021</th></tr>
<tr><td colspan="3">Tax measures</td></tr>
<tr><td colspan="2">1. Individual entrepreneurs – flat tax payers of Group 1 are exempted from paying the flat tax (December 2020 and January – May 2021)
2. Annual income limits for individual entrepreneurs of Groups 1, 2, 3 are increased.
3. Limitation of penalties charged for violation of tax laws, including personal income tax and single social contribution.
4. Exemption from payment of single social contribution is granted to individual entrepreneurs, individuals carrying out independent professional activities.</td><td rowspan="2">1. Revenue measures to protect businesses.
2. Accelerated asset depreciation (CIT).
3. Extend loss carry-forward for losses incurred during the crisis (CIT).
4. Broaden tax deductibility (e.g., to all business expenses related to COVID-19).
5. Introduce tax credits
6. Deferral of tax filing (CIT, PIT for self-employed, VAT, other business taxes).
7. Deferral of tax and/or interest and penalty payments.
8. Tax rate reduction (CIT, PIT for self-employed).
9. Tax amnesty.
10. Lower advance payment (CIT, PIT for self-employed).
11. Suspend debt collection activities.
12. Suspend audit activities.
13. Tax exemptions/waver/suspension (Lacey, Massad, Utz, 2021)</td></tr>
<tr><td>5. Payment of the personal income tax liability according to the results of the annual declaration is postponed until October 1, 2020.
6. Exemption from land tax, land lease fee.
7. Exemption from real estate tax in respect of non-residential property.
8. Written off tax debt (including fines and penalties), the total amount of which for all taxes and fees did not exceed UAH 3,060.</td><td></td></tr>
<tr><td colspan="3">Expenditure measures</td></tr>
<tr><td colspan="2">1. Partial unemployment benefit in the amount of 2/3 of wages,</td><td>1. One-off grants to industries in</td></tr>
</table>

<table>
<tr><td colspan="2">but not more than the subsistence level.
2. Credit support for business under the state program "Affordable loans 5-7-9%".</td><td rowspan="2">distress.
2. Income support.
3. Direct cash transfers for individuals.
4. Expansion of unemployment benefits both in terms of compensation and length.
5. Wage compensation subsidies and enhanced paid/sick leave allowances (Lacey, Massad, Utz, 2021)</td></tr>
<tr><td>3. One-time compensation to legal entities of single social contribution.</td><td>3. One-time assistance in the amount of UAH 8,000 to employees or individual entrepreneurs.</td></tr>
</table>

Source: author's elaboration Law of Ukraine on March 30, 2020 № 540-IX; Law of Ukraine on April 13, 2020 № 553-IX; Law of Ukraine on December 4, 2020 № 1072-IX; Law of Ukraine on March 30, 2021 № 1358-IX

4. CONCLUSION

The Ukrainian labor market has shown a high level of sensitivity to the COVID-19 pandemic, which has manifested itself in the reduction of employees in agriculture, industry, wholesale and retail trade, accommodation and food service activities; reduction of tax revenues to the Consolidated budget of Ukraine and extra-budgetary funds, which reduced the government's financial resources. To balance the labor market and minimize the negative impact of the COVID-19 pandemic on the labor market in March 2020, a system of fiscal measures was developed both to reduce tax pressure on businesses and employees, and to provide cash benefits to employees or individual entrepreneurs. Fiscal measures of Ukraine are in line with the practice in foreign countries and the recommendations of international financial organizations and experts, but need to be improved in the direction of targeted cash payments, improving of the social responsibility to the the vulnerable groups and preventing abuse of tax benefits in highly profitable economic activities.

REFERENCES

[1] Boiko, S. & Drahan, O. (2016). Individual income tax in the formation of financial resources of the enlarged government. *Economic Annals-XXI*, vol. 9-10. pp. 35-38.

[2] Cabinet of Ministers of Ukraine. (2020). Orders of the Cabinet of Ministers of Ukraine "On prevention of the spread of the coronavirus COVID-19 on the territory of Ukraine" № 211 of of March 11, 2020 [online]. [cit.2021-08-30]. Available at: https://www.kmu.gov.ua/npas/pro-zapobigannya-poshim110320rennyu-na-teritoriyi-ukrayini-koronavirusu-covid-19

[3] Eurostat (2020). Employment rates by sex, age and citizenship [online]. [cit.2021-08-30]. Available at: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsq_ergan&lang=en.

[4] Horton, M. & El-Ganainy, A. (2020). Fiscal Policy: Taking and Giving Away. *Finance & Development* [online]. [cit.2021-08-30]. Available at: https://www.imf.org/external/pubs/ft/fandd/basics/fiscpol.htm.

[5] Lacey, E. Massad, J. & Utz, R. (2021). *A Review of Fiscal Policy Responses to COVID-19* [online]. [cit.2021-08-30]. Available at: https://openknowledge.worldbank.org/handle/10986/35904

[6] Shamileva, L. & Khandii, O. (2020). Assessment of the impact of the financial and economic crisis and the COVID-19 pandemic on the national labor market. *Economic Bulletin of Donbass*, vol. 3 (61), pp. 177-182.

[7] State Treasury Service of Ukraine. (2015-2021). Reporting. [online]. [cit. 2021-08-30]. Available at: https://www.treasury.gov.ua/ua/file-storage/vikonannya-derzhavnogo-byudzhetu

[8] Ukrstat. (2019a). Statistical collection "Labor Force of Ukraine" 2020. [online]. [cit.2021-08-30]. Available at: http://www.ukrstat.gov.ua/druk/publicat/kat_u/2021/zb/07/zb_r_s_2020.pdf

[9] Ukrstat. (2020b). Average monthly salary of full-time employees by type of economic activity in 2010-2020. [online]. [cit.2021-08-30]. Available at: http://www.ukrstat.gov.ua/

[10] Zakon.Rada. (2014). Law of Ukraine "On amendments to the Tax Code of Ukraine and some other legislative acts of Ukraine" № 1621-VII of July 31, 2014. [online]. [cit.2021-08-30]. Available at: https://zakon.rada.gov.ua/laws/show/1621-18#Text

[11] Zakon.Rada. (2020). Law of Ukraine "On Amendments to some legislative acts of Ukraine aimed at providing additional social and economic guarantees in connection with the spread of the disease of Coronavirus (COVID-19)" № 540-IX of March 30, 2020. [online]. [cit.2021-08-30]. Available at: https://zakon.rada.gov.ua/laws/show/540-IX#Text

[12] Zakon.Rada. (2020). Law of Ukraine "On Amendments to the Law of Ukraine "On State Budget of Ukraine for 2020" № 553-IX of April 13, 2020. [online]. [cit.2021-08-30]. Available at: https://zakon.rada.gov.ua/laws/show/553-20#Text

[13] Zakon.Rada. (2020). Law of Ukraine "On Amendments to the Tax Code of Ukraine and other laws of Ukraine on social support of taxpayers for the period of restrictive anti-epidemic measures introduced to prevent the spread of acute respiratory disease COVID-19 caused by SARS-CoV-2 Coronavirus in Ukraine" № 1072-IX of December 4, 2020. [online]. [cit.2021-08-30]. Available at: https://zakon.rada.gov.ua/laws/show/1072-20#Text

[14] Zakon.Rada. (2021). Law of Ukraine "On providing assistance to insured persons for the period of implementation of restrictive anti-epidemic measures introduced to prevent the spread of acute respiratory disease COVID-19 caused by coronavirus SARS-CoV-2" № 1358-IX of March 30, 2021. [online]. [cit.2021-08-30]. Available at: https://zakon.rada.gov.ua/laws/show/1358-20#Text.

ANALYSIS OF BREXIT UNDER INTERNATIONAL LAW AND THE PRINCIPLE OF SOVEREIGNTY

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Abstract: *The European Treaties did not originally provide for the possibility of a unilateral withdrawal of a State from the European Union. However, the Brexit is a legal reality since 31 January 2020. By regaining its sovereignty, the United Kingdom will gain freedom in its international negotiations. However, in a globalised world where states are increasingly interdependent, absolute state sovereignty seems utopian in many ways. This article proposes an analysis of the Brexit through the prism of the notion of sovereignty, which is much criticised by the defenders of a regulated globalisation respectful of international law.*

Keywords: *Brexit, economic consequences, European Union, international law, sovereignty,*

JEL Classification : *EXX, F4X*

1. INTRODUCTION

European integration has recently been faced with a major challenge. For the first time in its history, one of the member states, the United Kingdom, decided by referendum to leave the Union. David Cameron's failed gamble shows the rift that exists between some Europeans who consider that a sovereign state is better able to face the challenges of the contemporary world. It therefore seems necessary to place the Brexit in the long term. The relationship of states to sovereignty in the modern post-Westphalian era has evolved over time. The emergence of numerous international organisations of varying degrees of integration and the rise of multinationals whose turnover exceeds that of certain micro-states have undermined the omnipotence of states. Traditional state governance has given way to more diffuse, more complex, less visible and sometimes incomplete modes of regulation (Delmas-Marty, 2007). International organisations and law are trying to provide solutions based on compromise to deal with issues that are now being played out on a global scale (combating global warming, regulating migration, controlling pandemics, combating terrorism). Many critics are calling globalisation too liberal and some European political leaders are calling for a return to state sovereignty to better regulate certain phenomena. The specialisation of production capacities on a global scale has led to an exponential increase in international flows of goods and services, but also to an increase in fiscal, social and environmental dumping. The growing mobility of people, capital and information made possible by technical progress has also exacerbated competition, leading to the disappearance of certain sectors of activity in Europe.

This has led to a growing interdependence of states. The race for supplies of masks during the spread of the Covid virus19 reminded Europeans of the dependency that arises in a system of specialisation of goods production. These changes linked to technical progress, which are natural in a Schumpeterian logic, have created frustration in European regions affected by unemployment, particularly in the countries of Central Europe, where it is all the more traumatic because unemployment was almost non-existent before 1989 (Bafoil, 2006). The political scientist Fareed Zakaria has developed the concept of "illiberal democracy" to

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describe the disenchantment that followed the collapse of communism in Central Europe (Fareed, 1998).

In this geographical area, as elsewhere in Europe, politicians are trying to exploit these frustrations for electoral purposes. The excesses of Polish and Hungarian elected representatives who seem to ignore the constitutional limits to their powers have led to tensions with the European institutions, in particular with the Commission, guardian of the Treaties. The action of the European Commission against these Member States is perceived by their democratically elected leaders as an attack on their sovereignty. Moreover, it is on the theme of sovereignty that Boris Johnson's campaign has been conducted. By freeing itself from *"European constraints"* and regaining its freedom of action, the United Kingdom would be better able to defend the interests of its citizens.

A historical and cultural context presaging a break with the eu and the return of sovereignty

As the writer Robert Frank (2018) explains in his book, the British have been expressing the Shakespearean dilemma of "To be or not to be European" for some three centuries now, and it is a dilemma that still plagues England even before it becomes a United Kingdom. These multiple hesitations and all the twists and turns that punctuated the British exit right up to the end are explicitly reminiscent of the thinking expressed by Churchill in 1948 when he stated at the beginning of the construction of the European Union that the English are with Europe but not in it. We are therefore witnessing a crossroads and an eloquent and almost permanent instability in the convictions of belonging to the rest of Europe (Kersaudy, 2003). This constancy in inconstancy has often been criticised by the French, particularly in the post-revolutionary period but also during the long period of the Hundred Years' Wars, when certain acts led to the extremely pejorative nickname of 'Perfidious Albion'. Has Europe become free of 'Perfidious Albion'? According to former Prime Minister Theresa May, the United Kingdom spends its time questioning claims and statements made shortly before:

"One minute they say they accept the referendum, then the next they want a second referendum, one minute they want to secure free movement, then the next they say free movement is still on the table. One minute they want a free trade deal, then the next they want a customs union that would stop us doing free trade deals" Theresa May (BBC, 2016).

The EU itself has repeatedly criticised Britain for breaking its word on a wide range of post-Brexit commitments, which had led the current Prime Minister to respond with direct and frontal threats while stating that he wanted to find a real deal with European partners.

More recently Michel Barnier, chief Brexit negotiator and current French presidential candidate for 2022, had to warn the United Kingdom that there would be no deal if London continued to backtrack. He said in 2020 *"The United Kingdom is taking one step back, two steps back, three steps back from the commitments it originally made."* And even more recently, Michel Barnier denounced British provocations and threats aimed at not respecting the agreement, notably on the maritime aspect of Brexit. This non-compliance with the trade agreement could have consequences that include the reintroduction of customs tariffs or simply the suspension of the agreement. (Le Soir, 2020).

Frank Robert also describes perfectly well in his book *To be or not to be European* the complexity and difficulty that the British have in getting involved or not in the affairs of old Europe and in respecting commitments. Indeed, British elites are constantly changing their minds. Sometimes Europe seemed too small to them and they then devoted themselves to conquering the world, sometimes they feared the invasion of too great a continental power such as France and then Germany and then waged preventive wars to weaken and contain a feared rival power (Frank, 2018).

2. METHODOLOGY

At a time when some politicians want to free themselves from international law and supranational regulatory mechanisms on the basis of the principle of sovereignty, the emphasis on this concept, theorised in the 16th century by Jean Bodin, raises questions. Is this a lasting trend towards a return to the concept of national sovereignty, which implies the full power of states, or are these epiphenomena part of an inevitable global expansion of international law, of which European law is an illustration on the scale of the old continent? The analysis of the Brexit using the tools offered by international law and political science allows us to provide some answers to this question.

3. BREXIT IN A POSTMODERN WORLD WITHOUT REAL SOVEREIGNTY

In his works, Jean Bodin elaborated the concept of the modern state whose existence is characterised by sovereignty, which he defined in 1576 as "the absolute and perpetual power of a republic" (Bafoil, 2006). However, as early as 1625, in his work "The Law of War and Peace", Grotius demonstrated that this sovereignty is limited by the rights of individuals, in line with the logic of "natural rights". George Scelle in "Précis du droit des gens" [9] also challenged the absolute sovereignty of states and developed the theory of sociological objectivism in international law. His work, which was inspired by the research of Léon Duguit and Emile Durkheim, the father of French sociology, contributed to the development of contemporary international law, particularly international labour law (Scelle, 1932).

Many authors have highlighted the limits of the concept of sovereignty in a post-modern world of increased interdependence. Even the American superpower cannot act on the international scene without dialogue, trade and exchange with the other international powers that tend to assert themselves. For Bertrand Badie, the end of the Cold War and the progress of globalisation have finally discredited what he describes as a "sovereignist fiction" (Badie, 1999).

He proposes to replace the untenable concept of sovereignty with that of responsibility. Thus, the awareness of the existence of issues common to the whole of humanity (preservation of the planet, fight against pandemics, etc.) could lead to the creation of "communities of responsibility" at local, regional and global levels. The European Union's desire to assert itself as a pioneer in the fight against global warming is an illustration of this phenomenon. However, it would be perilous to draw conclusions about the weakening of the role of states on the international scene. It is also important to avoid being naive, because often, under the guise of defending common interests, states defend their particular interests first and foremost. Moreover, by openly displaying their desire to become a sovereign power again, the British seem to be going against the global trend towards ever greater integration.

4. SOVEREIGNTY AND RESPECT FOR INTERNATIONAL LAW

It was on the basis of the principle of sovereignty that the Brexit referendum was held and its result accepted by its European partners. The European treaties did not originally provide for this possibility of leaving the Union. The Lisbon Treaty introduced a withdrawal clause that allows a country in the Union to regain its sovereignty from a legal point of view:

Article 50

1. Any Member State may decide, in accordance with its constitutional requirements, to withdraw from the Union.

2. A Member State which decides to withdraw shall notify the European Council of its intention. In the light of the guidelines of the European Council, the Union shall negotiate and conclude an agreement with that State setting out the arrangements for its withdrawal, taking into account the framework for its future relations with the Union. This agreement shall be negotiated in accordance with Article 218(3) of the Treaty on the Functioning of the European Union. It shall be concluded on behalf of the Union by the Council, acting by a qualified majority, after obtaining the consent of the European Parliament.

In accordance with Article 50, the Brexit has become a legal reality since 31 January 2020. To achieve this, the Withdrawal Agreement between the European Union and the United Kingdom was signed on 17 October 2019. It entered into force on 1 February 2020 and sets out the conditions for an orderly withdrawal. It consists of the withdrawal agreement itself, which includes a protocol on Ireland, and a political declaration which aims to set a framework for the future relationship. The agreement aims in particular to protect the three million EU citizens living in the United Kingdom. It settles many uncertainties relating to separation: intellectual property protection, police and judicial cooperation, etc. It also provides for the United Kingdom to honour the financial obligations it entered into when it was a member. The agreement also deals with the issue of the areas of territorial sovereignty in Cyprus and Gibraltar, but it is the issue of Ireland that is proving most problematic. A solution avoiding the re-establishment of a physical border protecting the Belfast Agreement had been found and incorporated into the withdrawal agreement.

This regularly ratified international treaty created rights and obligations for the signatories. However, the British government has decided to pass legislation to render certain aspects of the treaty null and void. The bill, which was passed by the House of Commons on Tuesday 29 September and has yet to be passed by the House of Lords, opens the door to a unilateral revision of the divorce agreement signed between London and Brussels. Moreover, it would contradict the Northern Ireland Protocol which prevents the return of a physical border in Ireland.

The European Commission, wishing to ensure that the signed agreement is respected, has initiated an infringement procedure before the Court of Justice of the European Union. Even though the United Kingdom has not been part of the European Union since 31 January, it remains subject to European jurisdiction for four years for any action taken before 31 December 2020. The United Kingdom is accused of not respecting the obligation of good faith set out in Article 5 of the withdrawal agreement:

"The Union and the United Kingdom shall respect and assist each other in good faith in the performance of their duties under this Agreement. They shall take all appropriate measures, whether general or particular, to ensure fulfilment of the obligations arising out of this Agreement and shall refrain from any measure which could jeopardise the attainment of the objectives of this Agreement."

The transition period ended on 31 December 2020. Before that date the United Kingdom was treated as a Member State. At present, the United Kingdom still enjoys access to the common market, but to continue to do so it will have to honour its international commitments despite the particular conception that the British have of the notion of sovereignty. This is similar to the concept of unlimited sovereignty developed in the 16th century by Jean Bodin. In attempting to place British sovereignty above international law, it ignores centuries of establishing a hierarchy of norms in which treaties are superior to national laws. In a post-modern world of increased interdependence, the attachment to the attributes of sovereignty as they existed in the modern era may appear anachronistic (Chevallier, 2008).

5. BRITISH SOVEREIGNTY IN THE TURMOIL OF THE POST-COVID ECONOMIC CRISIS

Behind Boris Johnson's optimistic vision of increasing wages and productivity while rejecting uncontrolled immigration, the United Kingdom is facing a harsh post-Brexit economic reality amplified by the Covid-19 health crisis and the enduring phenomenon of shortages that seem to be part of a pandemic continuum. Indeed, the health crisis has had the almost immediate consequence of bringing international trade to a standstill; never before in the history of globalisation have world supply and demand been so brutally suspended simultaneously. China, which has been the world's factory for decades, had its 30 glorious years since the 1980s and suddenly stopped exporting all of its production, creating terrible shortages that did not spare Western countries and of course the United Kingdom, which was already weakened by the actual implementation of Brexit. When the economy was finally able to recover, demand naturally exploded and supply was unable to respond effectively to this phenomenon (Les trente glorieuses chinoises, Caroline Puel, 2013.

For its part, as early as April 2020, the European Union rapidly organised itself in the face of the shortages affecting member countries, particularly in terms of fresh produce, which made it possible to avoid any form of food shortage, thanks to an exceptional mobilisation of the entire agri-food production chain. While the United Kingdom sought to control its borders, the European Commission was able to react by ensuring an almost normal flow of goods and reducing the long queues at the borders (Euronews, 2020).

Currently, we are seeing in the United Kingdom that due to the political and economic situation linked to the United Kingdom Prime Minister's strategy, 9 million British people are not able to access basic foodstuffs. Of course, this situation is compounded by both the consequences of Brexit and the pandemic, the effects of which will have a lasting impact on the entire global economy. At a time of solidarity and mutual aid, the United Kingdom is facing one of its most serious crises.

Despite the successive enlargements of the Union, which have led to a multiplication of national interests specific to their history, solidarity between states remains one of the fundamental foundations of the European Union. This solidarity responds to a double requirement, namely the national interest of the Member States and the common European interest, since Europeans can count on the support of their partners when the situation requires it, in particular and exceptional circumstances such as those we are currently experiencing. In the current context, where the coronavirus pandemic constitutes a shock equivalent to that of the 1929 crash which led to the "Great Depression" of the 1930s, the world balance has become more than unstable and requires all the more a strong mobilisation and global solidarity. In the face of the Covid-19 crisis, even if the European Union's record has been mixed, even if one might have expected better coordination, more immediate solidarity and more robust long-term decisions, Europe has not failed and has not been catastrophic (Boniface, 2020).

Jacques Delors rightly said on this subject that *"if the European Union is not capable, in exceptional circumstances, of changing its economic software and showing solidarity, then it is in danger of dying."*

Aware of the risks and despite long and often very laborious discussions, the European Union will release in April 2020 750 billion dollars to help the 27 other member countries.

In her official report on the activities of the European Union in 2020, the President of the European Commission Ursula Von der Leyen stated that this financial recovery instrument should provide a unique opportunity to invest in a better future for our children and grandchildren, in a healthier, greener and smarter Europe where no one is left behind.

"This has been a difficult year, but thanks to our response to the pandemic, we will emerge stronger, more resilient and more united. I have never felt prouder to be a European, nor have I been more convinced of the value of acting together in the face of our greatest challenges." Ursula Von der Leyen (European Commission, 2021b).

The President of course referred to the particular situation that marked a difficult year with the departure of the United Kingdom, which she respects with regard to the choice of the British people, but that it was time for the European Union to turn the page heavy with consequences of the Brexit. *"The future belongs to Europe"* she said, counting of course on the success of the recovery from which the United Kingdom does not benefit.

This historic recovery plan, which was voted on by the heads of state to alleviate all the effects of the health crisis that have violently affected European economies, is a strong symbol of the European Union's ability to remain united and supportive. Although the European Union and the United Kingdom wish to maintain a strong relationship, since the United Kingdom has left the Single Market, trade relations will not be able to return to the way they were before. *"The United Kingdom will no longer be able to benefit from the smooth trade that you get when you are part of it"* (Pascal Donohoe, President of the Eurogroup, 2021), which means that trade with London will never return to the same level as before the Brexit.

This largest recovery plan ever adopted in the history of European integration will therefore serve as an instrument to stimulate recovery, strengthen flexibility mechanisms, be able to deal with a number of unforeseen events and thus adapt to the realities of today and the uncertainties of tomorrow (European Commission, 2021b). According to the agreement, these implications will be in key areas such as research and innovation, climate and digital transition, cohesion and agricultural policy, gender equality etc.

6. THE CONSEQUENCES OF BREXIT ON THE UK ECONOMY

5.4 billion to help member states affected by the consequences of Brexit, the United Kingdom is experiencing an economic setback that is taking its toll on British lives. The United Kingdom is feeling the symptoms of leaving Europe, and although the impacts of the border closure and health crisis have so far been difficult to assess, the initial picture is bleak. Despite the fact that a deal was narrowly reached to avoid quotas and tariffs for the time being on trade with the United Kingdom, the fact remains that United Kingdom exports to Europe have fallen by a massive 75% in 2021 compared to December 2020 (Office for national Statistics, 2021). This significant drop affects the food sector, which is really hit by the Brexit, amounting to about £2 billion, despite an increase in purchases from non-European Union countries which cannot compensate for this loss. The United Kingdom Food and Drink Industries Federation states on this in September 2021, that *"the impact of the pandemic combined with new trade barriers"* is a direct consequence of leaving the European Single Market (Euronews, 2021).

Imports of food of animal origin from the European Union have also fallen significantly. According to Dominic Goudie, director of international trade at the British Food Industry Federation, these imports will deteriorate further in 2022, when United Kingdom border controls are fully in place. He argues that these disastrous results are a direct consequence of the pandemic and Brexit combined, as the country faces a shortage of workers across the supply chain and shops offer empty shelves, action needs to be taken quickly to enable businesses to fulfil export orders vital to their continued existence (The Guardian, 2021).

It is indeed true that since the beginning of the school year in September, shortages have worsened under the effect of Brexit and many sectors have been hard hit, such as catering, distribution and industry. The United Kingdom is therefore facing a shortage of labour and of

lorry drivers to transport fuel in particular, necessitating the deployment of the army to alleviate this shortage, which seems to be continuing and is worrying professionals in several sectors with the approach of the Christmas holidays.

The post-Brexit problems continue to multiply, hence the government's emergency decision to grant 10,500 temporary visas for foreign workers. These three-month permits, which run counter to Boris Johnson's policy, are intended to alleviate the historic and worrying shortage of lorry drivers and to boost supplies in the country. The Prime Minister, who wanted to close the immigration floodgates, has thus adopted a reversal of policy through economic constraint.

This short-term solution to a problem of such magnitude is indicative of an unpreparedness to deal with the new issues affecting the British people. The leader of the Labour opposition, Keir Starmer, also criticised the government's lack of preparation and compared the current government's solution to a campfire to a glass of water. This abrupt change in Boris Johnson's policy, which has so far rejected any relaxation of immigration rules, is clearly a setback. However, despite the shortages, he rules out any return to the pre-Brexit economy.

However, as Aurélien Antoine, a university law professor and director of the Brexit Observatory, points out, one must be careful not to engage in "Brexit bashing" by explaining that it was necessary to prepare for the post-pandemic economic recovery as well, since phenomena comparable to those experienced by the United Kingdom can be observed throughout the world. Moreover, the lack of drivers can also be explained by the closure of training centres for months, which prevented new drivers from entering the job market.

This shortage situation is therefore a combination of the Brexit but also of the Covid-19 which has led the United Kingdom. Although the health crisis has been a significant part of the causes of this problem for more than a year and a half, the fact that it is now subsiding is revealing the consequences of Brexit, i.e. a lack of anticipation of the withdrawal from the European Union.

5. CONCLUSION

Some politicians believe that state sovereignty can take precedence over respect for international law. The President of the United States with his "America first" doctrine is perhaps the best illustration of this phenomenon. By denying international law and criticising the work of international organisations such as the WHO and UNESCO, he places the interests of American citizens above the global challenges facing humanity, such as the fight against global warming, the control of pandemics or migration. Infringements of international law by the great powers is not a new phenomenon, yet in recent decades the democratisation of information made possible by new technologies could have raised awareness of the need to set up supranational regulatory mechanisms. More or less binding legal mechanisms on a continental or sometimes even global scale have developed. The European Union is a perfect illustration of this trend.

By sharing their sovereignty in certain specific areas, the European states are trying to better control certain phenomena collectively and defend their interests on the international scene. The United Kingdom, which had always shown some hostility towards too much political integration, has chosen to regain its full sovereignty. However, this does not absolve it from respecting the international agreement it regularly ratified. The British gamble on a return to greater sovereignty is a bold one in a world where all states, even the most powerful, are forced to respect international norms and compromises. The negotiations on the free trade agreement have shown us that it will be difficult for the United Kingdom not to comply with European standards. So the newfound sovereignty seems partly fictitious.

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REFERENCES

[1] Badie, B. (1999). Un monde sans souveraineté. Les Etats entre ruse et responsabilité. In: *Politique étrangère*, n°2 - 1999 - 64eannée. pp. 410-411.

[2] Bafoil, F. (2006). *Europe centrale et orientale. Mondialisation européanisation et changement social*. Paris: Presses de Sciences Po.

[3] BBC. (2016). Theresa May attacks 'unscrupulous boss' Corbyn at PMQs. [online]. [cit.2021-10-25]. Available at: https://www.bbc.com/news/uk-politics-36844335

[4] Boniface, P. (2020). *Géopolitique du Covid-19, ce que nous révèle la crise du coronavirus*.

[5] Chevallier, J. (2008). *L'Etat post-moderne.* Collection droit et société, 3ème Edition, Paris : LGDJ.

[6] Delmas-Marty, M. (2007). Les forces imaginantes du droit.. *La refondation des pouvoirs, Etudes juridiques comparatives et internationalisation du droit,* vol. III. Editions du Seuil, janvier 2007.

[7] Euronews. (2020). L'Europe s'organise contre la pénurie en produits frais. [online]. [cit.2021-10-25]. Available at: https://fr.euronews.com/2020/04/13/l-europe-s-organise-contre-la-penurie-en-produits-frais

[8] Euronews. (2021). *100 days on, what impact has Brexit had on UK-EU trade?* [online]. [cit.2021-10-25]. Available at: https://www.euronews.com/2021/03/31/brexit-three-months-on-uk-eu-trade-trouble-deeper-than-teething-problems-say-producers

[9] European Commission. (2021a). Directorate-General for Communication. *The EU in 2020 : general report on the activities of the European Union.* Publications Office, 2021. [online]. [cit.2021-10-25]. Available at: https://data.europa.eu/doi/10.2775/077365

[10] European Commission. (2021b). *Recovery plan for Europe*. [online]. [cit.2021-10-25]. Available at: https://ec.europa.eu/info/strategy/recovery-plan-europe_fr

[11] Fareed, Z. (1998). De la démocratie illibérale. *Le Débat*, vol. 99, iss. 2, 1998, pp. 17-26.

[12] Frank, R. (2018). *Être ou ne pas être Européen: Les Britanniques et l'Europe du XVIIe siècle au Brexit*

[13] Herrera, C. M. (2005). Un juriste aux prises du social. Sur le projet de Georges Scelle, *Revue Française d'Histoire des Idées Politiques*, p. 113-137. [online]. [cit.2021-10-25]. Available at: https://www.cairn-int.info/revue-francaise-d-histoire-des-idees-politiques1-2005-1-page-113.htm.

[14] Kersaudy, F. (2003). *Winston Churchill : Le pouvoir de l'imagination*. Chapitre VIII, *Gardien de l'Empire*

[15] Le Soir. (2020). Brexit: «Pas d'accord» si le Royaume-Uni ne respecte pas ses engagements, prévient Barnier. [online]. [cit.2021-10-25]. Available at: https://www.lesoir.be/304172/article/2020-05-31/brexit-pas-daccord-si-le-royaume-uni-ne-respecte-pas-ses-engagements-previent

[16] Les trente glorieuses chinoises, Caroline Puel, 2013

[17] Office for national Statistics. (2021). [online]. [cit.2021-10-25]. Available at: https://www.ons.gov.uk/search?q=trade%20uk%20and%20europe

[18] Scelle, G. (1932). *Précis de Droit des Gens. Principes et Systématique*. Première Partie. Introduction, Le Milieu Inter social. Paris : Recueil Sirey.

[19] The Guardian. (2021). *Brexit: food and drink exports to EU suffer 'disastrous' decline*. [online]. [cit.2021-10-25]. Available at: https://www.theguardian.com/business/2021/sep/02/brexit-uk-food-drink-exports-eu-disastrous-decline

ALTERNATÍVY VYUŽITIA PRACOVNEJ SILY OVPLYVNENEJ OPTIMALIZÁCIOU PRODUKČNÝCH KAPACÍT V DÔSLEDKU NASTÁVAJÚCICH ZMIEN

ALTERNATIVES TO THE USE OF LABOR AFFECTED BY OPTIMIZATION OF PRODUCTION CAPACITIES AS A RESULT OF UPCOMING CHANGES

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Abstrakt: *Už niekoľko rokov vo svete prevláda trend úbytku predstaviteľov strednej triedy. Tento vývoj je ovplyvňovaný viacerými faktormi, ako sú napr. zavádzanie prvkov Industry 4.0, alebo vytláčanie ľudí z pracovného procesu umelou inteligenciou, čo má za následok optimalizovanie produkčných kapacít. Dlhoročným pilierom slovenskej ekonomiky je automobilový priemysel. Pracovné miesta v tomto odvetví patria medzi najviac ohrozené, najmä už spomínanými hrozbami v podobe zavádzania umelej inteligencie, automatizácie a robotizácie do pracovného procesu, ale aj nástupom elektromobility a autonómnej dopravy. Optimalizovanie produkčných kapacít bude mať (okrem iného) za následok pokles masovej spotreby s nadväznosťou na pokles masovej výroby. Úlohou našej štúdie je odhaliť niektoré možnosti ďalšieho uplatnenia zamestnancov postihnutých optimalizáciou produkčných kapacít, predovšetkým odvetvia, do ktorých môžu byť presmerovaní.*

Klúčové slová: *ľudský kapitál, nezamestnanosť, optimalizácia produkčných kapacít, pracovná sila, trh práce, umelá inteligencia*

Abstract: *For several years in the world, the trend prevents the decline of medium class representatives. This development is affected by multiple factors such as e.g. Implementation of Industry 4.0 elements, or extracting people from work process with artificial intelligence, resulting in optimizing production capacities. The long-term pillar of the Slovak economy is the automotive industry. However, jobs in this sector are most threatened, we have already mentioned threats in the form of artificial intelligence, automation and robotization into the working process, but also onset of electromobility and autonomous transport. Optimizing production capacities will have (inter alia) result in a decrease in mass consumption followed the decrease in mass production. The role of our study is to identify the possibilities for further application of employees affected by optimizing production capacities, their subsequent inclusion in a new workforce, or alternatives to use such workforce.*

Keywords: *artificial intelligence, human capital, labor market, manpower, optimization of production capacities, unemployment*

JEL Classification: *J64, J88, L52*

1. ÚVOD

Počas studenej vojny, ktorá začala koncom 40. rokov minulého storočia sa viedol konkurenčný boj o prvenstvo medzi tzv. východným a západným blokom. Okrem iných sfér sa bojovalo aj v oblasti kvality pracovných podmienok na pracoviskách, či o zabezpečenie pracovníka v čase nemoci, alebo zabezpečenie dôstojných podmienok dožitia v starobe. Západný – kapitalistický svet pracoval na zlepšení podmienok a východný – socialistický blok sa postupom času zaoberal motiváciou pracovníkov, ktorá by viedla k vyššej

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produktivite práce. Tieto javy boli značné hlavne v 70. – rokoch 20. storočia. Neskôr začiatkom 80. rokoch transnacionálne spoločnosti v kapitalistickom sektore dospeli až k podnikovým sociálnym programom a vzdelávacím inštitúciám, kedy dokonca niektoré významné spoločnosti poskytovali plnohodnotné vysokoškolské vzdelanie (napr. Volkswagen, Toyota). Snažili sa o to, čo vo väčšine štátov východného bloku bolo samozrejmosťou – napr. príprava budúcich pracovných kádrov pre výrobu. V socialistickom bloku to boli napr. SOU, či stredné odborné školy v bývalom Československu.

Po páde východného bloku v deväťdesiatych rokoch minulého storočia tieto aktivity prestali byť podporované a do popredia sa dostávala maximalizácia profitu spoločnosti. Toto malo za následok presun výroby zo západného bloku do bývalých štátov bloku východného . Ako uvádza Staněk, Ivanová, Pauhofová, Vašková, Vilhelm (2018) v tomto období dochádzalo aj k presunom nie nevýznamnej časti kvalifikačne náročnejších výrob, napr. v IT alebo výroby niektorých komponentov. V ekonomicky vyspelých krajinách tak dochádzalo k mimoriadne expresnému a rozsiahlemu úbytku pracovných miest, predovšetkým v odvetviach mimoriadne náročných na prácu (odbory spracovateľského priemyslu: výroba textilu, odevov, obuvi, nábytku, kože, pneumatík atď.). Spomínané zmeny však neboli jediné. V danom období nastali zmeny aj v pomere agentúrnych a kmeňových pracovníkov. Podľa Staněk, Doliak, Ivanová (2017) sa v súčasnosti podiel nekmeňových pracovníkov zvyšuje. V Európe dosahuje v priemere okolo 25 – 30 % a sú priemyselné odvetvia, v ktorých dosahuje podiel až 40%. Súvisí to nielen so zmenou produkčných systémov, ktoré postupným uplatňovaním robotiky, informačných technológii viedli k zníženiu vlastných kľúčových kmeňových pracovníkov, ale zároveň narástol podiel pomocných a obslužných činností, ktoré vyžadovali nižšiu mieru kvalifikácie.

Budúcou globálnou výzvou pre ekonomiku a trh práce sú nové technológie, ktoré prinesú kvalitatívne nové pracovné príležitosti a taktiež umožnia využívať pružnejšie podmienky uplatňovania ľudských zdrojov v produktívnej práci. Očakáva sa, že len umelá inteligencia a robotika vytvoria v najbližších piatich rokoch celosvetovo takmer 60 miliónov nových pracovných miest a súčasne sa mnoho pracovných činností výrazne zmení, resp. úplne zanikne (upsvr 2019).

Ďalším fenoménom liberalizácie trhu s dopadom na pracovné miesta je rozvoj offshoringu, ktorý mal svoje začiatky už v 60. rokoch, ale svoj vrchol zaznamenal koncom 90. rokov až začiatkom nového milénia. V tomto čase prichádzalo k situáciám, kedy sa offshoring prejavoval nielen v oblastiach s požiadavkami na nízkokvalifikovanú pracovnú silu, ale ako uvádzajú Orberg - Jensen a Pedersen, (2012), offshoring tiež zahŕňa rôzne typy vysokokvalifikovaných špičkových služieb aj v oblasti výskumu a vývoja, inovácií, a to ako v oblasti výroby, tak aj v oblasti služieb. V skutočnosti firmy chcú nielen dosiahnuť zníženie nákladov, ale aj využiť offshoring na zvýšenie úrovne služieb, na odvrátenie konkurenčného tlaku alebo na získanie kvalifikovaného personálu (Hutzschenreuter, Lewin, Dresel, 2011).

Najnovším trendom vychádzajúcim z obáv o energetickú bezpečnosť, ktorý ovplyvňuje produktivitu, výrobu, služby, ale hlavne pracovné možnosti, je zavádzanie opatrení smerujúcich k ochrane prírody a nerastného bohatstva. Výstavba ekologicky čistých tovární, využitie energií z obnoviteľných zdrojov, sprísnenie noriem pri výrobkoch zanechávajúcich uhlíkovú stopu, či na druhej strane zatváranie a rušenie jadrových a tepelných elektrární, alebo plánovaný postupný prechod na elektromobilitu so sebou prinášajú nové výzvy, ale aj rušenie zavedených postupov a technológií.

Na základe uvedeného môžeme konštatovať, že pod vplyvom daných vybraných okolností, na jednej strane zanikne veľa pracovných miest, no na strane druhej mnoho nových pracovných miest vznikne. Aké však budú tieto novovytvorené pracovné miesta? Nebudú to len miesta na part time, či miesta ponúkané cez pracovné agentúry, kde pracovník nebude ani zamestnancom organizácie, ale ani zamestnancom pracovnej agentúry. S touto bude mať len

zmluvu o sprostredkovaní práce, ale nebude zabezpečený z hľadiska odvodov do sociálneho a dôchodkového zabezpečenia. Taktiež je dôležité vedieť, najmä z hľadiska prípravy budúcich kádrov, v ktorých odvetviach nastane optimalizácia produkčných kapacít a naopak, ktoré budú odvetvia, kde bude potrebné dopĺňať pracovnú silu.

2. CIEĽ A METODOLÓGIA

Hlavným cieľom príspevku je na základe analýzy súčasných a budúcich zmien v hospodárskom a sociálnom prostredí identifikovať možnosti využitia pracovnej sily, ktorá bola vylúčená z pracovného procesu na základe optimalizácie produkčných kapacít, spôsobenej danými zmenami. Táto optimalizácia je výsledkom procesov, ktoré nastali v dôsledku nadchádzajúcich, ale aj už prebiehajúcich zmien v sociálno – ekonomickom prostredí. V súlade so stanoveným cieľom bola zvolená metodológia článku. Na získanie údajov boli využité databázy Slovenskej republiky a Európskej únie a bola vykonaná analýza týchto údajov.

3. MINULÉ, SÚČASNÉ A NASTÁVAJÚCE ZMENY OVPLYVŇUJÚCE TRH PRÁCE

Zavádzanie robotiky do viacerých odvetví priemyslu, ale aj stavebníctva či služieb prináša na jednej strane uľahčenie či šetrenie ľudskej práce, ale na strane druhej tento fenomén nesie zo sebou vynútenú optimalizáciu produkčných kapacít. Ako uvádza Vidová (2019), v každom vývojovom období sa stretávame so zmenami, ktoré prinášajú nové výzvy a zároveň časové nároky na schopnosť pracovnej sily efektívne sa podieľať na pracovnom procese. Toto tvrdenie dopĺňa aj Jašková (2021), keď píše, že zámerom využitia procesov informatizácie a kybernetizácie je rozvoj spoločnosti a nie jej hrozba. Dá sa predpokladať, že použitie nových technológií nebude mať za následok stratu pracovných miest. Naopak, zvýši sa produktivita práce a kvalita produktu. Zároveň však dodáva, že zručnosti, ktoré sú v súčasnosti preferované na trhu práce pravdepodobne stratia svoju prioritou v budúcnosti.

V nedávnej minulosti vznikali situácie, kedy nadnárodné koncerny v rámci globalizácie vytvárali tlak prostredníctvom konkurencie medzi svojimi subdodávateľmi v rámci jednotlivých krajín. Tento systém nútil malé firmy, ktoré sú súčasťou subkontraktingu k znižovaniu cien pre odberateľov, čo vyvolávalo u daných dodávateľov tlaky na cenu dodávaných výrobkov. Takáto situácia vyhovovala transnacionálnym spoločnostiam a vo veľkej miere prispievala k nútenej optimalizácia produkčných kapacít . V týchto prípadoch boli vstupy do výroby v podobe cien energií, nájmov a materiálov pre výrobu zväčša rovnaké. Jedinou možnosťou pre producentov bolo a zostáva znižovanie nákladov vo sfére miezd. V mnohých podnikoch a firmách dochádza (v záujme zníženia mzdových nákladov) k spájaniu pracovných pozícií, čo prináša preradenie „nadbytočných“ pracovníkov na iné, častokrát nižšie – menej platené pracovné pozície, alebo prichádza k rozviazaniu pracovných pomerov s pracovníkmi, ktorí odmietajú menej kvalifikovanú pracovnú pozíciu.

Najnovším trendom, ktorý bude mať taktiež dopad na úbytok súčasných pracovných miest, alebo pracovných kontraktov ako ich poznáme dnes (napr. zmluvy na dobu neurčitú) je smerovanie európskych štátov, ako aj celej Európskej únie do tzv. zelenej ekonomiky. Najnovším dokumentom z tejto oblasti je tzv. Európska zelená dohoda, kde Európska komisia prijala 14. júla tohto roku súbor návrhov na zníženie čistých emisií skleníkových plynov do roku 2030 aspoň o 55 % v porovnaní s úrovňami z roku 1990, a to prispôsobením politík v oblasti klímy, energetiky, dopravy a zdaňovania. Ako sa uvádza v dokumente, dosiahnutie zníženia emisií v nasledujúcom desaťročí má zásadný význam pre naplnenie cieľa EÚ stať sa do roku 2050 prvým klimaticky neutrálnym kontinentom na svete, čím sa Európska zelená dohoda stane skutočnosťou. Takýmito opatreniami sľubuje EK na jednej strane pracovné miesta odolné voči budúcim zmenám. Na strane druhej sa však neuvádza koľko terajších

pracovných miest zanikne zavedením opatrení zo spomínanej dohody. Jedným z bodov Európskej zelenej dohody je aj plán vyrábať výrobky s dlhšou životnosťou, a to tak, že ich bude možné opraviť, recyklovať a opätovne použiť. Legislatíva navyše ukladá výrobcom povinnosť znášať ekonomické bremeno spojené so zberom a likvidáciou výrobkov po skončení ich životnosti (Vrignat, Kratz, Avila, 2021). Takéto opatrenia však budú mať opätovne za následok zníženie produkcie tovarov v dotknutých odvetviach, čo bude viesť k ďalšiemu úbytku pracovných miest. Samozrejme, že z pohľadu ochrany životného prostredia sú podobné opatrenia nevyhnutné, ale je dôležité aby sa dané zmeny udiali vo všetkých častiach sveta a neprichádzalo k obavám, že scenáre, ktoré vedú k drastickému zníženie emisií v EÚ nemusia byť nutne napĺňané v ostatných častiach sveta (Hainsch, Löffler, Burandt, at al., 2021). To znamená, že ak členské štáty EÚ príjmu túto výzvu, neznamená to, že napríklad Čína, či niektoré štáty severnej Ameriky budú stotožnené s novým trendom EÚ a pridajú sa k tzv. zelenej ekonomike. Tieto štáty si ponechajú doterajší spôsob výroby, hlavne jej výhody a pozitíva a EÚ zostane v znevýhodnenej pozícii (hlavne v rannom štádiu projektu), čo sa môže odraziť na ekonomickej konkurencieschopnosti a tým aj na kvalite života občanov v Európskej únii, ako aj Slovenska.

4. VÝSLEDKY A DISKUSIA

V tabuľke 1 sú zobrazené ukazovatele, ktorými sú počet obyvateľov, ekonomicky aktívne obyvateľstvo a zamestnané osoby spolu. Na základe vyrovnanosti údajov v jednotlivých rokoch sme vybrali len niektoré roky počnúc rokom 2011 a končiac rokom 2019 (rok 2015 je len orientačný) z dôvodu, že roky 2020 a 2021 by už boli skreslené dopadom opatrení COVID 19.

Štatistický úrad SR uvádza, že na Slovensku je v súčasnej dobe 2 741 000 ekonomicky aktívnych obyvateľov. Z toho podľa STAT dat. je 2 583 636 zamestnaných osôb. Toto činí podiel 94% z celkového ekonomicky aktívneho obyvateľstva.

Tabuľka 1. Obyvateľstvo, zamestnanosť, národný koncept

Obyvateľstvo, zamestnanosť - národný koncept			
Ukazovateľ	**Rok**		
	2011	2015	2019
Počet obyvateľov SR	5.429 973	5.422 543	5.453 244
Ekonomicky aktívne obyvateľstvo	2.706 500	2.738 234	2.741 380
Zamestnané osoby	2.317 500	2.423 998	2.583 636

Zdroj: Vlastné spracovanie na základe údajov STATdat

V tabuľke 2 sme porovnali roky 2011 a 2019 podľa počtu zamestnancov v jednotlivých vybraných odvetviach hospodárstva SR. Pri porovnaní sme zistili, že najväčší prírastok zamestnancov bol v odvetví priemyslu (79 000 osôb). Percentuálny nárast bol však v tomto odvetví štvrtý najnižší (18%).

Najnižší prírastok zamestnancov, ale zároveň aj percentuálne vyjadrenie v danom období bol v odvetviach – Poľnohospodárstvo, lesníctvo, rybolov (3000 osôb, nárast 8%) a Finančné a poisťovacie činnosti (3000 osôb a nárast o 10%). Druhý najnižší prírastok bol v odvetviach – Činnosti v oblasti nehnuteľností (6000 osôb) a v oblasti Ostatných činností (6000 osôb). V týchto dvoch odvetviach bol však stredne vysoký percentuálny prírastok – 27% resp. 32 %.

Najvyšší percentuálny nárast bol v odvetviach Administratívne a podporné služby 44% a Ubytovanie a stravné služby 40%. Tieto dve odvetvia spolu zvýšili podiel zamestnaných osôb o zhruba 50 000.

Celkový nárast zamestnancov vo všetkých odvetviach bol 359 600 osôb, čo činí 22% nárast v roku 2019 oproti roku 2011.

Tabuľka 2. Zamestnanosť v SR podľa odvetví

Ukazovateľ		Priemerný evidenčný počet zamestnancov			
		Rok			
		2011		**2019**	
		abs.	% zam.osôb	abs.	% zam.osôb
	Poľnohos., lesníctvo, rybolov	38 000	2,94	41 000	2,50
	Priemysel spolu	366 000	28,34	445 000	26,95
	Stavebníctvo	58 000	4,49	76 000	4,60
	Veľkoobchod a maloobchod	174 000	13,47	220 000	13,33
	Doprava a skladovanie	90 000	6,97	117 000	7,09
	Ubytovanie a strav. služby	21 500	1,66	36 000	2,18
	Informácie a komunikácie	33 000	2,56	47 000	2,85
Slovenská	Finančné a poisťovacie činn.	27 500	2,13	30 500	1,85
republika	Činnosti v obl. nehnuteľností	16 500	1,28	22 500	1,36
	Odborné, vedecké a tech.činnosti	52 000	4,03	77 000	4,66
	Administratívne a podporné služ.	39 500	3,06	70 000	4,24
	Verejná správa a obrana	123 000	9,52	150 000	9,09
	Vzdelávanie	132 500	10,26	153 500	9,30
	Zdravotníctvo a verejná pomoc	88 500	6,85	121 000	7,33
	Umenie, zábava, rekreácia	19 000	1,47	26 000	1,57
	Ostatné činnosti	12 500	0,97	18 500	1,12
	spolu	1.291 400	100	1.651 000	100

Zdroj: Vlastné spracovanie na základe údajov STATdat

Tabuľku 3 sme zostavili na základe údajov zo Skills Panorama a vybrali sme rovnaké odvetvia hospodárstva pre celú Európsku úniu ako pri odvetviach v SR. Celkové posuny medzi rokmi 2011 a 2019 v rámci EÚ neboli nijako výrazné avšak pri údajoch z EÚ nastala situácia kedy prišlo k poklesu zamestnaných osôb (takáto situácia sa v SR nevyskytla ani jeden krát) a to v troch prípadoch. Prvý prípad s najvyšším percentuálnym poklesom (-17%) nastal v odvetví Poľnohospodárstva, lesníctva a rybolovu, tu sa jedná o zníženie o 1 753 000 zamestnaných osôb. Ďalšie dva poklesy už boli menej výrazné. Týkali sa odvetvia stavebníctva, kde bol pokles o 149 000 zamestnaných osôb, čo činilo 1% a odvetvie Finančníctva a poisťovacích činností taktiež o 1%, čo znamenalo pokles o 40 000 zamestnaných osôb.

Na druhej strane najvyšší percentuálny nárast zamestnaných osôb v EÚ v porovnaní rokov 2011 a 2019 bol zaznamenaný v odvetví Informácií a komunikácií = 19%, čo je v prepočítaní na zamestnané osoby 986 000 osôb. Ďalšie v poradí skončili odvetvia Ubytovanie a stravovacie služby (17% = 1 411 000 zamestnaných osôb) a Administratívne a podporné služby, kde to činilo 17% a 1.196 000 zamestnaných osôb viac v roku 2019, ako v roku 2011.

Celkovo vo všetkých skúmaných odvetviach v EÚ bol nárast zamestnaných osôb v roku 2019 vyšší s porovnaním roku 2011 o 6%, čo činí 10 150 000 osôb.

Tabuľka 3. Zamestnanosť v EÚ podľa odvetví.

Ukazovateľ		Priemerný evidenčný počet zamestnancov			
		Rok			
		2011		2019	
		abs.	% zam. osôb	abs.	% zam. osôb
	Poľnohos., lesníctvo, rybolov	10.410 000	6,05	8.657 000	4,74
	Priemysel spolu	30.915 000	17,91	32.535 000	17,83
	Stavebníctvo	13.632 000	7,92	13.483 000	7,39
	Veľkoobchod a maloobchod	26.213 000	15,20	27.523 000	15,08
	Doprava a skladovanie	9.577 000	5,57	10.667 000	5,85
	Ubytovanie a strav. služby	8.142 000	4,73	9.553 000	5,24
	Informácie a komunikácie	5.181 000	3,01	6.167 000	3,38
Európska únia	Finančné a poisťovacie činn.	5.336 000	3,05	5.296 000	2,90
	Administratívne a podporné služ.	7.217 000	4,20	8.413 000	4,61
	Verejná správa a obrana	13.500 000	7,85	13.665 000	7,49
	Vzdelávanie	13.055 000	7,60	14.532 000	7,96
	Zdravotníctvo a verejná pomoc	19.068 000	11,08	21.503 000	11,78
	Umenie, zábava, rekreácia	10.073 000	5,83	10.475 000	5,74
	Spolu	172.019 000	100	182.469 000	100

Zdroj : Vlastné spracovanie podľa Skills Panorama

Porovnali sme tiež trendy vývoja trhu práce v EÚ a v SR pokiaľ ide o podiely zamestnancov jednotlivých odvetví – pozri tabuľku 4. Podiel zamestnancov poľnohospodárstva, lesníctva a rybolovu v EÚ klesá rovnako ako na Slovensku. Vyššia miera zamestnanosti (v podstate dvojnásobná) v EÚ (4,74%) ako v SR (2,50) v tomto odvetví však zrejme nepredstavuje pre Slovensko príležitosť. Trend poklesu podielu zamestnanosti v priemysle je v EÚ aj na Slovensku dlhodobý a bude zrejme aj naďalej pokračovať. Zamestnanosť v stavebníctve zostáva v EÚ stabilná aj jej podiel je významne vyšší (takmer dvojnásobný) oproti SR (EÚ 7,39%, SR 4,60%). Preto sa tu vytvára určitý potenciál zvýšenia tohto podielu na Slovensku.

Zamestnanosť vo veľkoobchode a maloobchode je v EÚ aj v SR stabilná s približne rovnakým podielom. Tu zrejme nemožno očakávať výrazné zmeny. To isté platí aj o odvetví dopravy a skladovania. Rast zaznamenala zamestnanosť v ubytovacích a stravovacích službách, pričom v EÚ je podiel zamestnanosti v tomto odvetví viac ako dvojnásobne vyšší (EÚ 5,24%, SR 2,18%). To vytvára značný potenciál rozvoja, ktorý však v súčasnosti bude zrejme výrazne korigovaný pandémiou Covid-19. Rovnako rast zamestnanosti zaznamenalo odvetvie informácií a komunikácií, pričom potenciál rastu je tu zrejme dlhodobý a výrazný v EÚ rovnako ako v SR. Naopak k útlmu došlo v oblasti finančných a poisťovacích činností, pričom významným faktorom tu bol nepochybne rozvoj elektronického bankovníctva a poisťovníctva. Mierny nárast zaznamenala zamestnanosť v administratívnych a podporných službách, avšak možno predpokladať, že narastajúca elektronizácia v tomto odvetví zrejme tento rast zastaví a možno aj zvráti. V oblasti verejnej správy a obrany došlo k miernemu poklesu zamestnanosti a tento pokles bude zrejme pokračovať.

Zamestnanosť v odvetví vzdelávania zaznamenala v EÚ tiež mierny nárast, avšak podiel zamestnanosti je nižší ako na Slovensku (EÚ 7,96%, SR 9,30%). Preto pokračujúci pokles podielu zamestnanosti v tomto odvetví na Slovensku by mohol ísť proti trendu EÚ. Treba však zdôrazniť, že zamestnanosť v tomto odvetví výrazne závisí od politických rozhodnutí. Rast zaznamenala zamestnanosť v odvetví zdravotníctva a verejnej pomoci, a to v EÚ aj v SR. Podiel zamestnanosti v tomto odvetví v SR však predstavuje len 2/3 podielu v EÚ (EÚ 11,78%, SR 7,33%), čo naznačuje výraznú perspektívu rastu zamestnanosti v tomto odvetví na Slovensku.

Najväčší rozdiel v podielu zamestnanosti medzi EÚ a SR bol zistený v odvetví umenia, zábavy a rekreácie, kde v EÚ je tento podiel až 5 krát väčší (EÚ 5,74%, SR 1,57%). Tu sa otvára významný potenciál rastu aj napriek tomu, že toto odvetvie patrí k tým najmenším.

Tabuľka 4: Možné trendy vývoja zamestnanosti vo vybraných odvetviach v SR

Odvetvie	Stav v porovnaní s EÚ	Perspektíva
Poľnohospodárstvo, lesníctvo, rybolov	nižší podiel	ďalší pokles
Priemysel	približne rovnaký	ďalší pokles
Stavebníctvo	nižší podiel	mierny rast
Veľkoobchod a maloobchod	približne rovnaký	stagnácia
Doprava a skladovanie	približne rovnaký	stagnácia
Ubytovacie a stravovacie služby	nižší podiel	mierny rast (po ukončení pandémie Covid-19)
Informácie a komunikácie	mierne nižší podiel	dlhodobý rast
Finančné a poisťovacie činnosti	nižší podiel	ďalší pokles
Administratívne a podporné služby	približne rovnaký	stagnácia
Verejná správa a obrana	vyšší podiel	ďalší pokles
Vzdelávanie	vyšší podiel	stagnácia
Zdravotníctvo a verejná pomoc	nižší podiel	dlhodobý rast
Umenie, zábava, rekreácia	výrazne nižší podiel	rast

Zdroj : Vlastné spracovanie

Z uvedeného prehľadu vyplýva, že odliv pracovnej sily možno očakávať najmä v odvetví poľnohospodárstva, priemyslu, finančných a poisťovacích činností a verejnej správy a obrany. Naopak dopyt po pracovnej sile by sa mal zvýšiť v odvetví informatizácií a komunikácií, zdravotníctva a verejnej pomoci, ale aj stavebníctva a umenia, zábavy a rekreácie, a po ukončení pandémie Covid-19 aj v odvetví ubytovacích a stravovacích služieb.

5. ZÁVER

Tri uvedené zmeny v hospodárskom a sociálnom prostredí vybrané do našej práce, sú podľa nášho názoru základné, určujúce a smerodajné pre terajší a nastávajúci vývoj ako v hospodárskej, tak aj v sociálnej oblasti. Tieto oblasti veľmi úzko súvisia a sú priamo zodpovedné za životnú úroveň nielen obyvateľov Slovenska, alebo Európy, ale podľa nášho názoru všetkých vyspelých, a taktiež aj menej vyspelých oblastí sveta, nakoľko v dnešnej dobe už všetko so všetkým súvisí z globálneho hľadiska.

Z uvedených výstupov nášho výskumu vyplýva, že v nami sledovanom období (2011 – 2019) sa (až na malé výnimky v rámci EÚ) zvyšovala zamestnanosť osôb prakticky vo všetkých odvetviach hospodárstva, okrem odvetvia poľnohospodárstva, lesníctva a rybolovu čo znamenalo, že ako SR, tak aj EÚ smerovali k napĺňaniu plánov o trvale udržateľnom rozvoji.

Súčasná situácia v spoločnosti a hospodárstve, v súvislosti so šírením pandémie Covid-19 však minimálne na určitú dobu tieto plány naruší. Podľa určitých predpovedí sú časy hospodárskeho rastu a zvyšovania životnej úrovne obyvateľstva minimálne dočasne pozastavené a ľudstvo má práve v tomto období šancu na zhodnotenie svojich doterajších

činností (napr. trvale udržateľného rastu za cenu likvidácie životného prostredia) a na zamyslenie sa a zdokonalenie sa nielen v otázkach hospodárskych, ale aj ekonomických, či sociálnych.

Možno však predpokladať, že trend zistených zmien bude v Európe ešte istú dobu pretrvávať a že aj zmeny v niektorých odvetviach, ktoré sa na Slovensku v minulosti ešte neprejavili, sa predsa len prejavia. Preto odvetvia administratívnych a podporných služieb, informácií a komunikácií a – po prekonaní pandémie Covid-19 – aj ubytovacích a stravovacích služieb sa zrejme stanú perspektívnymi odvetviami z hľadiska dopytu po pracovnej sile.

LITERATÚRA

[1] Európska komisia. (2019). Európska zelená dohoda: Snaha stať sa prvým klimaticky neutrálnym kontinentom. [online]. K dispozícii na: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_sk

[2] Hainsch, K., Löffler, K., Burandt, T. at al. (2021). Energy transition scenarios: What policies, societal attitudes, and technology developments will realize the EU Green Deal? Elsevier / Energy 239 (2022) 122067. ISSN 03605442

[3] Hutzschenreuter, T., Lewin, A.I. & Dresel, S. (2011). Time to success in offshoring business processes: a multi level analysis. Management International Review, vol. 51, no. 1, Jan. 2011, pp. 65+. Gale Academic OneFile, GALE|A251458743

[4] Jašková, D. (2021). Changes in the labour market in the regions of Slovakia. Sociálno - ekonomická revue 1(21): 16-24.

[5] Ministerstvo práce sociálnych vecí a rodiny SR. (2019). Krátkodobá prognóza vývoja na trhu práce v roku 2019. [online] [cit.2019-04]. K dispozícii na: http://www.upsvr.gov.sk/buxus/docs/statistic/NP_prognozy/Kratkodoba_prognoza_vyvoja_na_trhu_prace_v_roku_2019.pdf

[6] Orberg Jensen, P.D. & Pedersen, T. (2012). Offshoring and personal competitiveness: antecedens of offshoring advanced tasks. Journal of the Academy of Marketing Science, vol. 40, no. 2, Mar. 2012, pp. 313+. Gale Academic OneFile, Gale/A360796186

[7] Staněk, P., Doliak, D. & Ivanová, P. (2017). Globálne zdroje hrozba alebo šanca? Bratislava : Wolters Kluwer, s. r. o. , Jún 2017. , 178-183 s. ISBN 978-80-8168-676-4

[8] Staněk, P., Ivanová. P., Pauhofová, I., Vašková, V. & Vilhelm, D. (2018). Hľadanie novej reality. Bratislava: Wolters Kluwer, s. r. o. , Október 2018. , 200-202 s. ISBN 978-80-8168-943-7

[9] Skills Panorama, (2021). [online]. K dispozícii na: https://skillspanorama.cedefop.europa.eu

[10] Štatistický úrad Slovenskej republiky. (2021). [online] [cit.2021-10-21]. K dispozícii na: https://slovak.statistic.sk

[11] Štatistický úrad Slovenskej republiky. (2021). [online] [cit.2021-10-21]. K dispozícii na: http://datacube.statistics.sk/#!/view/sk/VBD_INTERN/pr0002qs/v_pr0002qs_00_00_00_skslovak.statistic.sk

[12] Vidová, J. (2019). Digital revolution and labor market. Conference proceedings: The impact of industry 4.0 on job creation 2019. ISBN 978-80-8075-903-2

[13] Vrignat, P., Kratz, F. & Avila M. (2021). Sustainable manufacturing, maintenance policies, prognostics and health management: A literature review. Elsevier/Reliability Engineering and System Safety 218 (2022)108140. ISSN 09518320

MANAGEMENT OF REGIONAL PERSONNEL POLICY IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION INDUSTRY 4. 0

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Abstract: *The fourth industrial revolution faced by the world community can be characterized by the fusion of technologies that destroy the boundaries between the physical, biological and digital spheres. These changes radically affect the life of every member of society, as digital technologies entail a constant increase in requirements for specialists. The one who will be successful in these conditions on the labor market will be the one who will be able to quickly adapt to the situation and, when one profession becomes obsolete, quickly master an another one. Therefore, a person in a digital society should constantly be active in self-education, strive to improve their skills or undergo retraining, which will allow them not only to fit harmoniously into the digital society, but also to benefit from the fourth industrial revolution.*

Key words: *the fourth industrial revolution, human resources management, labor resources, labor market, education, advanced training and retraining of personnel, digital technologies*

JEL Classification: *I28, O38, P36*

1. INTRODUCTION

Currently, the world community is at the stage of the fourth industrial revolution, based on the digital revolution that began in the middle of the last century. The current stage can be characterized by the fusion of technologies that destroy the boundaries between the physical, biological and digital spheres. This leads to the emergence of new technologies: the Internet of Things, artificial intelligence, 3D printing, unmanned vehicles, bio-and nanotechnology, quantum computers. These changes radically affect the vital activity of each member of society, affecting the political, economic, spiritual and social spheres of public life, thereby contributing to improving the quality of life.

The development of the fourth revolution in comparison with the previous ones is taking place at an exponential pace. It is difficult for humanity today to assess the scale and complexity of the transformation. It is not yet clear how everything will happen, but it can be clearly said that the process should be comprehensive and all-encompassing, with the participation of all stakeholders in global politics, from the public and private sectors to academia and civil society (Kordos, Sokol, 2020; Kordos, 2020).

Digital technologies-the basis of the fourth industrial revolution, on the one hand, are not an innovation, and on the other hand, they are continuously being improved and integrated, leading to a global transformation of the economy and society. Continuous improvement of digital technologies entails a constant increase in the requirements for specialists.

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2. PROBLEM FORMULATION AND METHODOLOGY

Currently, in the conditions of a rapidly changing labor market, for success and competitiveness, people need to constantly replenish their knowledge, becoming "flexible lifelong learners". New technologies displace people from all spheres of activity, information systems take on tasks previously performed by people, so the latter, in turn, are afraid for their future jobs. Successful in such a labor market will be the one who will be able to quickly adapt to the situation and quickly switch to another when one profession becomes obsolete ().

Therefore, in order to be competitive in the labor market, it is necessary to study throughout life, since education forms the potential to solve a wide range of professional, social and everyday problems. At the same time, education changes the person himself, because "there is a new level of responsibility, new instrumental skills, and most importantly a new worldview based on the enrichment of the value field of a person" (Suikova, 2018). In addition, personnel, regardless of their age and education, must meet the requirements of modern technological changes taking place within the framework of the digitalization of society, so as not to join the ranks of the unemployed. As A. A. Verbitsky rightly believes, at present "the relevance of the idea of education is growing not "for life", but "through life", in which the continuous development of the personality and individuality of each person would be ensured" (Verbitsky, 2019).

Therefore, a person in a digital society should constantly be active in self-education, strive to improve their skills or undergo retraining, which will allow them not only to fit harmoniously into the digital society, but also to benefit from the fourth industrial revolution.

Within the framework of this study, we will identify the current state of the system of retraining and advanced training of labor resources.

3. RESULTS AND DISCUSSION

The analysis carried out in the course of work on improving the directions of development of Russian retraining and advanced training to achieve the goals and objectives of sustainable development in the field of education in accordance with the legislation of the Russian Federation on strategic planning until 2035 allowed us to identify a number of factors determining the development of the system of retraining and advanced training in the world, which include:

- External factors are global trends that operate in almost all spheres of human activity and have a direct impact on the sphere of retraining and advanced training.
- Derived factors are the consequences of "external factors" that have independent significance and relevance for the development of the system of retraining and advanced training.
- System factors are trends and attitudes that have already developed in the system of retraining and advanced training.
- Promising system factors are possible trends and attitudes that can be profitably used for the development of retraining and advanced training systems and their output to optimal scenarios.
- Internal system factors and trends – reflect the specifics of the levels of retraining and advanced training with their own (general and particular problems) for each level.

External factors and their derivatives have a direct impact on global and regional trends. However, retraining and advanced training in Russia as a complex social system has its own structure and background. That is why they look quite successful and attractive against the global background, but within the framework of juxtapositional comparisons with the systems

of retraining and advanced training of developed countries, they also have their own benefits, advantages and disadvantages defined by previous periods.

At the lower level of the hierarchy of trends that determine the development of retraining and advanced training, internal systemic factors that have developed under the influence of all top-level positions and the background of the development of the system of retraining and advanced training of the Russian Federation are noted.

External factors

The basic global factors that control the development of civilization and the spheres of economy, politics, and social life, which have a direct impact on the sphere of retraining and advanced training in the whole world, and in the Russian Federation in particular.

External factor 1. Demographic factors and migration

The number of working-age population is declining in the vast majority of developed countries, but continues to grow in developing countries, increasing tensions in the spheres of economy, employment, social security and stimulating migration. Training and advanced training of personnel as a means of reducing social tension will be of crucial importance. The system of retraining and advanced training in Russia should adapt to the problems caused by the influx of migrants and take into account the emerging opportunities for the export of education, so that people who are familiar with its language, history and values come to the country.

External factor 2. Low and uneven economic growth rates

Developed countries will face problems of reducing labor resources and reducing production, weak demand for goods and services. Low growth rates will jeopardize the processes of poverty reduction in developing countries. The European Union will be interested in"educational tourism". Russia can also claim the niche of "educational tourism".

External factor 3. Uneven scientific and technological progress

Scientific and technological progress accelerates economic and social development, but causes drastic changes in society. It accelerates the introduction of innovations and creates new opportunities, but increases the gap between the "winners" and "losers", both at the level of countries, and at the level of households and individual citizens, similarly, technological and "digital inequality" will affect the work of the entire education system, including retraining and advanced training, both for students and entire regions.

External factor 4. Growing globalization

The world economy will inevitably move towards greater integration and an international division of labor. Therefore, retraining and advanced training will be helpful in adaptation and work in multilingual and multicultural environments and interaction with colleagues around the world.

External factor 5. Universal digitalization

The introduction of digital technologies will change the procedures for evaluating the achievements of students at the enterprise, will contribute to the formation of a personal educational and career trajectory. The supporting processes in the management of educational organizations will become transparent and subject to reengineering.

Digitalization, automation, robotics and artificial intelligence threaten rapid changes in industry, to which the economy and the educational system do not have time to adapt, and which can possibly displace workers from their places, create an excess of supply in the labor market. The same conclusion is true for the education system – some teachers, especially young and mature, of pre-retirement age, may not be in demand by the system by 2030-2035.

Derived factors

Derived factor 1. Increasing economic, technological and information inequality

The factor-consequence of distortions in the economy. Further intensification of scientific and technological development leads to a rigid stratification of society and social strata in relation to the factors of "success" and "failure". There is an economic, social, psychological and technological gap not only between generations, but also between people of the same age.

Derived factor 2. High level of instability in the spheres economy and education management

It is formed under the influence of low economic growth and the general growth of inequality. Retraining and advanced training, as one of the regulatory mechanisms of society, should compensate for inequality, otherwise this society may lose its competitive advantages and lose its individuality and uniqueness, find itself in secondary positions in the global political and economic systems.

Derived factor 3. The priority of flexible skills in the "conditions of globalization"

In an optimistic scenario, the global economy assumes greater integration of countries and a "division of labor". Specialists will work in multilingual and multicultural environments, which means they must understand not only the issues of their own industry, but also in the areas of related companies, in the requests of consumers of products and services. Cognitive competencies and empathy skills will be in demand.

The labor market requires people who are at the same time highly stress-resistant, flexible thinking, adaptable and creative, ready to organize independent activities in unusual conditions, as well as to work as a team in different regions and with different standards and technological systems. The ability to implement projects in a short time and with limited resources becomes critically important, system thinking is required, as well as developed leadership qualities. The modern school does not yet lay such foundations in the necessary volume.

Derived factor 4. Reducing the work for a person

Optimists believe that by the 2030s, in developed countries, there will be mainly such work for a person that automation, robots and artificial intelligence will not be able to perform because of its "simplicity" (economically inefficient) or, conversely, high complexity. A significant part of the working production activity will become creative. Other people, on the contrary, will work less with technical objects and more with other people.

The economy of the future will require not only a high level of "hard skills" for the production of mass products and services for the population, but also will create conditions for rational, personal consumption, for the creation of unique products. The fashion for "coziness", for uniqueness and "hand made" will increase.

In advanced companies, the traditional "workplace" is gradually disappearing. The development of local and distributed production systems (3D printing, remote-controlled robots and simulators) brings them closer to the end user. Many things will also have to be studied remotely, but high motivation in the field of distance education is the lot of a few students in these conditions, such skills as the ability to learn acquires new content and increased relevance.

The displacement of people due to robotics and automation, remote forms of education without the "presence effect" can lead to the disappearance of communicative and cross-cultural competencies, a drop in the level of emotional intelligence.

Derived factor 5. The erosion of the "middle class"

As a result of the expansion of economic imbalances, the differentiation of society by income increases. The reduction of the old industrial technological chains, combined with automation, will have a heavy impact on the wages and employment of middle-class representatives, and some of them will fall down the social ladder. They will not be able to afford an "elite" education (and here Russia again has a chance to export education, retraining and advanced training, and "educational tourism").

Derived factor 6. The threat of the primitivization of personality

In the context of digitalization, there are two possible problems associated with inequality and deterioration of cognitive abilities:

- "The digital divide". For some reason (social environment, remote locality, low income of parents, individual mental characteristics), a person cannot fully master digital competencies and is automatically declared "uncompetitive".
- "Digital dementia" is the problem of a sharp drop in students' abilities for critical thinking and analyzing the situation. As a result, the susceptibility to psychological manipulation, the inability to master complex actions that require concentration, antisocial behavior or social isolation, isolation on primitive virtual game worlds that do not carry any disciplinary or educational load.

Derived factor 7. Network culture and self-organization practices

Dissemination of network practices in life, new principles of interaction between subjects based on the utmost information transparency. An increase in the share of exchanges built on non-monetary logic. Spending time online, the user leaves a digital footprint that is available for analysis by analytical programs. Combined with the technologies of processing " big data ", this generates a" new sincerity", when everyone has access to complete information about another person in real time. The format of a self-organizing educational organization in which teachers and students gather according to the principles of crowdsourcing and there are no rigid social boundaries between them can illustrate the influence of the values of network culture on education.

Systemic factors

Factors in the education system, including in the system of retraining and advanced training, formed under the influence of" external factors "and their" derivatives", as well as reflecting the history and conservative trends in the field.

System factor 1. The lagging of educational standards from scientific and technological progress

Scientific and technological development accelerates the introduction of innovations and creates new opportunities, but increases the gap between the "winners" and "losers", both at the level of countries and at the level of citizens. The "inequality of educational opportunities" for students is growing in the education system around the world.

Some of the areas of training of educational institutions will become irrelevant, and educational standards focused on the subject content will become outdated even before their adoption, as well as regulatory acts.

The effect can be partially compensated by high-performance virtual communication tools, digital learning environments that involve active communication and feedback from participants.

The rapid updating of information makes it meaningless to "memorize" dates, terms and definitions. On the other hand, the avalanche-like increase in the volume of information and

its changes lead to "compensatory", substitute forms of behavior of people who are unable to process it for limited periods of time. Everything new for them will turn into stress-regardless of the age of the person. There is already a tendency to simplify and "primitivize", to abandon complex forms of educational, disciplinary, cultural and general intellectual activity, for example, there is a replacement of reading books with video games and watching TV series.

System factor 2. Maladaptation of teaching staff

In a situation with the increasing speed of technological, social and other innovations, there is a limit to the possibilities for adapting to these changes in a part of the pedagogical community. The training of teachers is still in many cases deployed in the past, and not focused on the future.

It becomes critically important to have personnel with new competencies and high motivation in the education system, including during retraining and advanced training. In Western and Asian countries, from Finland to Singapore, the state implements programs to attract the most capable young people to the education system, including retraining and advanced training.

System factor 3. The "non-prestige" of the teaching profession

Teachers, their motivation and competencies are the key factors determining the quality of retraining and advanced training. In the Russian educational policy, the state's attention to the problem of personnel potential was turned late, giving priority to the issues of financing, management and material and technical equipment. There is no respectful attitude towards the profession of a teacher, there are no positive social models, cultural patterns (primarily in popular culture, on the screen of cinema and television) associated with pedagogical activity.

System factor 4. Wage inequality

There is a high level of interregional differentiation of salaries of teaching staff. The result is the "migration" of the most ambitious and effective personnel to the central regions.

System factor 5. The lag of professional pedagogical education, including retraining and advanced training, from the sphere of the education system itself

The speed of modernization of professional pedagogical education, including retraining and advanced training, is still significantly lagging behind the speed of modernization of the education system itself. A significant" upgrade " of the teacher is required, and not only in the field of digital competencies. A teacher is not only a professional who knows his subject "through and through", but also a mentor who is able to instill moral values and principles of behavior in society. The teacher should organize collective activities and be a leader of change, bringing changes and innovations.

Promising systemic factors

In addition to the negative component in the impact on the system of retraining and advanced training, scientific and technological progress and changes in the system of the economy of the world and individual countries carry important advantages for the Russian system of retraining and advanced training.

Promising system factor 1. Priority of creative, project activity in education

The ubiquity of automation technologies. People will have to do such work that automation will not be able to perform. A significant part of this work will become creative – as a result, the ability to create art will become a mass phenomenon. People will work less with mechanisms and more with other people. Almost every employee has at least the simplest programming skills. An employee of the education system, including the retraining and advanced training system, is a representative of the creative component of society, but programming skills (at the level of information collection and personalization of the curriculum, individual training modules) will be required for him.

Promising system factor 2. Remote, network activities in education

The concept of a local workplace is being blurred, the manager in the future should have the skills to work with remote, distributed teams. The development of local production systems (primarily 3D printing, remote-controlled robots and simulators) reduces complex production chains to desktop devices and brings them closer to the end user. Consequently, the opportunities for conducting distance lessons and educational events, professional development are also increasing.

Promising system factor 3. Increasing the role of individuality and creativity in education

An innovative economy requires not only high technological competence. It not only provides opportunities for unified mass technological solutions for the population, but also creates conditions for individualized consumption, for creating unique products. Such an economy requires both an increase in the value of individuality and high creativity.

Promising system factor 4. The need for new management technologies in education

Management of educational systems based on "big data" and with the help of "machine learning" will allow making accurate and objective conclusions on the current state of the entire system of retraining and advanced training and carrying out targeted analysis of the situation up to the level of an individual educational organization, group and even an individual student. The accuracy of forecasts and estimates will significantly increase, there will be a basis for long-term planning of activities. The efficiency and speed of managerial decision-making will increase.

Promising system factor 5. The need for new technologies for quality assessment retraining and advanced training

The assessment of the quality of education will be dominated by the "post-competence approach" - the assessment of the level of formed abstract competencies will become a thing of the past due to the extremely high speed of changes in the economy and technology – the educational system will not be able to react quickly enough to changes in isolation from production.

Promising system factor 6. Individualization of retraining and advanced training

Formation of individual training trajectories for customer requests. Firstly, there is a growing number of conscious listeners-students (autodidacts) who are able to formulate their own learning goals and the necessary set of competencies. Secondly, there is a growing demand from employers for specialists with a certain and confirmed set of competencies. Thirdly, "non-system" players are already offering individualized educational products that meet the needs of students and employers.

Promising system factor 7. Pragmatization of retraining and advanced training

Orientation of educational institutions to the needs of the economy and society, the formation of educational programs based on current employer requests, the development of oriented research practices. In the "new" education, it is becoming increasingly important to receive education, undergo retraining and improve qualifications from "first-hand", as a direct transfer of practical experience, this entails the need to ensure that students work in teams on real projects.

Promising system factor 8. Activity-based learning

Students are invited to contribute to the educational process by participating in various activities, for example, speaking at forums, taking part in sports or thematic quizzes, or playing court proceedings in law classes. In order to make the learning process productive, role-playing games, case studies, projects, presentations and some other similar tools are used.

Promising system factor 9. Creation of educational programs by a robot and convergence of virtual and everyday reality in education

The use of artificial intelligence and machine learning in the implementation of educational programs and for building an individual educational learning trajectory and forming feedback, in terms of selecting tasks of a motivating and developing level.

The transformation of the digital educational environment implies the presence of great connections with reality (augmented reality) and the ability to simultaneously create and simulate objects that are not physically visible to the naked eye.

4. CONCLUSION

Thus, the growth of high-tech industries in modern economic realities, the increase in the role of information, the strengthening of the importance of human resources in the system of reproductive relations. The transition to the fourth industrial revolution will have a strong impact on both the national and regional labor markets: the share of unskilled labor in enterprises will decrease, the requirements for the qualification of managers will increase. The system of training and retraining of personnel will require a significant revision to take into account the high proportion of creative work of personnel. Taking into account the factors presented in the study when developing and implementing regional staffing strategies in the conditions of the fourth industrial revolution will give a systematic character to the personnel policy of the regions.

REFERENCES

[1] Karmaev, N. (2021). Human Capital For Industry 4.0: Partnerships With Employers in Vocational Education. In: Proceedings of scientific papers from the international scientific conference «*The Impact Of Industry 4.0 On Job Creation*» 12.11.2020. Publishing House Alexander Dubček University in Trenčín 2021, pp. 207-213.

[2] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[3] Kordos, M. & Sokol, J. (2020). The Synergy of Tourism and Industry 4.0 in Spain within the Example of AirBnB and Collaborative Economy. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 213-222.

[4] Selyutina L.G., Maleeva T.V. & Frolova N.N. (2019). Acceleration Of Regional Housing Development In Russia On The Basis Of Industrial Housing Construction Modernization. In: *XXII International Scientific Conference "Construction The Formation Of Living Environment" (FORM-2019)*-Electronic edition. Cep. "E3S Web of Conferences" 2019.

[5] Suikova, O. A. (2018). Andragogical principles in the implementation of continuous adult education. *Scientific support of the system of advanced training of personne, vol. 37, iss. 4, p*p. 61-67., p. 63.

[6] Tatarnikova, M. & Frolova, N. (2020). Corporate Social Responsibility of Business as a Factor in the Development of the Region of Presence. *Economics and entrepreneurship, vol. 115, iss.* 2, pp. 1283-1286.

[7] Verbitsky, A. A. (2019). Digital learning: problems, risks and prospects. *Homo Cyberus*, vol. 6, iss. 1. [online]. [cit.2021-10-28]. Available at: http://journal.homocyberus.ru/Verbitskiy_AA_1_2019.

[8] Zakharov, N., Kuznetsov, A. & Perfilyeva, M. (2021). The Impact of Industry 4.0 on The Labour Market In Russia. In: 2nd international scientific conference „*Vplyv Industry 4.0 Na Tvorbu Pracovných Miest*“. 21.11.2020 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2021, pp. 454-456.

VÝVOJ NA TRHU PRÁCE VPLYVOM PANDÉMIE COVID-19

LABOR MARKET DEVELOPMENTS UNDER THE INFLUENCE OF THE COVID-19 PANDEMIC

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Matej HÚŽEVKA [37]

Abstrakt: *Pandémia nového koronavírusu a s ňou súvisiace opatrenia sa stali súčasťou nášho života a má dôsledky na životy ľudí, zamestnanie, rodinný život, zmenilo sa aj ekonomické prostredie. Pandémia covid-19 mala okrem iného významný vplyv na trh práce, ktorý prešiel výraznými zmenami. Zaznamenali sme prudký nárast nezamestnanosti, zníženie počtu pracovných ponúk a voľných miest. Zo strany štátu sme registrovali niekoľko opatrení na zmiernenie situácie. V predkladanej štúdii sa zameriavame na nezamestnanosť, počet pracovných ponúk a počet voľných pracovných miest v rokoch 2020 – 2021 na trhu práce vplyvom pandémie covid-19 a program podpory zo strany štátu. Výskumné metódy, ktoré sú použité v príspevku patria medzi všeobecné teoretické metódy vedeckého poznania – indukcia, dedukcia, analýza, komparácia, syntéza dostupných bibliografických zdrojov, vedecká abstrakcia pre zovšeobecnenie výsledkov. Ďalej sme použili metódy popisnej štatistiky a analýzu časových radov.*

Kľúčové slová: *trh práce, covid-19, nezamestnanosť, voľné pracovné miesta, pomoc štátu*

Abstract: *The new coronavirus pandemic and related measures have become part of our lives and has consequences for people's lives, employment, family life, and the economic surroundings has also changed. The covid-19 pandemic also had a significant impact on the labor market, which has undergone significant changes. We have seen a sharp increase in unemployment, a reduction in the number of job offers and vacancies. We have registered several measures and a mitigation of the situation by the state. In the present study, we focus on unemployment, the number of job offers and the number of vacancies in the years 2020 - 2021 in the labor market due to the covid-19 pandemic and the state support program. The research methods belong to the general theoretical methods of scientific knowledge - induction, deduction, analysis, comparison, synthesis of available bibliographic sources, scientific abstraction for results generalization. We also used the methods of descriptive statistics and time series analysis.*

Key words: *labor market, covid-19, unemployment, vacancies, state support*

JEL Classification: *J6, J40, E24*

1. ÚVOD

Tak ako iné krízy z minulosti, či už Veľká hospodárska kríza, Svetová finančná kríza, aj tú súčasnú, príznačnú šírením nového typu koronavírusu s označením covid-19, charakterizujú hospodárske ťažkosti jednotlivých štátov a globálnej ekonomiky. Rozdielnosť uvedených kríz vidíme najmä v príčinách ich vzniku – kým prvé dve boli vo všeobecnosti dôsledkom vyvrcholenia problémov na finančných trhoch, primárnou príčinou aktuálnej pandemickej krízy je šírenie nákazlivého respiračného ochorenia, ochromujúceho možnosť spoločenskej interakcie – či už študijnej, pracovnej alebo voľnočasovej.

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Pandémia ochorenia covid-19 v mnohých ohľadoch zmenila životy, najmä pokiaľ ide o oblasť práce. Zdravotná kríza ovplyvnila rozvrhnutie pracovného času, nástroje, prostredie i priority.

Väčšina štátov zaviedla rôzne formy opatrení, ktoré mali zabrániť šíreniu covid-19. Väčšia časť týchto opatrení však bola zameraná na obmedzenie resp. až úplné zastavenie prevádzky obchodov a služieb, v niektorých prípadoch aj veľkých výrobných spoločností. Opatrenia však mali za následok to, že sa nezamestnanosť zvýšila takmer vo všetkých krajinách EÚ. Situácia na Slovensku bola v podstate totožná ako v ostatných krajinách EÚ, kde uvedené opatrenia mali tiež významný vplyv na nezamestnanosť a celkovú situáciu na trhu práce. Prvý prípad ochorenia na území SR bol zaznamenaný 6. marca 2020. Od tej doby boli zaznamenané zmeny na trhu práce, ktoré mali výrazný vplyv na všetky hospodárske odvetvia. Vláda Slovenskej republiky sa musela vysporiadať s novou situáciou a reflektovala rôznymi opatreniami, zameranými na minimalizáciu epidemiologických rizík spojených so šírením respiračného ochorenia COVID-19, ako aj opatreniami zameranými na zmiernenie ekonomických dopadov pandémie. Najmä obmedzenia mali obrovský vplyv na trh práce. Táto situácia bola nová a ako uvádzajú autori (Sakshaug et al., 2020) „Pandémia COVID-19 a súvisiace vládne obmedzenia vyvolali vysoký dopyt po údajoch z prieskumov o tom, ako sa jednotlivci ale aj organizácie s obmedzeniami vyrovnávajú."

V príspevku pre zvýraznenie trendov, ktorých výskyt bol podmienený rozšírením ochorenia COVID-19 na Slovensku, sledujeme každý z uvedených indikátorov od začiatku roka 2020 až po najaktuálnejšie dostupné data.

2. CIEĽ A METODOLÓGIA

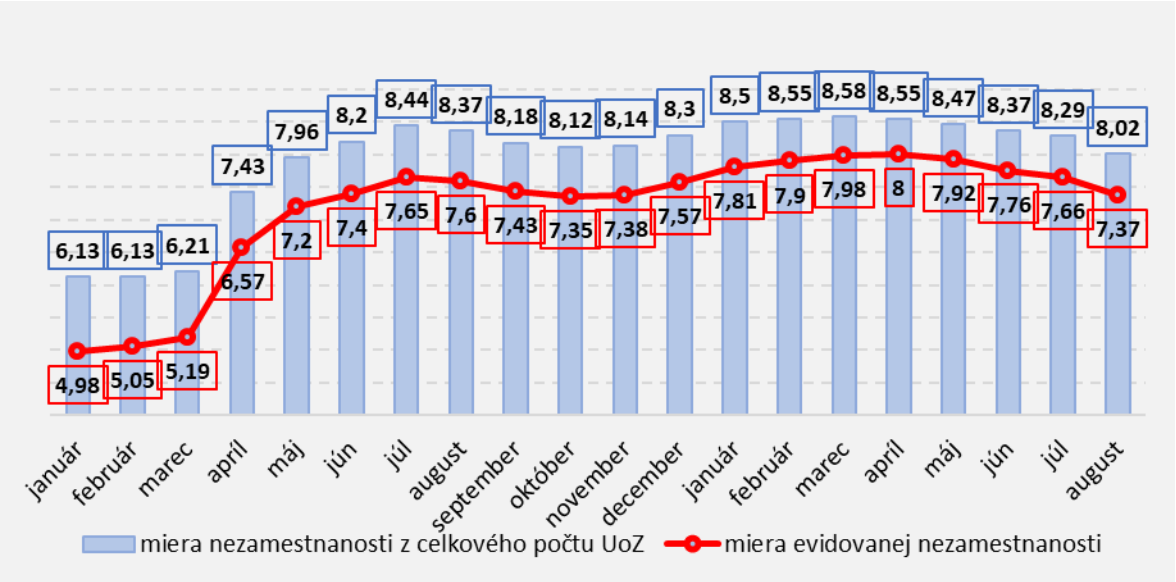
Pandémia covid-19 spôsobila globálnu krízu, ktorá mala obrovský vplyv na ekonomiku a jej dôsledky sú viditeľné na trhu práce (Lee a kol., 2020). Trh práce bol narušený spôsobmi, ktoré sa pre ekonómov ukázali ako ťažké. V tomto článku sa budeme zaoberať dôsledkami pandémie na trhu práce v Slovenskej republike.

Cieľom štúdie je zachytiť dynamický vývoj pozorovaných základných hodnôt na trhu práce (nezamestnanosť, počet disponibilných uchádzačov o zamestnanie atď.) v Slovenskej republike z dôvodu pandémie Covid-19. Pre potreby sledovania zmien na trhu práce sme využívali metódu popisnej štatistiky, analýzy časových radov, komparáciu a syntézu. Údaje pre analýzu časových radov sme čerpali z údajov ÚPSVaR a profesia.sk.

3. AKTUÁLNY VÝVOJ NA TRHU PRÁCE V KONTEXTE COVID-19

Pandémia koronavírusu negatívne ovplyvnila výkonnosť slovenskej ekonomiky. Dosiahnutý prepad hospodárstva a zamestnanosti zaraďuje Slovensko medzi najviac postihnuté krajiny EÚ. Vplyvom núteného obmedzenia podnikateľskej činnosti a poklesu spotrebiteľského dopytu zo strany zákazníkov boli mnohí zamestnávatelia vystavení tlaku znižovania nákladov aj formou prepúšťania svojich zamestnancov. Situácia na trhu práce sa od apríla roka 2020 postupne zhoršovala.

Obrázok 3. Vývoj miery nezamestnanosti v SR podľa ÚPSVaR – miera nezamestnanosti vypočítaná z celkového počtu UoZ a miera evidovanej nezamestnanosti v % za rok 2020 až august 2021



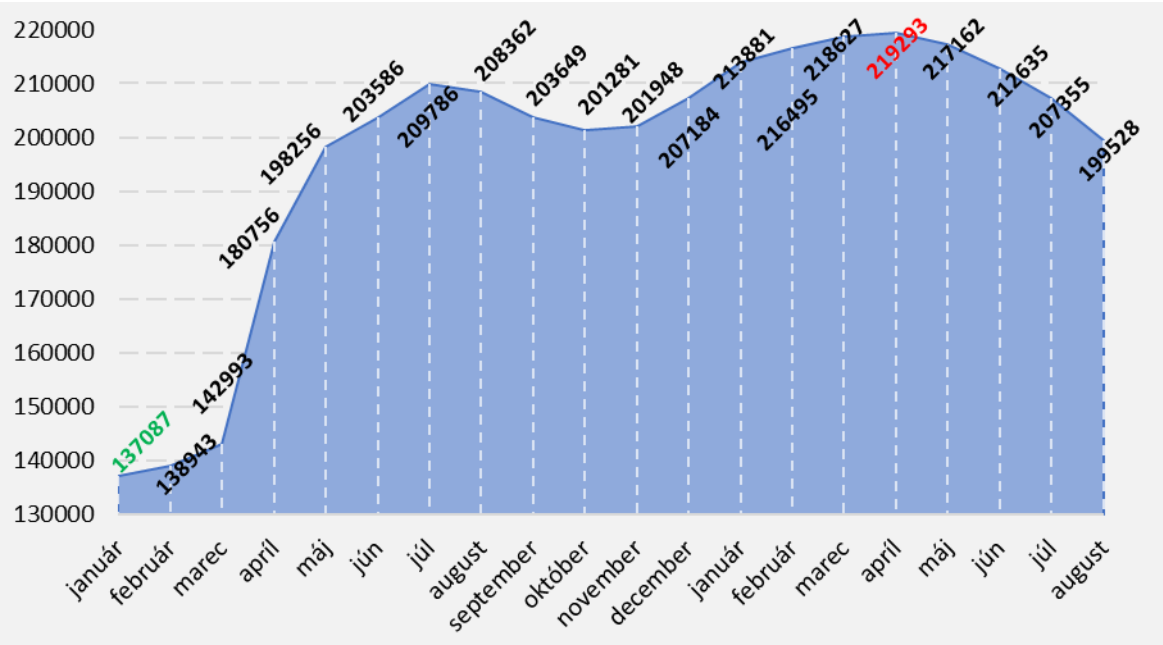
Zdroj: vlastné spracovanie na základe údajov ÚPSVaR

Na obrázku 1 môžeme sledovať vývoj nezamestnanosti v období pred vypuknutím globálnej pandémie ochorenia covid-19 (začiatok roka 2020), kedy sa nezamestnanosť v SR pohybovala na úrovni historického minima – v januári dosiahla miera evidovanej nezamestnanosti 4,98%. V ére samostatného Slovenska, t. j. od roku 1993, sa jedná o druhú najnižšiu nameranú priemernú hodnotu (ešte nižšia bola v decembri 2019, keď dosiahla len 4,92%). Kým ďalšie dva mesiace priniesli len nepatrný nárast počtu nezamestnaných, aprílový vývoj bol poznačený razantným medzimesačným nárastom miery evidovanej nezamestnanosti. Z úrovne 5,19% sa zvýšila až na úroveň 6,57% – to predstavuje nárast o 1,38 p. b., resp. 26,6%. Za viac ako štvrtinovým zvýšením podielu nezamestnaných na celkovom počte disponibilných uchádzačov o zamestnanie stojí tzv. prvá vlna pandémie. Tá bola charakteristická najmä skutočnosťou, že sa jednalo o počiatočnú fázu pandémie, v SR typickú relatívne malým počtom aktívnych prípadov ochorenia covid-19, no pomerne náhlymi a zásadnými reštriktívnymi opatreniami zo strany štátu. Pri pohľade na obrázok je evidentné, že situácia sa zhoršovala až do júla 2020, kedy sa mierne stabilizovala. Tento úkaz podľa nášho názoru možno vysvetliť relatívnym uvoľnením reštriktívnych opatrení, ku ktorému dochádzalo najmä v letných mesiacoch. Obnovila sa prevádzka väčšiny súkromných subjektov vrátane služieb, čo bolo kľúčovým determinantom vo vývoji nezamestnanosti. Aj keď nálada v súkromnom sektore nebola poznačená veľkou ochotou opäť zamestnávať ľudí, na istý čas sa podarilo negatívny trend nezamestnanosti zastaviť. Od novembra 2020 však nezamestnanosť opäť kontinuálne rastie. Aktuálne zverejnené dáta za august 2021 hovoria o miere evidovanej nezamestnanosti na úrovni 7,37%. Za pôvodcu tohto zhoršovania indikátorov nezamestnanosti je možné označiť tzv. druhú vlnu pandémie. Jej nástup je v podmienkach SR datovaný zhruba na prelome septembra a októbra, s čím je spojený opätovný návrat k mnohým z reštriktívnych opatrení implementovaných počas prvej vlny. Je však možné vidieť zaujímavý paradox. Kým v prvej vlne boli dopady na nezamestnanosť pri relatívne malom počte infikovaných významné (v priebehu jedného mesiaca sa miera evidovanej nezamestnanosti prehĺbila o viac ako štvrtinu), pri druhej vlne sa tento nepomer obrátil – denné prírastky sa často pohybujú v niekoľkých tisícoch, zatiaľ čo nezamestnanosť vzrástla za posledný štvrťrok „len“ o zhruba šestnástinu (6%). Jedným z možných vysvetlení tohto javu je, že druhá vlna pandémie bola na rozdiel od tej prvej očakávaná – nebola teda

prekvapením, ktoré súkromný sektor zaskočilo. Okrem toho sa v priebehu roka 2020 postupne zdokonaľoval a dolaďoval systém pomoci zo strany štátu tak, aby v porovnaní s jarou bola táto podpora efektívnejšia, včasnejšia a dostatočne vysoká.

Na obrázku 2 môžeme pozorovať počet disponibilných uchádzačov o zamestnanie. Obrázok v podstate kopíruje údaje na predchádzajúcom obrázku. Pokiaľ v januári 2020 úrady práce evidovali v súhrne zhruba 137-tisíc disponibilných uchádzačov o zamestnanie, o rok neskôr (január 2021) ich už bolo takmer 214-tisíc, čo predstavuje nárast o 56,2%. Začiatok roka 2021 opäť priniesol mierny nárast, od mája však zaznamenávame opäť mierny pokles počtu a v auguste to je takmer 200-tisíc disponibilných uchádzačov o zamestnanie.

Obrázok 4. Vývoj počtu disponibilných UoZ v SR podľa ÚPSVaR od roku 2020 do augusta 2021

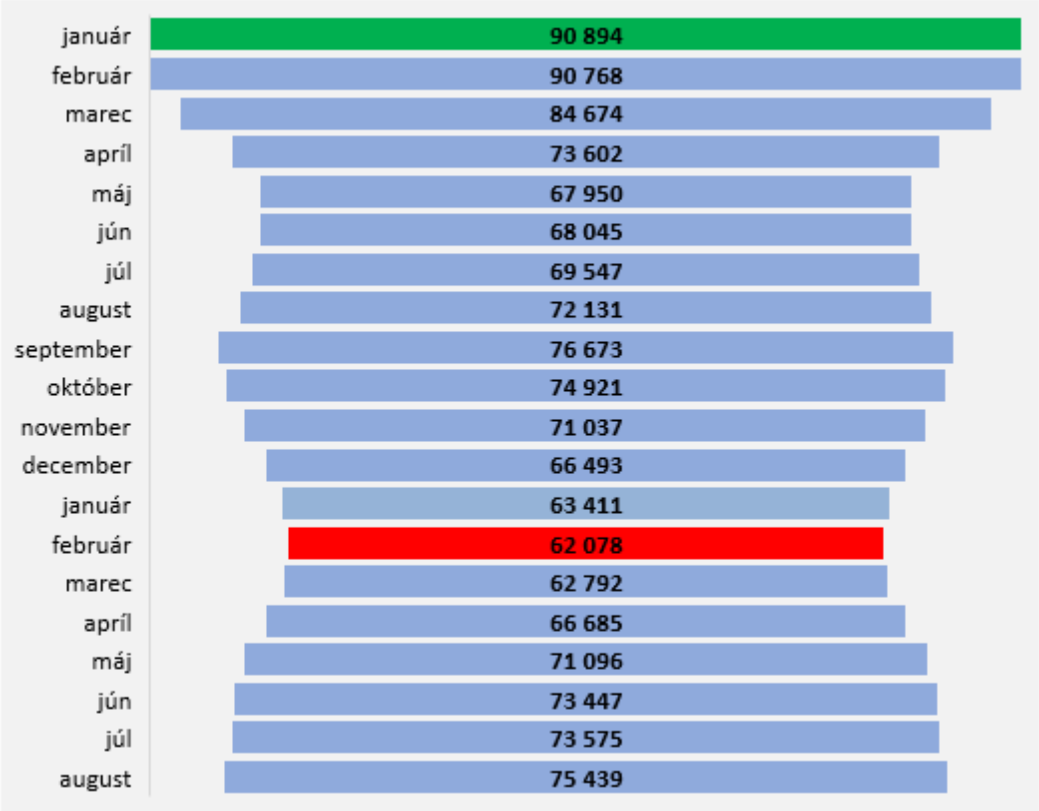


Zdroj: vlastné spracovanie na základe údajov ÚPSVaR

V obrázku 3 poskytujeme informáciu o objeme dopytu po práci zo strany podnikov za jednotlivé mesiace roku 2020 a mesiace do augusta 2021. Aj tu sledujeme, ako pandemická kríza determinovala ochotu zamestnávateľov rozširovať rady svojich zamestnancov. Začiatok roka 2020 sa vyznačoval pomerne pozitívnym vývojom – úrady práce v januári evidovali takmer 91-tisíc voľných pracovných miest a len niečo viac ako 137-tisíc disponibilných uchádzačov o zamestnanie. S vývojom nezamestnanosti a počtu disponibilných uchádzačov o zamestnanie (obrázky 1 a 2), aj počet voľných pracovných miest sa začal zásadnejšie meniť počas prvej vlny pandémie covid-19, t. j. na prelome marca a apríla. V apríli poklesol počet voľných pracovných miest na úroveň 73 602, čo v porovnaní s januárom 2020 predstavovalo pokles o takmer 20%, konkrétne o 17 292 miest. Negatívny vývoj sa ešte viac prehĺbil v máji, pričom nasledujúce mesiace boli poznačené spočiatku miernym, neskôr intenzívnejším rastom dopytu po práci, ktorý ale skončil v septembri 2020 na úrovni 76 673 voľných pracovných miest, pričom od nasledujúceho mesiaca až po posledné dostupné dáta sledujeme opäť kontinuálny pokles – už v decembri bol dopyt po práci nižší ako počas prvej vlny, pričom v januári 2021 už úrady evidovali len 63 411 voľných pracovných miest. V porovnaní s východiskovým rokom sledovaného intervalu sa tento počet znížil o 27 483 miest, čo predstavuje percentuálny pokles na úrovni 30,2%. Pre porovnanie, pri tejto výške dopytu práci bolo v januári evidovaných na úradoch práce celkovo 213 881 disponibilných uchádzačov o zamestnanie. Vývoj v ďalších mesiacoch je viac-menej stabilizovaný, predovšetkým v dôsledku uvoľnenia prísnych regulácií zo strany štátu, no s nástupom druhej

vlny pandémie (prelom septembra a októbra) a opätovného zavádzania reštrikcií je spojené aj ďalšie prehlbovanie poklesu ochoty firiem obsadzovať ich voľné pracovné miesta. Ku koncu sledovaného obdobia evidujeme 75 439 voľných pracovných miest a na úradoch práce je celkovo 199 528 disponibilných uchádzačov o zamestnanie.

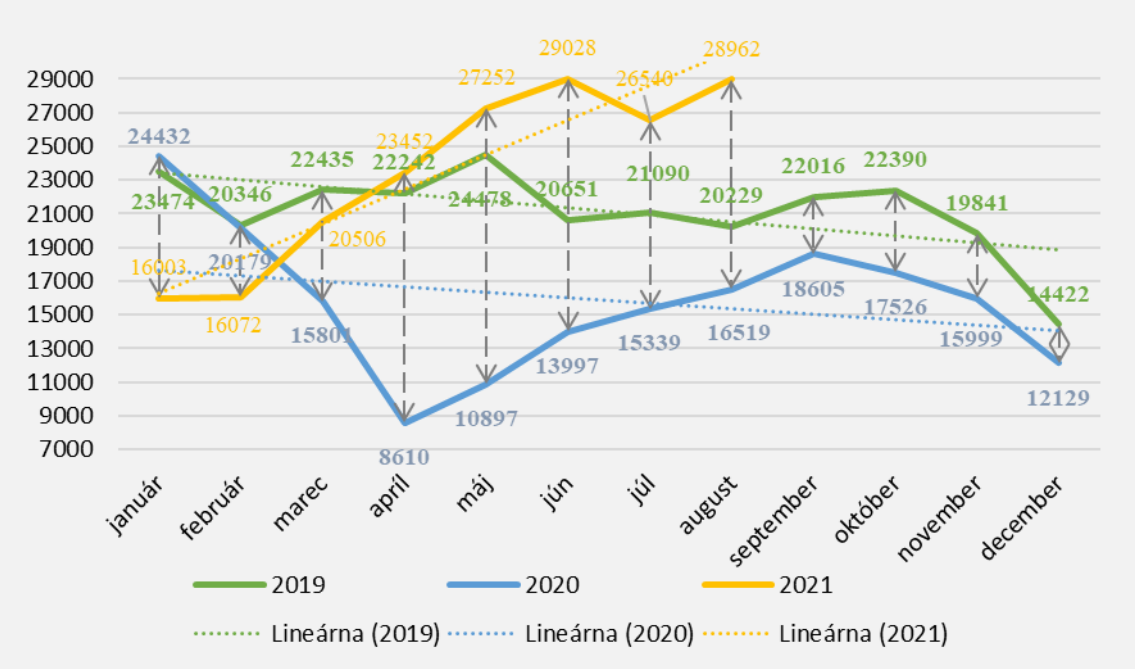
Obrázok 5. Vývoj počtu voľných pracovných miest v SR podľa ÚPSVaR za roky 2020 až august 2021



Zdroj: vlastné spracovanie na základe údajov ÚPSVaR

Zaujímavú komparáciu troch rokov priniesli aj dáta prezentované zástupcami portálu profesia.sk. Údaje sme spracovali vo forme obrázku 4, ktorý zobrazuje medziročné porovnanie počtu pracovných ponúk na tomto portáli. Kým január 2020 sa vyznačoval počtom pracovných ponúk vyšším o takmer tisíc (v porovnaní s predošlým rokom), zvyšná časť roka tento šesť rokov trvajúci trend narušila. Z vývoja v roku 2019 je evidentné, že s nástupom jari rástla aj aktivita firiem (najviac pracovných ponúk bolo zverejnených v máji, viac ako 24-tisíc). V minulom roku poznačenom pandémiou covid-19 však práve v období jari došlo k najväčšiemu poklesu pracovných ponúk – v apríli ich portál registroval iba 8 610, čo predstavuje medziročný pokles o zhruba 61%. Celkový počet ponúk v roku 2020 bol 190 033 (mesačne priemerne 15 836 ponúk), čo v porovnaní s rokom 2019 (253 614, mesačne priemerne 21 134) predstavuje pokles o viac ako štvrtinu. Rok 2021 sa vyznačuje skutočne prudkým nárastom počtu pracovných ponúk až na augustovú úroveň 28 962 (mesačne je to priemerne 23 476). Výrazné zvýšenie môžeme pozorovať už v marci, hoci v tomto období platili na Slovensku ešte stále prísne opatrenia.

Obrázok 6. Vývoj počtu pracovných ponúk na portáli profesia.sk – komparácia rokov 2019 až august 2021



Zdroj: Vlastné spracovanie na základe údajov profesia.sk

2. OPATRENIA ŠTÁTU NA ELIMINÁCIU NEPRIAZNIVÝCH VPLYVOV PANDÉMIE COVID-19

Dáta prezentované v predchádzajúcej kapitole, sú sami o sebe dôkazom, že vážnosť situácie spojenej s vypuknutím pandémie ochorenia covid-19 si vyžadovala adekvátnu reakciu zo strany štátu. Spočiatku sa jednalo predovšetkým o opatrenia reštriktívneho charakteru, s cieľom minimalizovať spoločenský kontakt ľudí na nevyhnutné minimum. Tieto intervencie zákonite spôsobovali a spôsobujú relatívne významné výkyvy v kľúčových indikátoroch spojených s vývojom pracovného trhu. Prakticky každé obmedzenie hospodárskej činnosti ekonomických subjektov sa prejavuje aj na trhu práce – ovplyvňuje zamestnanosť a nezamestnanosť, výšku priemernej mzdy, ekonomickú aktivitu obyvateľstva a mnohé iné parametre závislé na pracovnom procese v krajine. Už prvé dni uplatňovania reštrikcií predznamenali vo všeobecnosti negatívny ekonomický trend trvajúci dodnes – to si vyžadovalo vytvorenie úplne nového typu opatrení, tentokrát skôr stabilizačného charakteru, s cieľom kompenzovať ekonomické škody subjektov hospodárstva SR.

Elimináciu nepriaznivých vplyvov pandémie, realizovanú formou opatrení zo strany štátu, možno podľa nášho názoru rozdeliť do dvoch základných skupín, pričom medzi týmito skupinami existuje závislý vzťah:

- opatrenia zamerané na minimalizáciu epidemiologických rizík spojených so šírením respiračného ochorenia covid-19 – ide najmä o reštriktívne opatrenia, ktoré vo všeobecnosti trh práce poškodzujú a negatívne deformujú (napr. zákaz vychádzania, zákaz otvorenia vybraných maloobchodných prevádzok a služieb, limity na počet zákazníkov v prevádzke, povinná domáca karanténa, obmedzenia v oblasti cestovného ruchu a turizmu atď.);

- opatrenia zamerané na zmiernenie ekonomických dopadov pandémie – sú to najmä opatrenia, ktorých cieľom je zastavenie prehlbovania ekonomických ťažkostí jednotlivých subjektov trhu práce, ich stabilizácia, príp. stimulácia smerujúca k udržaniu

aspoň nevyhnutnej ekonomickej aktivity (patria sem jednotlivé schémy pomoci zo strany ministerstiev a ďalších inštitúcií – najmä Prvá pomoc zamestnávateľom, zamestnancom a živnostníkom, opatrenia Ministerstva hospodárstva SR, Ministerstva dopravy a výstavby SR, Sociálnej poisťovne).

3. ZÁVER

Po vplyve krízy spôsobenej pandémiou covid-19 môžeme povedať, že slovenský trh práce sa nevyhol jej dopadom. Na trhu práce sme sa stretli s obmedzeniami výroby, distribúcie a predaja, ktoré sa premietajú najmä v pracovnom procese. S uvedenou skutočnosťou súvisia socioekonomické aspekty dopadov pandémie – v prvej kapitole spomíname nárast miery evidovanej nezamestnanosti zo 4,98% v januári 2020 na 7,37% v auguste 2021 (rozdiel o 2,39 p.b., resp. takmer 48%), ďalej nárast počtu disponibilných uchádzačov o zamestnanie v rovnakom období zo 137 087 na 199 528 (rozdiel 62 441 ľudí, teda 45,5%), no aj pokles počtu voľných pracovných miest, ktorý sa v identickom období prejavil ich znížením z takmer 91-tisíc na 75 439 (rozdiel 17%, celkový pokles 15 455 miest). Relevantnou je i komparácia pracovných ponúk v rokoch 2019 až 2021 na pracovnom portáli profesia.sk.

Potenciálne hrozby pandémie boli natoľko významné, že štát musel zaujať rozhodujúce stanovisko k jej riešeniu. Základným východiskom bolo prijatie viacerých reštriktívnych opatrení, ktoré však negatívne deformovali a dodnes deformujú pracovný trh v SR. To si vyžadovalo prijímanie druhej skupiny opatrení, s cieľom stabilizovať a stimulovať subjekty na trhu práce. Pochopiteľne, najadresnejšia pomoc je v gescii rezortu práce, ktorý pripravil balík s názvom Prvá pomoc++, aktualizovaný zhruba polročne s cieľom predovšetkým kompenzovať ekonomické škody zamestnávateľov a udržať zamestnanosť (ten poskytuje súbor finančných príspevkov pre rôzne typy oprávnených žiadateľov).

Situácia, s ktorou sme sa stretli v súvislosti s pandémiou covid-19, môže prispieť k väčšej dostupnosti flexibilných foriem zamestnanosti, telepráce, využitiu automatizácie a robotiky. Pandémia môže urýchliť súčasné trendy a zároveň priniesť nové riešenia. Podľa Hedvičákovej, Kozubíkovej (2021) „Dlhodobý výskum, napríklad z Nemecka, ukazuje, že spoločnosti, ktoré implementujú Priemysel 4.0, neprepúšťali tak svojich zamestnancov. Ale naopak, spoločnosti, ktoré tieto technológie nezavádzajú, postupne strácajú svoje pozície na trhu".

Na trhu práce teda môžeme vplyvom pandémie covid-19 pozorovať aj ďalšie zmeny, napríklad nárast počtu zamestnancov pracujúcich z domu, cekové zmeny v ponuke a dopyte na trhu práce, prepúšťanie v jednotlivých odvetviach a pod. Tieto aspekty sú námetom pre naše ďalšie skúmanie.

LITERATÚRA

[1] ASPI.SK. (2021). *Pomoc štátu zamestnávateľom počas COVID-19.* [online]. [cit.: 2021-08-05]. K dispozícii na: https://www.aspi.sk/products/lawText/7/281267/1/2?vtextu=Covid%252BCoronavirus%252BKoronavirus%252B%2522SARS%2520CoV-2%2522%252BSARS-CoV-2#lema0 [cit:. 2021-08-05]

[2] Deloitte.com (2021). *Aktuálne opatrenia na pomoc zamestnávateľom*. [online]. [cit.: 2021-08-05]. K dispozícii na: https://www2.deloitte.com/sk/sk/pages/covid-19/articles/aktualne-opatrenia-na-pomoc-zamestnavatelom.html

[3] Hedvičáková, M. & Kozubíková, Z. (2021). *Impacts of COVID-19 on the labour market - evidence from the Czech Republic*. [online]. [cit:. 2021-10-13]. K dispozícii na: doi: 10.36689/uhk/hed/2021-01-023

[4] Internetový sprievodca trhom práce (ÚPSVaR). (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.istp.sk

[5] JASPIS.SK. (2021). *Opatrenia na pomoc zamestnancom, firmám a SZČO počas koronakrízy: Ako si uplatniť nárok?* [online]. [cit:. 2021-09-04]. K dispozícii na: https://jaspis.sk/aktuality/ekonomicke-opatrenia-kriza-koronavirus

[6] Lee, S. & Schmidt-Klau, D., & Verick, S. (2020). The Labour Market Impacts of the COVID-19: A Global Perspective. *The Indian Journal of Labour Economics*, vol. 63, iss. S1, pp. 11–15. DOI: 10.1007/s41027-020-00249-y

[7] Ministerstvo dopravy a výstavby SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.mindop.sk/

[8] Ministerstvo hospodárstva SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.mhsr.sk/

[9] Ministerstvo spravodlivosti SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.justice.gov.sk/Stranky/default.aspx -

[10] MPSVaR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: Ministerstvo práce, sociálnych vecí a rodiny SR https://www.employment.gov.sk/sk/ -

[11] MPSVaR. (2021). Portál MPSVaR zriadený počas pandémie Covid-19. [online]. [cit: 2021-10-26]. K dispozícii na:. https://www.pomahameludom.sk/

[12] Národná banka Slovenska. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.nbs.sk/

[13] Podnikajte.sk (2021). *Prvá pomoc++ má pomôcť zamestnávateľom aj SZČO: čo sa mení?* [online]. [cit:. 2021-09-05]. K dispozícii na: https://www.podnikajte.sk/financie-na-podnikanie/prva-pomoc-co-sa-meni

[14] Profesia.sk. (2021). Portál zaoberajúci sa trhom práce. [online]. [cit: 2021-10-26]. K dispozícii na: https://www.profesia.sk/

[15] Sakshaug, J. W. & Beste, J. & Coban, M. etc. (2020). Impacts of the COVID-19 Pandemic on Labor Market Surveys at the German Institute for Employment Research. *Survey Research Methods*. DOI: 10.18148/SRM/2020.V14I2.7743

[16] SKDP.SK. (2021). *Opatrenia súvisiace s pandémiou COVID-19.* [online]. [cit.: 2021-09-06]. K dispozícii na: https://skdp.sk/webnew/main.nsf/0/A5FFDEBBAD5B81F0C125852D00583859?opendocument

[17] Sociálna poisťovňa SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.socpoist.sk/

[18] Štatistický úrad SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://slovak.statistics.sk/

[19] Úrad Vlády SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.vlada.gov.sk/

[20] Ústredie práce, sociálnych vecí a rodiny SR. (2021). [online]. [cit: 2021-10-26]. K dispozícii na: https://www.upsvr.gov.sk/

[21] ZÁKON NR SR č. 311/2001 Z. z. Zákonník práce v znení neskorších predpisov

[22] ZÁKON NR SR č. 461/2003 Z. z. Zákon o sociálnom poistení v znení neskorších predpisov

[23] ZÁKON NR SR č. 5/2004 Z. z. Zákon o službách zamestnanosti a o zmene a doplnení niektorých zákonov

[24] ZÁKON NR SR č. 66/2020 Z. z. Zákon, ktorým sa dopĺňa zákon č. 311/2001 Z. z.

[25] ZÁKON NR SR č. 67/2020 Z. z. Zákon o niektorých mimoriadnych opatreniach vo finančnej oblasti v súvislosti so šírením nebezpečnej nákazlivej ľudskej choroby COVID-19

ECONOMIC INACTIVITY OF THE POPULATION AND POSSIBILITIES OF ITS REDUCTION

Eva GRMANOVÁ[38]

Abstract: *The purpose of the paper is to specify the differences in economically inactive population between individual member states of the EU. This part of the population is the major factor that slows down human capital development. The aim is to summarize the possibilities to increase the share of economically active population based on the differences between the share of economically inactive population in different member states of the EU. Sigma convergence is used to evaluate convergence of the share of economically inactive population of EU countries. Changes are compared by analysis of the development of time series and the dynamics of development using the growth coefficient and the average growth coefficient. The share of the economically inactive population is declining. Gender disparities have narrowed, mainly due to increasing women's economic activity. There are considerable differences of NEET rate between EU-27 countries. In most the EU countries, the values of the young people in education and training and employment have increased.*

Key words*: economically inactive population, NEET rate, reasons for economic inactivity, sigma-convergence*

JEL Classification: *J24, J20*

1. INTRODUCTION

Current demographic development is marked by significant positive and negative changes. Positive changes include prolonging life expectancy, rising level of education, etc. Some development demographic trends can cause effects that need to be reduced (Grmanová at al., 2018).

The decrease of the population in some countries and the premise of future population development can significantly affect the workforce size. They can therefore have a major impact on the labor market. The size of the workforce is according to Infostat (2006) expressed by the number of economically active inhabitants number. The economically inactive population can represent a source for the increase of economic activity and therefore also a possibility for human capital development.

The analysis of economically inactive inhabitants is important as it can help to identify possibilities to increase economic activity. The significant part of economically inactive people is represented by young people neither in employment nor in education and training. These young people face high risks of social exclusion. It is important that the individual social policies support them in the transition to employment or education (Bekker, Klosse, 2016).

The aging of the population is reflected in the decrease in the workforce (Vodopivec, Arunatilake, 2011). Inactive people in retirement, or in early retirement are an important part of the inactive population. The EU Member States are increasing their state pension age, with the goal of keeping older people in the workforce for longer (Eurostat, 2021b).

New forms of employment and children and elderly care facilities are believed to add to the increase in economic activity of the young and old people. There are significant differences in the structure of economic inactivity between individual EU countries. It is important to analyze these differences and look for practices that help to decrease economic inactivity.

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2. PROBLEM FORMULATION AND METHODOLOGY

2.1 Purpose and Data

Purpose

The purpose of the paper is to specify the differences in economically inactive population between an individual member state of the EU. This part of the population is the major factor that slows down human capital development. The aim is to summarize the possibilities to increase the share of economically active population based on the differences between the share of economically inactive population in different member states of the EU.

According to Juricic, Galic & Merenjak (2021) there are several systems used to classify labour shortages in the EU countries. Short-term shortages are based on the present labour market. Forecasting tools are used to recognize long-term shortages.

According to Axel Börsch-Supan (2013) due to the stark demographic changes growth may stall, and living standards may actually decline. Some projections look scary, but there are also projections which show the opposite. They all depend on how we react, mainly in terms of labour force participation in older ages, but also in terms of pension reform.

Data

The changes in the indicators are evaluated in the year 2011 and the year 2020. The data are drawn from database Eurostat (2021, 1):

- [lfsa_ipga] Inactive population as a percentage of total population;
- [edat_lfse_20] NEET rates;
- [edat_lfse_18] Participation rate of young people in education and training by sex, age and labour status;
- [lfsa_igar] Inactive population not seeking employment by sex, age and main reason.

2.2 Methodology

In the paper descriptive statistics - median, minimum, maximum, average, standard deviation and variation coefficient are used.

Changes are compared by analysis of the development of time series and the dynamics of development using the growth coefficient and the average growth coefficient.

To average growth coefficient is expressed as:

$$\bar{k} = \sqrt[T-1]{k_2 k_3 \dots k_T} = \sqrt[T-1]{\frac{y_2}{y_1}\frac{y_3}{y_2}\dots\frac{y_T}{y_{T-1}}} = \sqrt[T-1]{\frac{y_T}{y_1}}, \tag{1}$$

(Pacáková et al., 2003, p. 244).

Sigma convergence is used to evaluate convergence of the economically inactive population of EU countries. The variability of a variable expressed by a standard deviation decreases systematically (Minařík, Borůvková &Vystrčil, 2013). Logarithmic values of the economically inactive population are used to eliminate positive asymmetry and to approximate outliers. Another often used method for detecting convergence is the beta convergence. But if the subjects in the observed period would be sigma converging, then they will also be beta converging (Monfort, 2008, p.5).

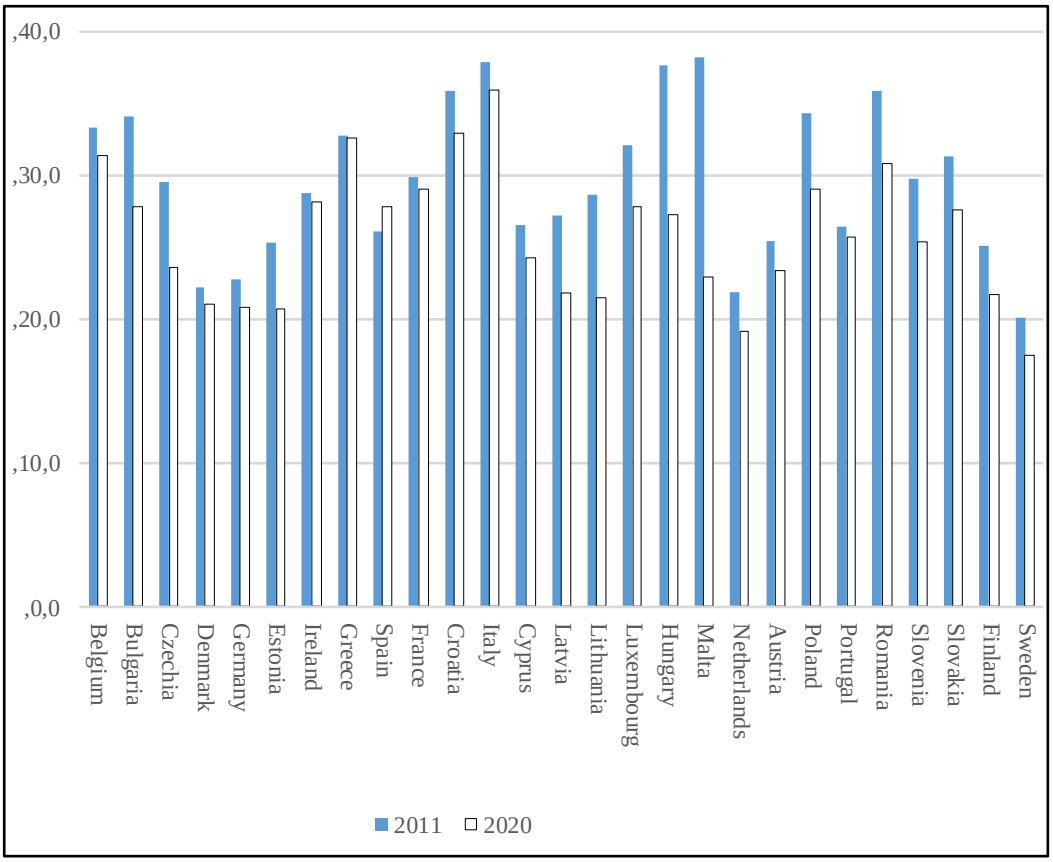
3. PROBLEM SOLUTION / RESULTS / DISCUSSION

3.1 Inactive population as a percentage of total population

In the beginning of the analysis we will focus on the development of the indicator inactive population as a percentage of total population.

In 2011 there were 29.5% economically inactive men and women in EU-27. In 2020, there were 27.1% economically inactive men and women in EU27. With the exception of Spain, the share of the economically inactive population is declining. We consider this trend to be positive. The development of the indicator inactive population as a percentage of total population in EU countries is shown in Figure 1.

Figure 1. Inactive population as a percentage of total population in % - 2011, 2020



Source: Eurostat (2021a) [lfsa_ipga]

In 2011 there were 23.1% economically inactive men and 35.9% inactive women in EU-27. In 2020, there were 21.8% economically inactive men and 32.5% inactive women in EU-27. Gender disparities have narrowed, mainly due to increasing women's economic activity.

Table 1. Descriptive statistics on the indicator inactive population as a percentage of total population (IP)

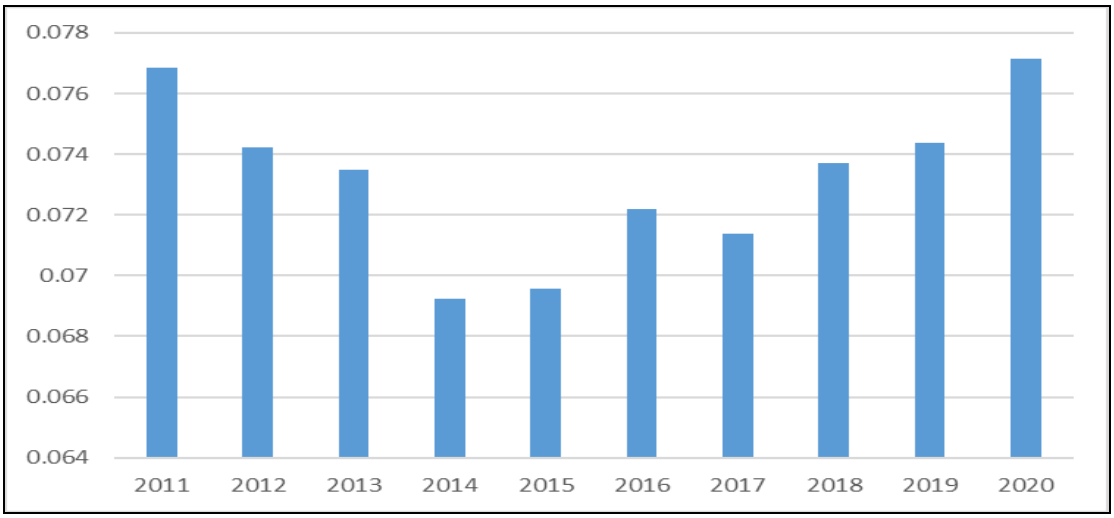
	N valid	Average	Median	Minimum	Maximum	Variation Coefficient
IP 2011	27	29.58	29.50	20.10	38.20	17.65
IP 2020	27	25.82	25.70	17.50	35.90	17.95

Source: Eurostat (2021a) [lfsa_ipga]

The minimum value of the indicator of inactive population as a percentage of total population was in 2011 and in 2020 in Sweden. The maximum value of the indicator of inactive population as a percentage of total population was in 2011 in Malta and in 2020 in Italy. In the Slovak Republic the share of the economically inactive population was above the average in the whole analyzed period. The variation coefficient of indicator increased. It can be assumed that the values of inactive population as a percentage of total population in individual countries have diverged.

Next, the sigma convergence method was applied (Figure 2). Since 2017, sigma divergence is reflected in the share of the inactive population - the standard deviation of the logarithm of the indicator had an increasing trend. The differences between the EU-27 countries have widened. We consider this trend to be negative. The conclusion suggests that states do not adopt positive practices with each other.

Figure 2. Analysis of sigma convergence - standard deviation of the logarithm of the indicator 2011 - 2020



Source: according Eurostat (2021a) [lfsa_ipga]

3.2 NEET rates

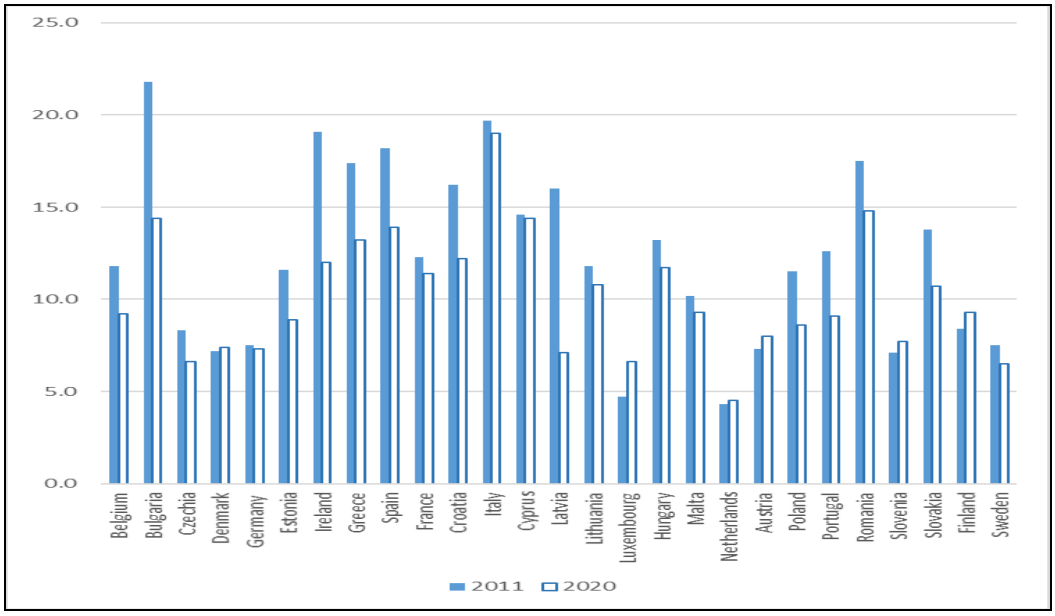
In the next step we will focus on the development of the indicator young people neither in employment nor in education and training as a percentage of the total youth population (NEET rate). The development of the indicator in EU countries is shown in Figure 3.

In 2011 there were 12.7% people neither in employment nor in education and training aged from 15 to 24 years in EU-27. In 2020, there were 11.1% people neither in employment nor in education and training aged from 15 to 24 years in EU-27. With the exception of Denmark, Luxembourg, the Netherlands, Austria and Slovenia the share of young people neither in employment nor in education and training is declining.

There are considerable differences between EU-27 countries. The minimum value of the indicator was in 2011 and in 2020 in the Netherlands (4.3%) and 4.5%. The maximum value of the indicator of inactive population as a percentage of total population was in 2011 in Bulgaria (21.8%) and in 2020 in Italy (19%). Considerable differences between EU-27 countries suggest that policies in them are aimed at supporting the transition of young people from education to work. The proportion of young people working in their studies also plays an important role. The Netherlands had a share of employed persons participating in

education in the age group 15-24 over 40%. University studies are also adapted to this - a large share of education is distant.

Figure 3. Young people neither in employment nor in education and training in % - 2011, 2020

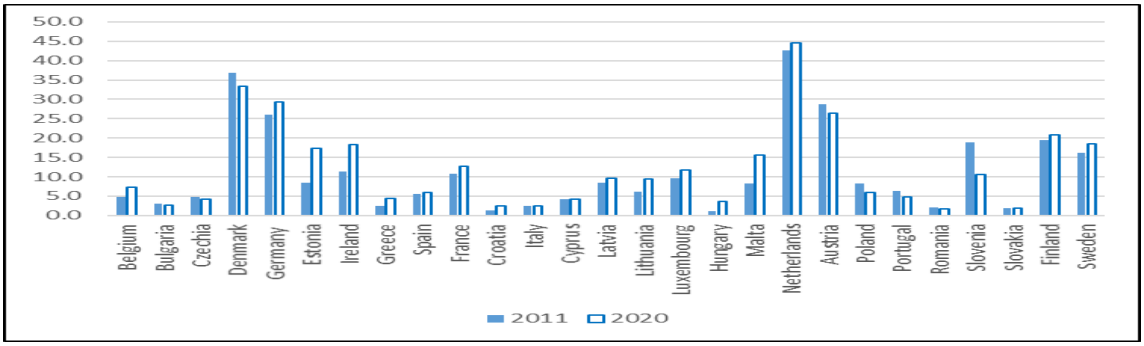


Source: Eurostat (2021a) [edat_lfse_20]

3.3 Participation rate of young people in education and training and employed

In most the EU countries, the values of the indicator have increased. France had the highest increase in the indicator value, where the value increased by up to 4.85%. The average annual growth rate expressed by the geometric mean was approximately 0.53%. There are significant differences between EU-27 countries. The maximum value of the indicator was in 2011 and in 2020 in the Netherlands (42.6% and 44.6%). The minimum value of the indicator was in 2011 in Hungary (1.2%) and in 2020 in Romania (1.7%). In the countries of the former socialist bloc but also in Greece, Spain, Italy, Cyprus and Portugal, the values are significantly below average. In these countries, young people rely more on family support. The countries that have a high proportion of young people in education and training and employed also have low NEET rates. States' policies for the transition from education to work are important. The development of the indicator of young people in education and training and employed in EU countries is shown in Figure 4.

Figure 4. Young people in education and training and employed - 2011, 2020



Source: Eurostat (2021a) [edat_lfse_18]

3.4 Inactive population not seeking employment by main reason and possibilities to increase the economic activity

According to Eurostat (2021a) [lfsa_igar] the main reason for economic inactivity are:
-education and training.
-retirement.
-care of adults with disabilities or children and other family or personal reasons.

The number of inactive population in education and training has a growing trend. Countries, where young people work and study at once, have better degree of economic inactivity. It's important to adjust the higher education and the offer of jobs focused on young people.

The share of inactive population by main reason – retirement is decreasing due to a shift in the retirement age.

There are many ways to reduce people's economic inactivity. It is the analysis of economic inactivity that points to some possibilities of increasing economic activity. One of the options to increase the economic activity of the population are:

- extension of distance education, which allows students to work and study at the same time;
- expanding retirement facilities;
- part-time job offers for seniors;
- expanding childcare;
- part-time job offers for women with children.
- system of parental and maternity leave - an example from the Czech Republic, where the system allows a woman to choose the length of maternity leave and thus the amount of the allowance.

4. CONCLUSION

The purpose of this paper was to specify the differences in economically inactive population between an individual member states of the EU. The aim was to summarize the possibilities to increase the number of economically active population based on the differences between the economically inactive population in different member states of the EU.

With the exception of Spain, the share of the economically inactive population is declining. This trend is positive. Gender disparities have narrowed, mainly due to increasing women's economic activity. Since 2017, sigma divergence is reflected in the share of the inactive population - the standard deviation of the logarithm of the indicator had an increasing trend. The differences between the EU-27 countries have widened. We consider this trend to be negative. There are considerable differences in NEET rate between EU-27 countries. The policies in them are aimed at supporting the transition of young people from education to work. In most the EU countries, the values of the young people in education and training and employment have increased. According to Eurostat (2021a) the main reason for economic inactivity are: education and training, retirement and care of adults with disabilities or children and other family or personal reasons. One of the options to increase the economic activity of the population are: extension of distance education, which allows students to work and study at the same time; expanding retirement facilities; part-time job offer for seniors; expanding childcare; part-time job offer for women with children, system of parental and maternity leave - an example from the Czech Republic, where the system allows a woman to choose the length of maternity leave and thus the amount of the allowance.

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REFERENCES

[1] Axel Börsch-Supan. (2013). Ageing, Labour Markets and Well-being. *Empirica, vol.* 40. pp. 397-407.

[2] Grmanová, E. et al. (2018). *Demographic Changes and its Impact on the Labuor Market.* Trenčín: Trenčianska univerzita Alexandra Dubčeka v Trenčíne. 104 p.

[3] Bekker, S. & Klosse, S. (2016). NEETs – *Can the Dutch Tackle their Needs?* ReflecT Researcg Paper. No 2016/002. Tilburg University. [online]. [cit.2017-10-22]. Available at: file:///C:/Users/grmanova/Downloads/ReflecTResearchPaperSeriesNo2016-002NEETsBekkerKlosse.pdf

[4] Eurostat (2021a). *Database*. [online]. [cit.2021-10-28]. Available at: https://ec.europa.eu/eurostat/data/database

[5] Eurostat (2021b). *Statistics Explaned.* [online]. [cit.2021-10-28]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Ageing_Europe_-_statistics_on_working_and_moving_into_retirement

[6] Infostat. (2006). Infostat. Demographic Research Centre. (2006). *Forecast of the Labour Force in the Regions of the Slovak Republic until 2025*. 16 p. [online]. [cit.2017-10-22]. Available at: http://www.infostat.sk/vdc/pdf/pracsily.pdf

[7] Juricic, B,B., Galic, M. & Merenjak, S. (2021). Review of the Construction Labour Demand and Shortages in the EU. *Buildings.* Vol.11. No. 1. https://doi.org/10.3390/buildings11010017

[8] Minařík, B., Borůvková, J. & Vystrčil, M. (2013). *Analysis in Regional Development.* Praha: Professional Publishing. 234 p.

[9] Monfort, P. (2008). Convergence of EU Regions. Measures and Evolution. Working Papers 01/2008. European Union Regional Policy. [online]. [cit.2017-10-22]. Available at: https://ec.europa.eu/regional_policy/sources/docgener/work/200801_convergence.pdf

[10] Pacáková, V. et al. (2003). *Statistics for Economists*. Bratislava: EDÍCIA EKONÓMIA. 358 p.

[11] Vodopivec, M. & Arunatilake, N. (2011). Population Aging and Labour Market Participation of Older Workers in Sri Lanka. *Journal of Population Ageing,* vol. 4. pp. 141-163.

MÄKKÉ ZRUČNOSTI AKO NUTNÁ POTREBA ROZVOJA ĽUDSKÉHO KAPITÁLU V PODMIENKACH DIGITÁLNEJ EKONOMIKY

SOFT SKILLS AS NECESSARY NEED TO DEVELOP HUMAN CAPITAL IN THE TERMS OF DIGITAL ECONOMY

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Abstrakt: *Vzdelanostná štruktúra je spätá s rôznou členitosťou spoločnosti, s reformami a budovaním príležitostí na vzdelávanie. Je potrebné poznať zmeny v týchto štruktúrach a vedieť predikovať ich vývoj do budúcna. Digitálna ekonomika podnecuje zmeny v systéme vzdelávania pod vplyvom Industry 4.0 a zameriava sa na aktuálne otázky neefektívneho vzdelávacieho systému nielen na pracoviskách ale aj na školách. V nasledujúcich 4-5 rokoch by sa vo vzdelávaní mal posilniť rozvoj skupinovej a regionálnej identity, reflexia zaradenia jednotlivca do spoločnosti; v ďalšom vzdelávaní by sa mal posilniť rozvoj uvedomelej individuálnej identity. Ľudia budú musieť narábať s väčším množstvom informácií v pretrvávajúcej globálnej civilizácii v prospech rozvoja pracovných miest. Nedostatok pracovníkov s potrebným vzdelaním a zručnosťami ovplyvňuje všetky priemyselné odvetvia a spoločnosti bez rozdielu veľkosti. Industry 4.0 musí získať kvalifikáciu, ktorú inteligentná prax potrebuje. Aktuálne to nie je len o tvrdých zručnostiach, ale do popredia vystupujú mäkké zručnosti pracovníkov – komunikačné, vyjednávacie, vodcovské a riadiace, či adaptačné schopnosti.*

Kľúčové slová: *mäkké zručnosti, Priemysel 4.0, digitalizácia, vzdelávanie*

Abstract: *The educational structure is released with different membership of the company, with reforms and building education opportunities. It is necessary to know changes in these structures and to let them predict their development into future. Digital economy encourages changes in the effects under the influence of Industry 4.0 and focuses on the current issues of an inefficient education system not only at workplaces but also in schools. In the next 4-5 years, the development of group and regional identity should be strengthened in education, reflexing individuals into society; in further education, the development of individually identity should be strengthened. People will have to handle greater amounts of information in persistent global civilization in favor of job development. The lack of workers with the necessary education and skill affects all industries and companies without difference. Industry 4.0 must obtain qualifications that intelligent practice needs. Currently, it is not just about hard skills, but to the foreground showing soft skills of workers - communication, bargaining, leadership and control or adaptation skills.*

Keywords: *Soft Skills, Industry 4.0, Digitization, Education*

JEL Classification: *A20, M59, O15*

1. ÚVOD

Pojem digitálna ekonomika má viaceré synonymá, a to predovšetkým znalostná ekonomika, či informačná ekonomika. S týmto pojmom sa v poslednom čase stretávame stále častejšie. Zatiaľ sa uplatňuje predovšetkým v praxi. Tieto pojmy vyjadrujú určitý prístup, najčastejšie ide o zdôrazňovanie významu nových technológií alebo rolí znalosti vo vývoji spoločnosti. Princípy digitálnej ekonomiky sú dôležité pre tvorbu študijných plánov, ale aj pre programy vzdelávacích zariadení, vrátane vysokých škôl, ako aj pre podniky. V digitálnej ekonomike rastúca sila informácií radikálne mení tak spôsob vzájomnej komunikácie ľudí, ako aj obchod

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a podnikanie. Informácie sú v digitálnej forme prenášané po digitálnych sieťach neskutočnou rýchlosťou, čo umožňuje vznik skutočnej globálnej konektivity. Keďže v podmienkach digitálnej ekonomiky je rýchlosť smerodatná, významným rysom je najmä flexibilita zamestnancov a tá tkvie v mäkkých zručnostiach zamestnancov, napr. všade tam, kde sa poskytuje servis a služby klientovi. V súčasnej dobe digitálnej ekonomiky sú nevyhnutné pre pracovný život zamestnancov tak „hard skills" (tvrdé zručnosti) ako aj „soft skills" (mäkké zručnosti), ktoré zamestnávateľ požaduje. Mäkké zručnosti sú dôležité pre úspech každého podniku z dôvodu, že každá práca si vyžaduje od zamestnancov, aby sa vedeli prispôsobiť a pracovať v tímoch a rásť tak osobne, ako ja kariétne. Ďalším ukazovateľom prečo zamestnávatelia hľadajú zamestnancov s mäkkými zručnosťami je ten, že si tieto zručnosti vedia preniesť kdekoľvek na inú pozíciu. Z tohto pohľadu to umožňuje uchádzačom s takýmito schopnosťami byť veľmi flexibilným zamestnancom.

2. CIEĽ A METODOLÓGIA

Predložený príspevok má teoreticko-hodnotiaci charakter. Jeho hlavným cieľom je definovať význam a potrebu mäkkých zručností pre účely neustále vpred sa vyvíjajúcej digitálnej ekonomiky. V článku poukazujeme na dôležité schopnosti „soft skills" nevyhnutné pre svet práce v dnešnej dynamicky sa vyvíjajúcej spoločností. Ak si podniky uvedomia dôležitosť vzdelávania svojich pracovníkov aj v mäkkých zručnostiach, úspech sa bude realizovať v konečnom dôsledku tak pre podnik, ako aj pre zamestnancov. V článku sme použili výskumné metódy ako syntézu dostupných bibliografických odkazov, indukciu, dedukciu, ako aj teoretickú všeobecnú metódu vedeckého poznania.

3. TEORETICKÉ ASPEKTY SKÚMANIA MÄKKÝCH ZRUČNOSTÍ AKO NUTNÁ POTREBA ROZVOJA ĽUDSKÉHO KAPITÁLU

Pojem mäkkých zručností sa spomína v súvislosti s pracovnou kariérou, výberom zamestnancov a manažmentom ľudských zdrojov. „Mäkké zručnosti" sú diskutované ako termín na rozdiel od „tvrdých zručností" a v akademických prácach sa nazývajú ako „kognitívne zručnosti" - ako znalosti o faktoch, technických, objektívnych vedomostiach a zručnostiach. V kontraste „nekognitívnych zručností" alebo osobnostných vlastností, t.j. „mäkké zručnosti" sa zvyčajne kombinujú prostredníctvom mnohých zážitkových schopností a zručností vrátane motivácie, sociálnych zručností a pracovných návykov (Laskey, 2010). Rovnakým oblastiam sa venujú autori Műhleisen a Oberhuber, ktorí v spoločnej publikácii (2008) o soft skills pre prax používajú pojmy mäkké faktory resp. mäkké zručnosti. Podľa autorov sa týkajú ľudí a ich vzájomných vzťahov, AKO spolupracovať a nie ČO robiť, pretože druhé spomínané je kategóriou odbornosti a tvrdých zručností.

Medzi mäkké zručnosti radia tri väčšie oblasti – osobné kompetencie, sociálne kompetencie a metodické kompetencie.

Prvé sa týkajú schopnosti človeka zachádzať sám so sebou. Patrí tu sebakontrola, suverénnosť, sebareflexia, motivácia, odolnosť voči stresu, orientácia na cieľ, ochota učiť sa.

Druhá oblasť predstavuje schopnosť kontaktu s inými. Zahŕňa schopnosť integrácie, nadväzovania vzťahov, spolupráce v tíme, pozornosť, empatiu, vodcovstvo.

Tretia skupina kompetencií podľa autorov znamená schopnosť riešiť úlohy. Konkrétne sa jedná o prezentovanie, kreatívne riešenie problémov, presvedčivú rétoriku, time manažment, kritické myslenie a tvorbu rozhodnutí. Napriek tomu, že autori spájajú soft skills hlavne s emocionálnou inteligenciou, týkajúcou sa primárne vzťahov a emócií, všimnime si, že v rebríčku sa vyskytujú aj takpovediac „nevzťahové" faktory:

1. komunikačné kompetencie
2. zdravé sebavedomie
3. empatia
4. schopnosť spolupracovať v tíme
5. schopnosť prijať a účinne odovzdať kritiku
6. analytické myslenie
7. dôveryhodnosť
8. sebaovládanie a disciplína
9. zvedavosť
10. zvládanie konfliktov
11. schopnosť presadiť sa.

Premostenie medzi pracovným a osobným životom v súvislosti s mäkkými zručnosťami ponúka autorka Prince. Vo svojej publikácii (2016) poníma „soft skills“ za výhodu, ktorá človeku umožňuje byť úspešnejší na pracovisku aj mimo neho. Mäkké zručnosti definuje ako osobné kompetencie, ktoré na rozdiel od tvrdých zručností, sú hybnou silou na ceste k využitiu svojho potenciálu. Vďaka nim sme schopní čeliť výzvam a pracovať na zmene. Za kľúčové kompetencie autorka považuje prispôsobivosť, kritické myslenie, empatiu, čestnosť, optimizmus, proaktivitu a odolnosť voči neúspechom. Význam „soft skills“ pre uplatnenie mladých na pracovnom trhu skúma štúdia pod vedením autorky Lippmanovej z roku 2015. V nej znie definícia soft skills nasledovne: „Mäkké zručnosti sa vzťahujú na široké spektrum zručností, kompetencií, správania, prístupov a osobných kvalít, ktoré umožňujú ľuďom efektívne riadiť svoje prostredie, pracovať dobre s ostatnými, podávať dobrý výkon a dosiahnuť svoje ciele. Tieto zručnosti sú široko aplikovateľné a komplementárne k iným zručnostiam – technickým, pracovným a akademickým“ (Lippman, 2015).

Na základe štúdia relevantnej literatúry a prieskumu medzi zamestnávateľmi za kritické mäkké zručnosti autori štúdie považujú:

1. sociálne zručnosti – schopnosť vychádzať s druhými ľuďmi, riešiť konflikty a správať sa vhodným spôsobom.

2. myslenie vyššieho rádu – pozostáva zo schopností kriticky myslieť, riešiť problémy a robiť rozhodnutia. Vo všeobecnosti ide o schopnosti vyžadujúce vyhľadanie relevantnej informácie z viacerých zdrojov, zváženie možností a dosiahnutia rozumného záveru.

3. komunikačné schopnosti – zahŕňajú písomnú, ústnu a neverbálnu komunikáciu, a tiež schopnosť načúvať druhým. Silné komunikačné schopnosti prispievajú k rozvoju ostatných jemných zručností, obzvlášť sociálnych.

4. sebakontrolu – týka sa kontroly impulzov, vlastných emócií, správania, schopnosti sústrediť sa a tiež schopnosti odložiť potešenie do budúcna.

5. pozitívne seba ponímanie – patrí tu sebahodnotenie, sebauvedomenie, sebadôvera, zmysel pre duševnú pohodu a hrdosť.

Efektívnosť správania znamená schopnosť budovať vzťahy s protistranami v špecifických situáciách „inšpirujú ostatných, aby boli účinné“ a môžu slúžiť ako základ pre vedenie (Butenko et al., 2017; Semenova & Koshel, 2017).

Vedúce pozície nielenže vyžadujú vynikajúce odborné znalosti, ale aj silné mäkké zručnosti, aby boli úspešní. Faktory, ako sú osobnostné črty, štýl komunikácie a riadenia, sú dôležité pre

svoj osobný úspech alebo zamestnaneckú spokojnosť s prácou. V závislosti od organizácie sú tieto definované oblasti zodpovednosti vedúcich pracovníkov veľmi odlišné a siahajú od rozličných striktných byrokratických predpisov až po flexibilné rozhodovacie možnosti. Ak samotná organizácia vopred nenastaví všetky pravidlá správania sa, čo sa stáva poväčšine zriedka, tak sa stane, že to zostane na každom manažérovi, pretože vedie svojich vlastných zamestnancov tak, aby navrhol súvisiace úlohy a požiadavky. To platí najviac pre vysoký stupeň manažérov. Nové prvky vo vedúcich pozíciách znamená, že tieto osoby majú teraz slobodnú vôľu medzi najvýhodnejšími štýlmi vedenia a môžu zvážiť, aké kompetencie chcú presadiť u svojich zamestnancov alebo ako by mali navrhnúť spoluprácu, aby bola efektívna (Horenburg, M., 2014). Zaujímavá je teda odpoveď na otázku, do akej miery dokážu mäkké zručnosti ovplyvniť štýl vedenia v kontexte digitálnej ekonomiky. Výsledky za posledné roky, týkajúce sa rôznych správnych štýlov, nepoukazujú na využitie aj mäkkých zručností. V súčasnosti je pre podniky priorita, aby tieto kompetencie využívali vo väčšom rozsahu.

4. VÝSLEDKY A DISKUSIA

Digitálna ekonomika súvisí s rýchlym nástupom a prenikaním informačných a komunikačných technológií do všetkých oblastí ľudskej činnosti, v našom konkrétnom ponímaní aj do vzdelávania mäkkých zručností. Vo vzdelávaní popri orientácii na inovovaný predmetový a silne medzipredmetový obsah sa preferujú požiadavky na osvojenie a rozvoj zručností a spôsobilostí. Rebríčky vybraných, kľúčových, transformačných kompetencií sa navzájom prelínajú, mení sa poradie ich dôležitosti. Vzdelávanie má už u terajších žiakov rozvinúť zručnosti a spôsobilosti, ktoré ešte iba v teoretickej rovine postupne spoznávame a ktoré sa budú postupne kryštalizovať, modifikovať. Mnohé požadované zručnosti a spôsobilosti v súčasnosti ešte nepoznáme, iste sa objaví celý rad dnes ešte neznámych zručností a spôsobilostí, mnohé posilnia na význame, iné ustúpia. Aktuálne sa hlásime k vymedzenému európskemu rámcu osobnostných (sebaregulácia, flexibilita, pohoda), sociálnych (empatia, komunikácia, kolaborácia) a učiť sa učiť (pozitívne myslenie, kritické myslenie, riadenie učenia) životných kompetencií (JRC, 2020). Európsky rámec digitálnych kompetencií pre občanov, skrátene tiež DigComp, verzia 2.1 opisuje 21 kompetencií, rozdelených do 5 oblastí:

1. Informačná a dátová gramotnosť:

• prehliadanie, vyhľadávanie a filtrovanie dát, informácií a digitálneho obsahu,

• vyhodnocovanie dát, informácií a digitálneho obsahu,

• manažment dát, informácií a digitálneho obsahu.

2. Komunikácia a spolupráca:

• interakcia prostredníctvom digitálnych technológií

• zdieľanie prostredníctvom digitálnych technológií,

• zapojenie sa do občianstva prostredníctvom digitálnych technológií,

• spolupráca prostredníctvom digitálnych technológií,

• etiketa na internete,

• manažment digitálnej identity

3. Vytváranie digitálneho obsahu:

• návrh, vytváranie a rozvíjanie digitálneho obsahu,

• integrácia a prepracovanie digitálneho obsahu,

• autorské práva a licencie,

• programovanie.

4. Bezpečnosť:

• ochrana zariadení,

• ochrana osobných dát a súkromia,

• ochrana zdravia a pohody,

• ochrana životného prostredia.

5. Riešenie problémov:

• riešenie technických problémov,

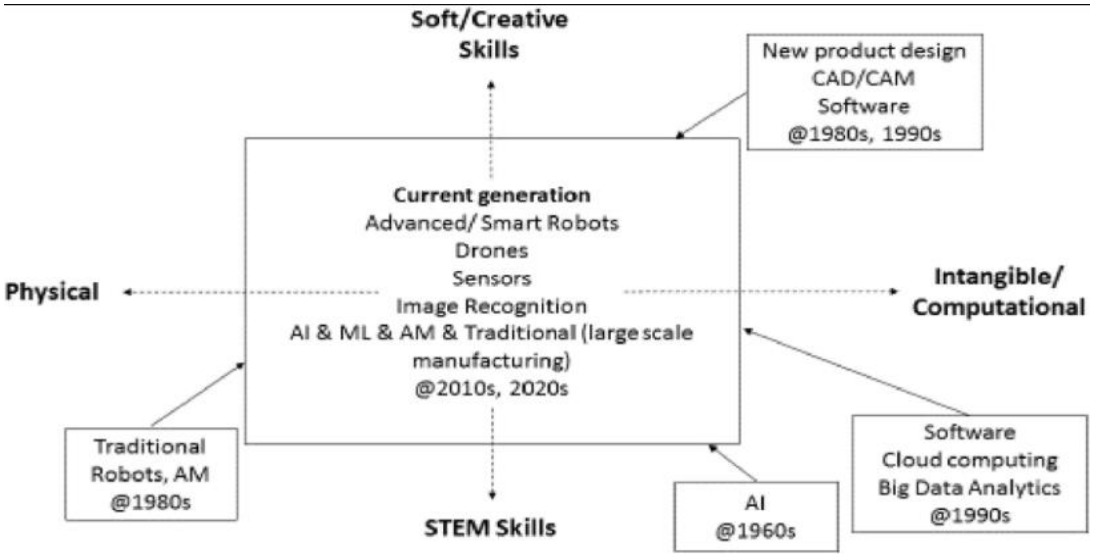
• identifikácia potrieb a technologických riešení,

• kreatívne používanie digitálnych technológií,

• identifikácia medzier v digitálnej spôsobilosti.

Digitálne technológie tiež poskytujú prostriedky na obnovu firiem, zlepšenie organizácie a výroby tovarov a služieb, ako aj vytváranie nových tovarov a služieb a dokonca transformovať inovačné rutiny (Tommaso Ciarli a kol., 2021). Obrázok č.1 ilustruje integráciu predčasných generácií digitálnych technológií do súčasnej generácie digitálnych technológií, ktoré preklenujú celý rad charakteristík a zručností.

Obrázok 1. Konvergencia digitálnych technológií a charakteristiky zručností



Zdroj: Tommaso Ciarli a kol., 2021

Aktuálne dnes naše deti vyrastajú do sveta, kde je prístup k informáciám rôzneho druhu iba otázkou prístupu k internetu. Na jednej strane je to príležitosť nebyť limitovaní informáciami, ktoré si aktuálne pamätáme (čo samozrejme nemá znamenať, že si nemusíme pamätať nič). Pritom ide nielen o využitie prístupu k informáciám, ale aj ich zmysluplné využitie, spracovanie. Na druhej strane ide o hrozbu v zmysle šírenia rôznych konšpiračných teórií, hoaxov, neodborných rád a podobne. Práve preto pri transformácii vzdelávania, či už na školách, alebo v podnikoch by malo dôjsť k prehodnoteniu aj tohto druhu vzdelávania. Digitálne technológie umožňujú zjednodušiť tímovú prácu na pracoviskách v rôznych odvetviach, kde je potrebné využiť mäkké zručnosti na lepšiu spoluprácu a komunikáciu. K

realizácii digitálnej transformácie vzdelávania je potrebné vypracovanie akčného plánu - stanovenie systémových opatrení, cieľov, ich realizácia v krátkodobom a dlhodobom horizonte, systém kritérií a mechanizmus na posudzovanie ich splnenia. Akčné plány je potrebné spracovať na národnej úrovni. To je úlohou podnikov, aby poskytli takéto možnosti svojim zamestnancom, ktorí potom pretavia svoju adaptabilitu, schopnosť komunikácie a analytické myslenie do pracovného procesu. Závisí to vždy od uhľa pohľadu ako najlepšie prepojiť motiváciu, mäkké zručnosti a angažovanosť v prospech pracovného procesu. Zamestnanci vo všeobecnosti vnímajú význam mäkkých zručností pre ich budúcu pracovnú angažovanosť v inej spoločnosti veľmi pozitívne, formujú si portfólio mäkkých zručností vedľa tvrdých zručností/poznatkov na ich súbežnosť na trhu práce. Rozvoj mäkkých kompetencií v našom ponímaní, ktoré sú požadované vo všetkých oblastiach činnosti, sú univerzálnym kľúčom k inovatívnemu rozvoju a konkurencieschopnosti, pretože zabezpečujú a zvyšujú otvorenosť novým skúsenostiam, ktoré určujú potenciál profesionálneho a osobného rozvoja. Rozvoj ľudského kapitálu a jeho mäkkých zručností závisí od vzdelávania a odbornej prípravy určujúcej rozvoj kompetencií a zručností tvoriaci základ pre inovácie a konkurencieschopnosť.

Závisí aj od rozvoja mäkkých zručností (vrátane vedenia) v dôsledku interdisciplinárnych poznatkov a schopnosti prispôsobiť sa. Podmienky globálneho trhu práce predstavujú faktor pri zlepšovaní konkurencieschopnosti ľudského kapitálu. Rozvoj vedenia ako jeden z najžiadanejších mäkkých zručností, zložka sociálneho intelektu a sociálny a psychologický fenomén predstavuje kľúčový prvok súboru kompetencií mladého špecialistu z hľadiska zamestnávateľa.

V kontexte digitálnej ekonomiky je dôležité povedať, že na Slovensku sú doterajšie snahy o digitálnu transformáciu vzdelávania s prepojením na mäkké zručnosti neefektívne. Netýka sa to len škôl, týka sa to aj podnikov a ich zamestnancov. Neustále meniace sa prostredie si vyžaduje od ľudí nielen tvrdé zručnosti, ale hľadá takých, ktorí disponujú už preferovanými mäkkými zručnosťami, ktoré dokážu v mnohých prípadoch zjednodušiť a spracovať problémy, ktoré sa v pracovnom prostredí vyskytnú. Najčastejšie sa v praxi venujú spoločnosti rozvíjaniu komunikačných a prezentačných schopností, schopnosti spolupracovať v tíme a tvorivo myslieť. Samozrejme nachádzame tu aj príležitosti a hrozby využitia mäkkých zručností a ich postavenie v digitálnej ekonomike. Je to smerodajné v tom prípade, ak chce zamestnávateľ napredovať. Príležitosti, ktoré so sebou prináša digitálna ekonomika v nadväznosti na mäkké zručnosti môžu byť využité na riešenie určitých sociálnych problémov, čo tiež súvisí s rozvojom a prosperitou podniku. Z podnikateľského prostredia dochádza k zvyšovaniu predaja, keďže vyškolený zamestnanec dokáže lepšie komunikovať, byť asertívny, flexibilný a empatický. Pre podnik nastáva úspech v podobe predaja služieb, tovarov a i. Na druhej strane digitalizácia so sebou prináša automatizáciu, ktorá je považovaná za hrozbu z dôvodu, že zamestnanci môžu prísť o pracovné miesto z dôvodu redundantnosti. Ďalej možno očakávať i vyššie nároky zamestnávateľa na kvalifikáciu svojich zamestnancov.

5. ZÁVER

Cieľom článku bolo poukázať na dôležitosť mäkkých zručností v pracovnej oblasti v podmienkach digitálnej ekonomiky. Doteraz sa venovala väčšia pozornosť tvrdým zručnostiam a školili sa pracovníci najmä na konkrétny druh práce nevyhnutný pre bežné fungovanie. S cieľom lepšie pochopiť komplexné a dialektické vzťahy medzi digitálnymi technológiami, inováciami a zručnosťami je potrebné zlepšiť naše chápanie koevolúcie medzi trajektóriami pripojených digitálnych technológií, pevnými inováciami a tvorbou zručností. Kritické je to, ako organizácie rekombinujú a prispôsobujú digitálne technológie ľudským zdrojom. Vyžadujú nové zručnosti na inovovanie, učenie a prispôsobenie sa vyvíjaniu digitálnych technológií, zatiaľ čo digitálne technológie menia kodifikáciu poznatkov pre

produktívne a inovatívne aktivity. Koevolúcia medzi digitálnymi technológiami, inováciami a zručnosťami si tiež vyžaduje prepojenie s ľudskými schopnosťami a je poháňaná reorganizáciou produktívnych a inovačných procesov a to tak v rámci firiem ako aj medzi nimi. Vidíme priestor, aby sa to dodržiavalo vo všetkých sektoroch ekonomiky, od poľnohospodárstva až po služby.

LITERATÚRA

[1] Butenko, V., Polunin, K., Kotov, I., Sycheva, E., Stepanenko, A., Zanina, E., Lomp, S. & Rudenko, V. (2017). *Russia 2025 –from knowledge to talents.* Moscow: The Boston Consulting Group.

[2] Ciarli, T., Kenney, M., Massini, S., Piscitello, L. (2021) Digital technologies, innovation, and skills: Emerging trajectories and challenges. *Research Policy*, vol. 50, iss. 7, ISSN 0048-7333. [online]. [cit. 2021-10-17]. Dostupné z: https://doi.org/10.1016/j.respol.2021.104289. (https://www.sciencedirect.com/science/article/pii/S0048733321000913)

[3] Európska Komisia. (2020). Joint Research Centre (JRC). LifeComp. *The European framework for the personal, social and learning to learn key competence.* [online]. [cit. 2021-10-13]. Dostupné z: https://ec.europa.eu/jrc/en/lifecomp

[4] Horenburg, M. (2013). Soft skills. *Zeitschrift für Herz-,Thorax- und Gefäßchirurgie*, vol. 27, pp. 434–437. Dostupné z: https://doi.org/10.1007/s00398-013-1055-6

[5] Laskey, M. L. & Hetzel, C. J. (2010). *Self-regulated Learning, Metacognition, and Soft Skills: The 21st Century Learner.* Metacognition and Soft Skills. [online]. [cit. 2021-10-02] Dostupné z: http://files.eric.ed.gov/fulltext/ED511589pdf.

[6] Lippman, L., Ryberg, R., Carney R. & Moore, K. (2015). Key "Soft Skills" that Foster Youth Workforce Success: Toward a Consensus across Fields [online]. Child Trends, 56 [cit. 2021-10-10]. Dostupné z: http://www.childtrends.org/wp-content/uploads/2015/06/2015-24AWFCSoftSkillsExecSum.pdfSemenova,

[7] Mühleisen, Stefan a Nadine Oberhuber. (2008). Komunikační a jiné měkké dovednosti: soft skills v praxi. Praha: Grada. Praxe, ISBN 978-80-247- 2662-5

[8] Prince, Emma-Sue. (2016). *7 měkkých dovedností, které vás posunou kupředu*. Brno: BizBooks. ISBN 978-80-265-0451-1

[9] Semenova, V.V., Koshel, I.S. (2017). Managing knowledge: the formation of professional competencies. *Ekonomika i predprinimatelstvo*, vol. 9, iss. 3.

[10] Zelenyuk, A. N., & Savinov, Y. A. (2021). Human capital development: development of professional competencies through soft skills. *Revista Tempos E Espaços Em Educação*, vol. 14, iss. 33, e15253. doi.org/10.20952/revtee.v14i33.15253

INTELLECTUALIZATION AND ITS IMPACT ON THE NATURE OF OCCUPATION

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Abstract: *The influence of intellectualization on the labor market has been investigated in the article. It was identified that under the present-day conditions, intellectualization is a factor of both constructive and destructive structural changes in the economy. It was revealed that in relation to the labor market intellectualization leads to reduction or complete disappearance of demand for certain professions and to the reduction in the number of jobs and soaring unemployment rate. Despite this, the intellectualization of the economy determines the development of new positions that requires the formation of new professional competencies of employees. Self-regulatory mechanisms have already been launched in the labor market and accelerated structural changes in the economy (in particular, caused by the intensive development of the gig economy). The existing analytical scenarios of possible events have been analyzed and due to this, disparities in the labor market has been determined. It is vital to make changes in institutional support (contracts, social guarantees, etc.), improve tools of state labor market regulation, foster dialogue, and public-private partnership to overcome, as well as equalize structural disparities in the economy.*

Key words: *labor market, gig economy, stakeholders, intellectualization of labor*

JEL Classification: *H10, J23, J40, J68, K31*

1. INTRODUCTION

Intellectualization is an objective process that fully reveals the evolution of socio-economic systems, where a gradual transition from chaotic non-systematic use of new competencies and technologies in the process of social reproduction into a formation of key resource during a systematic, natural transformation. It provides economic growth and development. At the same time, the informatization of public life accelerates this process.

Yet the first, the so-called Neolithic revolution, which led to the transition from appropriative to reproductive mode of production was based on knowledge and new "primitive" technologies. However, prior to the second industrial revolution, mankind gained the experience of "how to be intellectual." And it is not only about the use of a qualitatively new set of tools, but also about the transformation of basic economic institutions - capital, power, property and labor, their interaction and interdependence, as well as improving and expanding channels of information transmission, storage, etc. These transformations has been observed already at the stages of the 2-4th industrial revolutions.

Simultaneously with these events new forms of socio-economic relations and the concentration of economic power emerged, concentrating in the hands of those who have a grasp of digital technologies. Intellectual ownership has become a key one that is currently forming a competitive advantage. Management was separated from the property. Moreover, the transformation of the labor market was dramatically impacted by the global structural

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changes in the "knowledge economy" concept. Consequently, this led to changes in the very nature of occupation allowing new conditions for the interaction of supply and demand to emerge.

On one hand, intellectualization has led to rising unemployment. However, on the other hand, it created the conditions for the emergence of new professions and demand for them. According to the Economic Strategy of Ukraine 2030 (Ukrainian Institute of the Future, 2018) (with reference to the WEF study), unemployment caused by industrial revolutions and technological changes can be overcome during a period of 1 to 5 years by labor supply responding to demand (coadaptation), the emergence new activities, business models, etc

However, it`s important to remember that the world has not previously faced the pace of change and challenges that are being observed currently. These can be characterized a systemic worldwide approach. Thus, to balance supply and demand, for the market to respond optimally to rapid changes, it is necessary to address several issues that are presented: disproportion between the level of income of workers of different professions and imbalances in the economy; low rates of institutional transformation, growing levels of social tension; emergence of new forms of employment, etc.

Their solution requires a review and application of relevant policies of state, corporate and international regulation in the field of employment and structural changes in the economy. That is why the issue of the impact of global processes of intellectualization on the labor market and the search for ways to overcome the disparities that arise, does not lose its relevance and requires further research.

2. PROBLEM FORMULATION AND METHODOLOGY

Given the issues outlined by the study, a number of hypotheses regarding the impact leverages of intellectualization on the nature of occupation has been highlighted. These are the following:

1) *The process of intellectualization leads to reduction or complete disappearance of demand for certain professions*. Consequently, such professions as masons, chimney sweeps, lanterns, telephone operators, people-alarm clocks, etc. disappeared. Part of the handmade work has been replaced or will soon be replaced by technical means. Next in the 'disappearance list', given the dynamics of the process of intellectualization are the professions of conductor, postman, miner, seamstress, lifter, blacksmith and others. They will replaced by such as: game designer, virtual reality architect, 3D printing engineer, digital currency consultant, etc. (Ukrainian Institute of the Future, 2018). According to the European Commission, about 50% of existing jobs can theoretically be automated (European Commission, 2021). Similar findings are present in the MGI study "Jobs lost, jobs gained: Workforce transitions in a time of automation" (2017) (Manyika, et al. 2017). On one hand, the intellectualization of labor creates positive effects for businesses and the economy as a whole. However, on the other hand, it creates risks for the supply of labor and forces an imbalance to develop in the labor market. In fact, although according to analytical estimates in the process of intellectualization more professions are created than destroyed (Ukrainian Institute of the Future, 2018; Manyika, et al. 2017), the issue of unemployment is relevant from periodically for both post-industrial and industrial economies.

2) *As a result of the deepening process of intellectualization of the economy the eduction in the number of jobs and, consequently, soaring unemployment rate are observed*. The MGI study identified scenarios of developments in the labor market under the influence of intellectualization (Manyika, et al. 2017, p.11). According to its findings, approximately 400-880 million people may be pushed out of the labor market as a result of automation (midpoint and earliest (the most rapid) automation adoption scenarios) by 2030. And this is

despite the fact that the demand in the market will exist, but "displaced labor force" will be forced to "look for" the vacancies. About 75 and 375 million will be forced to change jobs. According to the latest adoption scenario (the slowest), the number of such people could be around 10 million. According to European Commission (2021) about 45% - 60% of all workers in Europe could see "themselves replaced by automation" before 2030. We can already observe these processes. At the heart of the growing disparities the phenomenon of the Skills Gap is actualized.

3) *The intellectualization of the economy determines the emergence of new positions that require the formation of new professional competencies of employees*. The requirements for both new and, in fact, traditional professions are changing rapidly in terms of intellectualization of the economy. New competencies (knowledge, skills and abilities) come to the fore. According to Bughin, et al. (2018): «… while the demand for technological skills has been growing since 2002, it will gather pace in the 2016 to 2030 period. The increase in the need for social and emotional skills will similarly accelerate… the need for both basic cognitive skills and physical and manual skills will decline». The transition to new competencies is a requirement not only for supply but also for demand for labor. Companies also need to review their business models to be competitive today. There must be coevolution and co-adaptation of key players in the labor market. With the slow movement or weak response of regulatory institutions, increasing time for retraining, the use of outdated educational models or lack of investment in education for different generations ("workers with a lower secondary degree education will be most affected by automation", European Commission, 2021), as well as taking into account the effects of a number of national and international factors, the unemployment environment will continue to rise with declining wages.

These issues are especially relevant in the context of the COVID-19 pandemic.

4) *Intellectualization has already launched self-regulatory mechanisms in the labor market that accelerate structural changes in the economy*. The change in the format of relations between employer and employee has become more noticeable, and rising level of unemployment, increasing the number of private entrepreneurs who did not "survive" the pandemic and were forced to liquidate their business, led to the transfer of so-called gig-economy or free employment to a number of spheres of public life and provided opportunities for the "army of the unemployed" to survive in a crisis. At the same time, the global Gig Economy currently generates $ 204B in Gross Volume, with Transportation-Based Services (e.g., ride-sharing) comprising 58% of this value. The size of Gig Economy transactions is projected to grow by a 17% CAGR with a Gross Volume of $ 455B by 2023, which is caused by the deepening of the processes of economic intellectualization (Mastercard and Kaiser Associates, 2019). However, in order for analysts' optimistic forecasts and the expectations of governments to materialize, existing regulatory mechanisms need to be reviewed.

Thus, the purpose of this study is to analyze the impact of the process of intellectualization on the formation of new conditions for the development of the labor market, in particular, due to the accelerating pace of development of the gig economy.

The study is based on a behavioral approach, which is used to study the behavior of labor market actors and their response to incentives that are formed under the influence of intellectualization of the economy. This approach is also used to study the growth of the economically active population involved in short-term contracts (gig-economy).

The systematic approach allows to generalize and systematize the results of the research in terms of comprehensive study of the impact of economic intellectualization on the formation of new approaches to the organization of the labor market and to suggest possible ways to overcome obstacles in the transformation of the labor market and adaptation to new conditions. Among them, of a regulatory nature.

As it has been noted earlier, the intellectualization of the economy leads to a reformatting of labor market relations, namely: the disappearance of demand for certain professions, the emergence of demand for new knowledge and competencies of workers, as well as the flow of labor resources to short-term contracts, where employee and client are cooperating via the company (platform), which acts as an intermediary between both sides. That is, it can be argued that one of the consequences of the intellectualization of the economy is the formation of the labor market based on short-term contracts; transition from the need for narrowly specialized resources to more versatile workers; strengthening the requirements of highly qualified carriers of labor supply to labor demand, including from the standpoint of changing the forms of organization of working space and time, changing the nature of motivation (not just the accumulation of material goods, but improving the quality of life , its protection, work-life balance, expanding space for self-realization); informal employment is growing.

Thus, on the one hand, the formation of new conditions in the labor market has become an objective necessity due to the current realities of global economic processes. On the other hand, these processes are still to some extent spontaneous in the organization of relations between workers and employers, the state and other stakeholders, which leads to a number of threats to the economy as a whole and to the very entities entering into such relationships. The gig economy itself is based on the interaction of three parties: independent workers, whose work is being paid for certain tasks; clients who form the demand for certain types of works or services; companies that act as intermediaries between employees and customers (Istrate, Harris, 2017).

For instance, such companies as Uber, Airbnb, Lyft, Etsy or TaskRabbit act as intermediaries. Workers can find a client through them contributing a mandatory payment. These companies simplify search of temporary jobs ("gigs"), which can include a variety of jobs, from musical performances to installing a sealed tap. One of the main differences between "gig work" and traditional work is that "gig work" is a temporary engagement and the worker is paid only for it.

"Gig economy" is not a new concept, but over the last decade a dramatic increase has been noticed (in the US from 10.1% in 2005 to 15.8% of the workforce in 2015) (Katz, Krueger, 2016). In 2016, 24% of Americans said they could make money on digital platforms during 2015. The number of self-employed persons (a large share - independent workers in the "gig economy") increased by more than 19%. At the same time, the gross income of these independent workers increased by almost 21% (Smith, Page, 2016).

The growth of gig workers has accelerated over the past ten years with the development of new technologies and pandemic concurrent crises, which allowed, on the one hand, direct interaction between providers and customers, and, on the other hand, addressing the loss and finding traditional, stable jobs.

On one hand, application-based technology platforms are replacing people as intermediaries to quickly and easily connect consumers and manufacturers, allowing people to perform a variety of tasks for complete strangers based on real-time demand. On the other hand, people are increasingly drawn to this non-traditional employment sector either to supplement their current income or simply because they cannot or do not want to seek traditional, full-time salaries.

Besides, the gig economy provides employment and self-realization for special categories of the population who find it difficult to find work, including people with disabilities, women caring for children, the economically active population living in places far from economic development centers.

Moreover, the gig economy is flourishing and influencing how future work is perceived. In particular, the growth of the gig economy reflects a change in the way people consider work.

Instead of a way more traditional system, where a worker works full-time for only one employer, some workers vote for the gig economy for the flexibility, freedom and personal fulfillment it provides.

Now that the gig economy is spreading, new challenges arise for countries. These are caused by the fact that this category of work remains largely undefined and not directly regulated by public policy. A good part of the current labor policy and social protection system was developed in the twentieth century, regulating a "different" culture of labor. Now states need not just to prepare for changes in labor, but to regulate them as a fact that has come. The current legislation of some countries no longer corresponds to the state and dynamics of development of the modern labor market. This situation encourages employers and persons performing certain types of work to seek alternative mechanisms, contractual forms of interaction between them, among which an important place is occupied by the conclusion of a contract under civil law. new contractual forms of cooperation between people. In addition, working in the gig economy is a form of self-employment (freelance) and is built on a contract basis. As a result, the workforce in such circumstances acts as an independent contractor who does not receive benefits (health insurance from the company, for example). She has to buy them herself.

As the intellectual economy is being formed, the emphasis shifts to highly productive jobs and "flexible" enterprises. Such enterprises are often described as willing to adapt new technologies, fostering the emergence of new professions, engaging workers into the teamwork, experimenting. This is where the new forms of production management replace traditional approaches. Remuneration is becoming more widespread, based not on the time spent in the workplace, but on the productivity and knowledge that everyone invests in the production process. Yet this requires a review of appropriate motivation systems.

For instance, Ukraine presents contracts` volatility: the practice of applying civil law relations between the employer and the employee to evade taxes, as well as avoiding the employer's obligations to comply with labor rights and guarantees of the employee. In this regard, labor regulators, in practice, using so-called "markers" of labor relations, interpret such civil legal relations as those that replace labor and, accordingly, consider them a violation of the law on the use of undeclared work. The complexity of this situation for enterprises is caused by legal uncertainty: in which case the parties must enter into employment contracts, and in which case they have the right to enter into a contract of a civil nature. Whilst traditional approaches to employment regulation are losing their relevance and need to be adapted to the rules of the gig economy and further intellectualization of labor.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

According to the findings of analytical studies, governments and a lot of companies are looking for ways to overcome the Skills Gap and minimize the negative effects of intellectualization, maximizing its benefits for sustainable socio-economic growth and prosperity, using gig economy tools. According to the World Economic Forum (2021) "Fighting the global skills gap could add US $ 11.5 trillion to global GDP by 2028" (2020) [9]. As part of it, recommendations were made for governments, businesses, communities and the world at large to overcome the Skills Gap, which were conditionally combined in the concept of Reskilling Revolution. Its goals (to provide better jobs, education and skills to 1 billion people in the next 10 years to contribute to future-proofing countries, companies and workers) can be implemented within the Skills Gap Accelerator Model. The key areas should be: Lifelong learning and upskilling, Proactive redeployment and re-employment, Innovative skills funding models, Skills anticipation and job market insight (World Economic Forum, 2021).

We already have to accelerate the Reskilling Revolution and implement Skills Gap Accelerator Models. The following steps can help accelerate the Reskilling Revolution: increase the number of students in STEM specialties (Science, Technology, Engineering and Mathematics); transfer of teaching methods (franchises) from the world's technological research universities, which are leaders in providing education in specialties for which demand is formed in the labor market; implementation of national digital adaptation programs for citizens over the age of 50; state incentives for private operators of non-formal education to scale their training networks by region, etc. Along with this, further modification and use of corporate forms of training. According to estimates "an estimated 96% of all workers at threat from technology could find similar or better work with adequate training" (European Commission, 2021).

Businesses need to adapt to new conditions: expand ways of hiring, change remuneration policies, revise the institution of contracts, motivation systems, refocus on creating conditions for work and life balance and private interests of employees. At the same time, it is necessary to take into account that the future (in fact "tomorrow's employee") is a smart and assisting consumer with flexible and adaptive competencies, focused on their own unique career trajectories based on work strategies, a good team player.

However, if we return to the fact that intellectualization and the rapid pace of its development caused the emergence of the gig economy, forced labor supply and demand to adapt to new conditions, but without a proper institutional framework, the key role in driving labor market changes in the direction of development belongs to the state.

Given the pace of development of the gig economy and intellectualization in hole, it is necessary:

- to adapt the mechanism of state regulation of the labor market,
- to legalize the work of the gig economy,
- to improve the legal framework for employment and remuneration of freelance workers,
- to inform the population about the opportunities to be employed in the gig economy and changes in the requirements for labor supply,
- formation of conditions for growth of investments in education,
- popularization of the concept of lifelong learning, in particular focused on the development of a number of soft (social) skills, business skills and analytical skills, etc.

The task of the state representatives is to inform their citizens about employment in the gig economy, as legal and, accordingly, one that requires the payment of taxes, obtaining, if necessary, the necessary permits, etc.

In addition, it is necessary to review the rules and mechanisms for protecting the income received by such employees, providing legal guarantees for the safety of their work, preventing abuse by enterprises operating on Internet platforms and acting as intermediaries between employee and client in concluding so-called "one-time" contracts".

As the example, changes in institutional support in the labor market in Ukraine in the conditions of rapid development of the gig economy have been observed.

Ukraine has adopted a new law "On stimulating the development of the digital economy in Ukraine" (Verkhovna Rada of Ukraine/Legislation of Ukraine, 2021). The adoption of this law made it possible to legalize the categories "gig-contract", "gig-specialist" in Ukraine. Although this law has created a basis for regulating relations in the field of gig-economy, it contains several controversial points and needs to be improved. The following are narrowing the concept of "gig-specialist", and consequently the very essence of "gig-economy" by limiting activities, mainly in the field of IT, restrictions on the nationality of the company,

acting as an intermediary between employee and client, and also restrictions on the amount of wages paid to gig specialists (which in principle can be regarded as a certain social guarantee for the employee) and the number of employees. At the same time, it is necessary to legally differentiate cases that provide for the conclusion of contracts of different legal nature (civil contracts, employment contracts, or the conclusion of unnamed contracts governing civil and labor relations). It is necessary to define and introduce criteria, in the presence of which it is obligatory to conclude between the parties exclusively labor relations. Such measures will allow to establish clear and understandable rules for determining the nature of the relationship and the need to conclude an employment contract.

Nowadays there is a situation where the supply is solely formed by people aged 16 to 35 years. They make up 50% of the total number of employees in emerging and changing market segments (U.S. Bureau of Labor Statistics, 2018). At the same time, innovative global companies have begun to form the main share of demand in the labor market, which can be provided by the above individuals. Under such conditions, the tasks of state regulation are not only the adaptation of the institutional environment to new conditions of the labor market (promoting the development of more adaptive innovative enterprises, more flexible forms of wages, new forms of contractual relations, more flexible work schedule, promoting higher labor mobility) , but also equalization of labor market disparities by providing state support to the population less adaptable to changes in supply and demand within the so-called "intellectualized market", assistance in adapting them to new conditions by helping to find work, change competencies, help in mastering the skills of using modern technologies, etc.

4. CONCLUSION

The transition to a knowledge economy, global informatization of socio-economic relations leads to the emergence and growth of non-standard models of employment, characterized by such features as: virtualization of labor relations, reducing the share of manual labor and increasing the role of services; transition to the economy of "one-time contracts"; job search or additional earnings through online platforms that act as intermediaries between employees and customers; elimination of certain activities and the need for employees to acquire new competencies. In addition, there is a simultaneous increase in the popularity of job search platforms, which has no permanent basis, but is one-time in parallel with the growth of unemployment in the real sector of the economy. The use of such platforms can have both advantages and disadvantages.

The advantages are cost savings for employers, no need to hire a full-time employee, providing them with a job, etc.. On the other hand, the consumer can get a service at a lower price than that which would be formed under the traditional organization of labor. Also, the use of platforms reduces barriers or employment obstacles. It should be noted that under the conditions of employment in the gig economy, all employees are equal, there are no benefits or guarantees provided for certain categories of employees when hiring.

Indeed, the intellectualization of the economy and its further deepening is an irreversible process, which has a potential of creating a way larger number of jobs in the new format. However, the issue of adaptation of workers employed in traditional sectors of the economy to the new realities emerging in the labor market remains relevant. It is especially important to increase the efficiency of state regulation of the labor market, to create a competitive workforce with the necessary level of competencies at the stage of secondary and higher education, to support and assist in retraining workers over 50, as well as adapting the institutional environment to new requirements of the labor market, due to the deepening of intellectualization. In addition, it is necessary to strengthen public-private partnerships, which will take into account the diverse interests of all stakeholders.

REFERENCES

[1] Bughin, J., Hazan, E., Lund, S., Dahlström, P., Wiesinger, A, & Subramaniam, A. (2018). *Skill shift: Automation and the future of the workforce* (Discussion Paper) [online]. [cit.2021-11-04]. Available at: https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce.

[2] European Commission. (2021). Competence Centre on Foresight. Threats and opportunities from automation and robotization [online]. [cit.2021-11-04]. Available at: https://knowledge4policy.ec.europa.eu/foresight/topic/changing-nature-work/new-technologies-automation-work-developments_en.

[3] Istrate, & E., Harris, J. (2017). *The Future of Work The Rise of the Gig Economy: The Future of Work.* National Association of Counties, Counties Futures Lab, November, 2017, p. 8. [online]. [cit.2021-11-04]. Available at: https://www.naco.org/sites/default/files/documents/Gig-Economy.pdf.

[4] Katz, L. & Krueger, A. (2016). The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015 *NBER, Working Paper 22667*. [online]. [cit.2021-11-04]. Available at: https://www.nber.org/papers/w22667.

[5] Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R. & Sanghvi, S. (2017). *Jobs lost, jobs gained: Workforce transitions in a time of automation. Executive Summary*. McKinsey Global Institute: McKinsey & Company, p. 28. [online]. [cit.2021-11-04]. Available at: https://www.mckinsey.com/~/media/mckinsey/industries/public%20and%20social%20sector/our%20insights/what%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/mgi-jobs-lost-jobs-gained-executive-summary-december-6-2017.pdf.

[6] Mastercard and Kaiser Associates. (2019). Mastercard Gig Economy Industry Outlook and Needs Assessment: *The Global Gig Economy: Capitalizing on a ~$500B Opportunity*. [online]. [cit.2021-11-04]. Available at: https://newsroom.mastercard.com/wp-content/uploads/2019/05/Gig-Economy-White-Paper-May-2019.pdf.

[7] Smith, A. & Page, D. (2016). *Gig Work, Online Selling and Home Sharing*. Pew Research Center, November 2016. [online]. [cit.2021-11-04]. Available at: https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2016/11/PI_2016.11.17_Gig-Workers_FINAL.pdf.

[8] U.S. Bureau of Labor Statistics. (2018). *Contingent and Alternative Employment Arrangements.* Whashington, D.C.: Department of Labor,. [online]. [cit.2021-11-04]. Available at: https://www.bls.gov/news.release/pdf/conemp.pdf.

[9] Ukrainian Institute of the Future. (2018). *Economic Strategy of Ukraine 2030*. [online]. [cit.2021-11-04]. Available at: https://strategy.uifuture.org/kraina-z-rozvinutoyu-cifrovoyu-ekonomikoyu.html#6-2-10.

[10] Verkhovna Rada of Ukraine (Legislation of Ukraine). (2021). *Document 1667-IX*. [online]. [cit.2021-11-04]. Available at: https://zakon.rada.gov.ua/laws/show/1667-20#Text.

[11] World Economic Forum. (2021). Closing the Skills Gap Accelerators: The project is part of the World Economic Forum's Centre for the New Economy and Society Platform [online]. [cit.2021-11-04]. Available at: https://www.weforum.org/projects/closing-the-skills-gap-accelerators.

DOPADY DIGITALIZÁCIE NA ŠTRUTKÚRU ZAMESTNANCOV VO VYBRANÝCH SEKTOROCH V SLOVENSKEJ REPUBLIKE

IMPACTS OF DIGITALIZATION ON THE STRUCTURE OF EMPLOYEES IN SELECTED SECTORS IN SLOVAK REPUBLIC

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Abstrakt: *Digitalizácia patrí medzi najvýznamnejšie trendy v oblasti inovačných zmien, ktoré výrazným spôsobom menia fungovanie spoločnosti. Zmeny, ktoré vychádzajú z postupného zavádzania nových prístupov sa odzrkadľujú aj v oblasti organizácie práce. Je preto dôležité skúmať dopady a vyhodnocovať zmeny, ktoré so sebou prináša zavádzanie inovácií. Cieľom predkladaného príspevku je posúdiť dopady digitálnej transformácie na vybrané odvetvia z hľadiska zmeny organizačnej štruktúry zamestnancov. Autori príspevku skúmajú, či digitálna transformácia prináša so sebou zvýšený dopyt po IT zamestnancoch. Nárast počtu IT zamestnancov na celkovom počte zamestnancov v danom sektore môže naznačovať trend, ktorým sa budeme ako krajina posúvať aj v nasledujúcom období. Existujú však aj sektory, v rámci ktorých nie sú tieto zmeny v počte IT zamestnancov vysoké.*

Kľúčové slová: *digitalizácia, trh práce, inovácie*

Abstract: *Digitization is one of the most significant trends in the field of innovative change, which significantly changes the functioning of society. The changes resulting from the gradual introduction of new approaches are also reflected in the area of work organization. It is therefore important to examine the impacts and evaluate the changes brought about by the introduction of innovations. The aim of this paper is to assess the impact of digital transformation on selected industries in terms of changing the organizational structure of employees. The authors of the paper examine whether the digital transformation brings with it an increased demand for IT employees. The increase in the number of IT employees in the total number of employees in a given sector may indicate a trend that we will move as a country in the coming period. However, there are sectors in which these changes in the number of IT staff are not high.*

Key words: *digitization, labor market, innovation*

JEL Classification: *E24, J21, J24*

1. ÚVOD

Digitalizácia je jedným z kľúčových pilierov inovačných trendov, ktoré v blízkej aj vzdialenejšej budúcnosti výrazne zmenia trh práce. Dopady digitalizácie na trh práce opisujú mnohí autori v kontexte zmien na trhu práce. Pre autorov Luptáčika a kol. (2021) predstavuje digitalizácia ekonomiky a Priemysel 4.0 nové výzvy a príležitosti, ktorými je možné dosiahnuť vyššiu produktivitu a uľahčiť trhové mechanizmy. Autori ale upozorňujú na zásadné implikácie pre trh práce v súvislosti so zavádzaním digitalizácie. V podmienkach SR potvrdil realizovaný prieskum Autorského kolektívu AZZZ SR (2021) vplyv digitalizácie na organizáciu práce a pracovného času. Viac ako 58 % respondentov v realizovanom prieskume uviedlo pozitívny vzťah medzi digitalizáciou a organizáciou práce a pracovného času. Špecificky respondenti uvádzali nasledovné dopady:

- flexibilnejší prístup k miestu výkonu práce,

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- zjednodušenie procesu komunikácie so zákazníkom,
- možnosť zistenia efektivity práce zamestnanca,
- úspora času pri vybavovaní písomnej agendy, zjednodušenie komunikácie s občanom, zníženie byrokratickej záťaže pre občanov,
- a ďalšie.

Digitalizácia zasahuje do všetkých odvetví a nemožno tvrdiť, že sa jedná primárne len o odvetvia zamerané na informačno-komunikačné technológie (ďalej len „IKT“). Už dnes firmy pôsobiace v akomkoľvek odvetví potrebujú zamestnancov špecializovaných práve na IKT zručnosti. Podľa Európskej Komisie (2016) už dnes mnoho sektorov prechádza rýchlou technologickou zmenou a digitálne zručnosti sú potrebné na všetkých pracovných miestach – od najjednoduchších po najzložitejšie.

2. CIEĽ A METODOLÓGIA

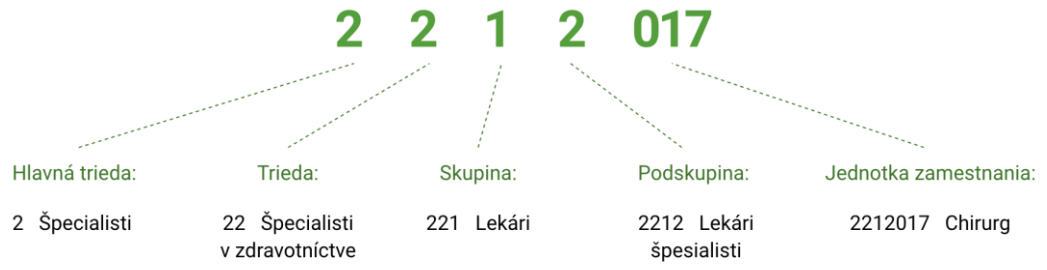
Cieľom predkladanej analýzy je analyzovanie vývoja počtu IT zamestnancov v národnom hospodárstve SR. Porovnaním tohto vývoja možno dospieť k odpovedi na otázku, či sa za uplynulé roky rozšírili podiel IT zamestnancov. V prípade pozitívneho trendu by sa potvrdil významný vplyv inovačných zmien, ktoré so sebou nesie aktuálna priemyselná revolúcia a ktoré by potvrdili významnú potrebu špecialistov z oblasti IT v takmer každom sektore.

Jedným zo zdrojov dát pri tvorbe príspevku je analýza realizovaná pre Asociáciu zamestnávateľkách zväzov a združení SR (ďalej len „AZZZ SR“), pri tvorbe ktorej je spoluautor tohto príspevku súčasťou autorského kolektívu. Analýza s názvom „Identifikácia dopadov digitálnej transformácie na hospodárstvo SR a jednotlivé odvetvia“ bola realizovaná v roku 2021 a jej hlavným cieľom bolo zmapovať a kvantifikovať dopady digitálnej transformácie v podmienkach Slovenskej republiky (ďalej len „SR“).

Pri tvorbe predkladaného príspevku boli dáta spracované v štruktúre dvoch národných klasifikácií:

Národná klasifikácia zamestnaní SK ISCO-08 eviduje 2310 zamestnaní rozdelených do 10 hlavných tried. Tie sú rozdelené podľa úrovne zručností a špecializácie nasledovne:

Obrázok 1. Hlavné triedy národnej klasifikácie zamestnaní SK ISCO-08



Zdroj: www.hisco.sk

Pre účely porovnávania a analyzovania boli vybraté nasledovné zamestnania:

- Analytici v oblasti riadenia a organizácie práce
- Vývojári softvéru
- Systémoví analytici
- Správcovia systémov
- Vývojári a analytici softvéru a aplikácií inde neuvedení

- Riadiaci pracovníci (manažéri) v oblasti informačných a komunikačných technológií
- Technici prevádzky informačných a komunikačných technológií
- Grafickí a multimediálni dizajnéri
- Riadiaci pracovníci (manažéri) v oblasti výskumu a vývoja
- Špecialisti v oblasti telekomunikácií
- Vývojári webových aplikácií a multimediálnych aplikácií
- Dizajnéri a správcovia databáz
- Lektori informačných technológií
- Špecialisti v oblasti predaja informačných a komunikačných technológií
- Weboví technici
- Špecialisti v oblasti databáz a počítačových sietí inde neuvedení
- Technici užívateľskej podpory informačných a komunikačných technológií
- Špecialisti v oblasti počítačových sietí
- Servisní a prevádzkoví pracovníci zariadení informačných a komunikačných technológií
- Technici počítačových sietí a systémov
- Aplikační programátori

Na základe tejto klasifikácie bol spracovaný vývoj počtu zamestnancov na zvolených pozíciách v období rokov 2016 až 2020. Zdroj dát o počte zamestnancov bolo štatistické zisťovanie „Informačný systém o cene práce ISCP (MPSVR SR) 1-04“, ktoré realizuje spoločnosť Trexima Bratislava (MPSVaR SR, 2021).

Štatistická klasifikácia ekonomických činností SK NACE Rev. 2. podľa ktorej boli odvetvia národného hospodárstva rozdelené na zhluky sektorov. Východiskom pri rozdelení je národný projekt Sektorovo riadenými inováciami k efektívnemu trhu práce, v rámci ktorého existuje 24 sektorových rád (Národný projekt Sektorovo riadenými inováciami k efektívnemu trhu práce, realizačné obdobie 2019-2022, dostupné na: https://www.employment.gov.sk/sk/praca-zamestnanost/podpora-zamestnanosti/np-sektorovo-riadenymi-inovaciami-efektivnemu-trhu-prace/).

3. ANALÝZA IT ZAMESTNANCOV V NÁRODNOM HOSPODÁRSTVE SR

V tejto časti príspevku bola autormi spracovaná analýza počtu IT zamestnancov v národnom hospodárstve a v jeho odvetviach. Na začiatku sú porovnané celkové počty zamestnancov a ich nárast v období rokov 2016 až 2020. Následne je národné hospodárstvo rozdelené do 24 sektorov a v rámci každého sú opísané podiely IT zamestnancov na celkovom počte zamestnancov daného sektora. Prostredníctvom týchto dát je možné sledovať trend (klesajúci alebo stúpajúci) v rámci vývoja IT zamestnancov. V záverečnej časti je analyzovaný sektor Informačné technológie a telekomunikácie ako hlavný nositeľ IT zamestnaní.

3.1 Porovnávanie vývoja počtu IT zamestnancov v sledovanom období na jednotlivých pracovných pozíciách v SR

V sledovanom období došlo vo väčšine sledovaných zamestnaní k navýšeniu počtu IT zamestnancov v rámci SR. Najvyšší reálny prírastok možno sledovať na pozícii „Analytici v oblasti riadenia a organizácie práce“, ktorých od roku 2016 pribudlo takmer 3 tisíc. Ďalšie vysoké nárasty boli zaznamenané na pozíciách „Vývojári softvéru“ a „Systémoví analytici“, na ktorých pribudlo viac ako tisíc zamestnancov v uplynulých piatich rokoch. Na druhej strane sledujeme pokles vybraných IT zamestnaní. V sledovanom období ubudlo z pomedzi

sledovaných IT zamestnaní hlavne „Aplikační programátori“, „Technici počítačových sietí a systémov“ a „Servisní a prevádzkoví pracovníci zariadení informačných a komunikačných technológií“. Uvedený pokles IT zamestnancov by mohol vyvrátiť hypotézu o narastajúcej potrebe IT profesií. Je potrebné ale zisťovať potenciálne dôvody poklesu, najmä ak sa jedná o zamestnania ktoré sú pre zavádzanie nových technológií esenciálne. Autorský kolektív AZZZ SR (2021) nachádza spojitosť medzi poklesom IT zamestnancov a zároveň zvyšujúcej sa potrebe IT zamestnancov z dôvodu zavádzania inovačných technológií najmä v súvislosti so samostatne zárobkovo činnými osobami. Zníženie počtu kmeňových IT zamestnancov si možno vysvetliť najmä v súvislosti s rokom 2017, kedy sa paušálne výdavky pre podnikateľov zvýšili zo 40 na 60 % z úhrnu príjmov (https://www.podnikajte.sk/dan-z-prijmov/pausalne-vydavky-2017). Táto zmena sa dotkla najmä živnostníkov a mohla mať vplyv na preferovanie vykonávania práce z pozície tzv. freelancera. Význam slova freelancer: „copywriter, pracujúci na voľnej nohe, samostatne zárobkovo činná osoba či nezávislý pracovník“. Ako uvádza Autorský kolektív AZZZ SR (2021) „väčšina aplikačných programátorov preferuje pracovať ako freelancer, čiže nezapočítavajú sa do počtu zamestnancov, aj keď napríklad dlhodobo pracuje len pre jednu organizáciu. Motiváciou je optimalizácia daňovo odvodového zaťaženia, ktorá prináša benefity tak pre organizáciu, ako aj pre pracovníka.“ V Tabuľke 1 je možné sledovať vývoj počtu zamestnancov na vybraných IT zamestnaných v SR.

Tabuľka 1. Počet zamestnancov na IT pozíciách v období 2016 – 2020 v SR

Názov IT zamestnania	Počet zamestnancov					Rozdiel 2020 vs. 2016
	2016	2017	2018	2019	2020	
Analytici v oblasti riadenia a organizácie práce	8 514	8 082	9 516	10 442	11 313	2 799
Vývojári softvéru	2 818	2 427	3 605	4 468	4 813	1 995
Systémoví analytici	6 170	5 398	6 499	7 252	7 365	1 195
Správcovia systémov	4 105	3 987	4 493	4 635	4 834	728
Vývojári a analytici softvéru a aplikácií inde neuvedení	2 110	1 625	2 105	2 697	2 681	571
Riadiaci pracovníci (manažéri) v oblasti informačných a komunikačných technológií	2 087	1 936	2 314	2 709	2 498	411
Technici prevádzky informačných a komunikačných technológií	3 757	3 285	3 323	3 784	4 062	305
Grafickí a multimediálni dizajnéri	694	1 010	822	945	880	186
Riadiaci pracovníci (manažéri) v oblasti výskumu a vývoja	1 064	1 022	1 149	1 164	1 208	144
Špecialisti v oblasti telekomunikácií	1 346	1 263	1 240	1 201	1 472	126
Vývojári webových aplikácií a multimediálnych aplikácií	128	181	125	239	221	93
Dizajnéri a správcovia databáz	1 128	934	1 069	1 198	1 176	48
Lektori informačných technológií	14	10	11	29	40	27
Špecialisti v oblasti predaja informačných a komunikačných technológií	1 037	967	1 030	775	1 008	-29
Weboví technici	133	128	102	87	66	-67
Špecialisti v oblasti databáz a počítačových sietí inde neuvedení	1 811	1 212	1 822	2 052	1 719	-92

Názov IT zamestnania	Počet zamestnancov					Rozdiel 2020 vs. 2016
	2016	2017	2018	2019	2020	
Technici užívateľskej podpory informačných a komunikačných technológií	1 164	929	854	888	927	-237
Špecialisti v oblasti počítačových sietí	2 648	2 345	2 244	2 162	2 193	-455
Servisní a prevádzkoví pracovníci zariadení informačných a komunikačných technológií	1 302	928	1 083	1 235	677	-625
Technici počítačových sietí a systémov	3 199	2 270	2 470	2 499	2 246	-953
Aplikační programátori	5 542	4 160	4 483	4 723	4 258	-1 284

Zdroj: Štatistické zisťovanie o cene práce ISCP (MPSVR SR) 1-04, Trexima Bratislava

V Tabuľke 2 je vyhodnotený podiel IT zamestnancov na celkovom počte zamestnancov konkrétnych odvetví národného hospodárstva. Pre účely porovnávania bolo využité rovnaké sledované obdobie rokov 2016 – 2020. Cieľom tohto porovnania je poukázať na vývojový trend IT zamestnancov.

Medzi odvetvia s výrazným nárastom počtu IT zamestnancov patria:

- sektor pre energetiku, plyn a elektrinu,
- sektor pre informačné technológie a telekomunikácie,
- sektor pre bankovníctvo, finančné služby, poisťovníctvo,
- sektor pre administratívu, ekonomiku, manažment.

Tabuľka 2. Podiel IT zamestnancov na celkovom počte zamestnancov v období 2016 – 2020 v SR

Názov sektora	2016	2017	2018	2019	2020
Sektor poľnohospodárstvo, veterinárstvo a rybolov	0,11 %	0,08 %	0,08 %	0,07 %	0,08 %
Sektor ťažba a úprava surovín, geológia	0,91 %	0,80 %	0,76 %	0,95 %	0,84 %
Sektor potravinárstvo	0,51 %	0,47 %	0,47 %	0,48 %	0,55 %
Sektor textil, odevy, obuv a spracovanie kože	0,28 %	0,21 %	0,27 %	0,39 %	0,44 %
Sektor lesné hospodárstvo a drevospracujúci priemysel	0,84 %	0,38 %	0,39 %	0,32 %	0,42 %
Sektor celulózo-papierenský a polygrafický priemysel	1,37 %	1,31 %	1,12 %	1,25 %	1,38 %
Sektor chémia a farmácia	1,27 %	1,15 %	1,15 %	1,06 %	0,97 %
Sektor hutníctvo, zlievarenstvo, kováčstvo	1,79 %	1,69 %	1,73 %	1,89 %	1,82 %
Sektor sklo, keramika, minerálne výrobky, nekovové materiály	0,78 %	0,69 %	0,72 %	0,84 %	0,92 %
Sektor automobilový priemysel a strojárstvo	1,36 %	1,33 %	1,23 %	1,37 %	1,48 %
Sektor elektrotechnika	2,71 %	2,45 %	2,40 %	2,73 %	3,06 %
Sektor energetika, plyn a elektrina	4,35 %	4,47 %	4,45 %	5,17 %	5,77 %
Sektor voda, odpad a životné prostredie	0,69 %	0,81 %	0,74 %	0,74 %	0,84 %
Sektor stavebníctvo, geodézia a kartografia	1,88 %	1,22 %	1,36 %	0,98 %	1,63 %
Sektor obchod, marketing, gastronómia a cestovný ruch	1,23 %	0,89 %	1,01 %	1,18 %	1,00 %
Sektor doprava, logistika, poštové služby	0,79 %	0,77 %	0,78 %	0,91 %	1,00 %
Sektor informačné technológie a telekomunikácie	51,09 %	45,41 %	48,75 %	47,89 %	49,72 %

Názov sektora	2016	2017	2018	2019	2020
Sektor bankovníctvo, finančné služby, poisťovníctvo	5,21%	4,88 %	5,65 %	5,51 %	5,75 %
Sektor kultúra kreatívny priemysel	5,02%	4,78 %	4,44 %	6,38 %	6,04 %
Sektor vzdelávanie, výchova a šport	0,80 %	0,72 %	0,81 %	0,87 %	1,01 %
Sektor verejné služby a správa	2,08 %	1,83 %	2,06 %	1,91 %	2,23 %
Sektor administratíva, ekonomika, manažment	2,93 %	3,44 %	3,50 %	3,99 %	4,26 %
Sektor zdravotníctvo, sociálne služby	0,45 %	0,43 %	0,42 %	0,50 %	0,50 %
Sektor remeslá a osobné služby	0,57 %	0,88 %	0,73 %	0,63 %	0,84 %

Zdroj: AZZZ SR, Autorský kolektív, Identifikácia dopadov digitálnej transformácie na hospodárstvo SR a jednotlivé odvetvia, 2021

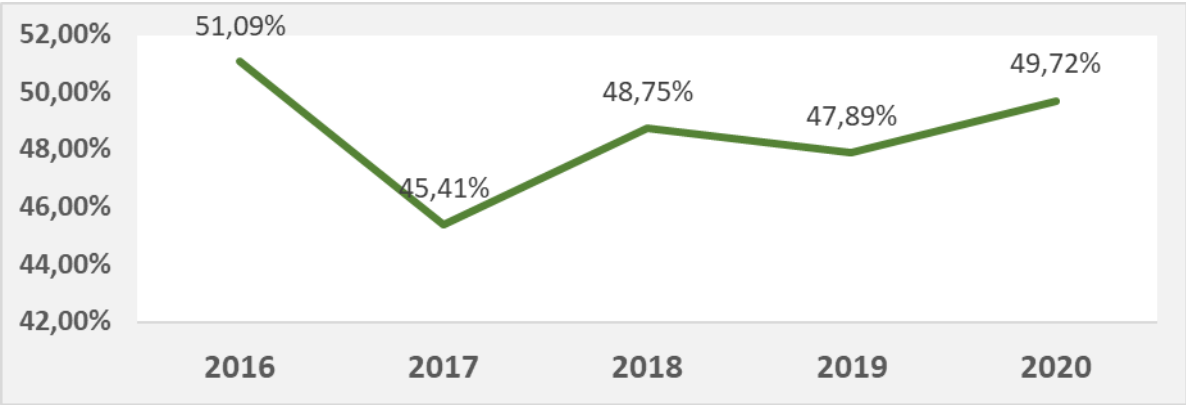
3.2 Porovnávanie vývoja počtu IT zamestnancov v sledovanom období v sektore Informačné technológie a telekomunikácie

Odvetvie Informačných technológií a telekomunikácií je považované za hlavné odvetvie, pre ktoré je príznačný najvyšší podiel IT zamestnancov. Vychádzajúc z národného projektu Sektorovo riadenými inováciami k efektívnemu trhu práce priraďujeme predmetnému odvetviu tri divízie klasifikácie ekonomických činností, konkrétne (https://www.sustavapovolani.sk/clanok-6339):

- 61 Telekomunikácie
- 62 Počítačové programovanie, poradenstvo a súvisiace služby
- 63 Informačné služby

V grafe nižšie je možné sledovať vývoj podielu IT zamestnancov na celkovom počte zamestnancov v sektore Informačné technológie a telekomunikácie. Pokles IT zamestnancov je spôsobený tým, že v sledovanom období rástol počet ostatných zamestnancov v sektore rýchlejšie, ako IT zamestnancov (Štatistické zisťovanie o cene práce ISCP (MPSVR SR) 1-04, Trexima Bratislava). Spomedzi všetkých sektorov sú Informačné technológie a telekomunikácie tým odvetvím, ktoré má suverénne najvyšší počet IT zamestnancov v národnom hospodárstve.

Graf 1. Podiel IT zamestnancov na celkovom počte zamestnancov v sektore Informačné technológie a telekomunikácie v období 2016 – 2020



Zdroj: autorský kolektív AZZZ SR, analýza Identifikácia dopadov digitálnej transformácie na hospodárstvo SR a jednotlivé odvetvia

Rovnakým spôsobom je možné analyzovať každé odvetvie národného hospodárstva a dosiahnuť tak zaujímavé porovnanie vývoja podielu IT zamestnancov v jednotlivých sektoroch.

4. ZÁVER

Predkladaný príspevok mal za cieľ poukázať na zvyšujúci sa podiel IT zamestnancov v odvetviach národného hospodárstva. V uplynulých piatich rokoch došlo k nárastu podielu týchto zamestnancov vo viac ako polovici odvetví. Zvyšná časť národného hospodárstva síce vykazuje pokles zamestnancov, no je potrebné poukázať aj na problematiku freelancerov. Práve tí nie sú vo firmách riadnymi kmeňovými zamestnancami a nevstupujú tak do štatistík o počte zamestnancov konkrétnej firmy. Existujú taktiež príklady, kedy jeden IT freelancer pracuje na diaľku pre viaceré rôzne projekty v rámci rozličných organizácií, čím sa taktiež prispieva k nekonzistentnosti štatistických zisťovaní. Predmetná analýza ale poukázala na to, že postupné zavádzanie nových technológií a inovácií do podnikateľského prostredia si vyžaduje vyšší počet IT špecialistov ako tomu bolo v minulosti.

Dodatok

Príspevok je napojený na projekt Vega č. 1/0037/20 „Nové výzvy a riešenia pre rast zamestnanosti v meniacich sa sociálno-ekonomických podmienkach“ a projekt Vega č. 1/0851/21 "Sociálna ekonomika ako moderný nástroj budovania inkluzívnej spoločnosti v kontexte globálnych zmien a výziev Agendy OSN 2030 pre udržateľný rozvoj".

LITERATÚRA

[1] Kolektív autorov. (2021). *Identifikácia dopadov digitálnej transformácie na hospodárstvo SR a jednotlivé odvetvia.* Bratislava: Asociácia zamestnávateľských zväzov a združení SR.

[2] Európska Komisia. (2016). *Nový program v oblasti zručností pre Európu: Spolupráca na posilnení ľudského kapitálu, zamestnateľnosti a konkurencieschopnosti.* Oznámenie komisie Európskemu parlamentu, Rade, Európskemu hospodárskemu a sociálnemu výboru a výboru regiónov. [online]. Brusel: [online] [cit. 2021-06-09]. Dostupné na internete: <https://eur-lex.europa.eu/legal-content/SK/TXT/PDF/?uri=CELEX:52016DC0381&from=HR>.

[3] Luptáčik, M. a kol. (2021). *Hospodárske a sociálne dopady priemyslu 4.0*. Bratislava: Veda, vydavateľstvo Slovenskej akadémie vied, str. 19.

[4] Ministerstvo Práce, Sociálnych Vecí a Rodiny Slovenskej Republiky - MPSVR SR. (2021a). *Štvrťročný výkaz o cene práce.* [online] [cit. 2021-29-10]. Dostupné na internete: <https://www.employment.gov.sk/files/slovensky/ministerstvo/analyticke-centrum/2020/vykazy2020_prazdne/iscp-mpsvr-sr-l-04.pdf>.

[5] Ministerstvo Práce, Sociálnych Vecí a Rodiny Slovenskej Republiky - MPSVR SR. (2021b). *Národný projekt Sektorovo riadenými inováciami k efektívnemu trhu práce, realizačné obdobie 2019-2022*. online] [cit. 2021-29-10]. Dostupné na: https://www.employment.gov.sk/sk/praca-zamestnanost/podpora-zamestnanosti/np-sektorovo-riadenymi-inovaciami-efektivnemu-trhu-prace/.

[6] Trexima, (2021). Výsledky štatistického zisťovania “Štvrťročný výkaz o cene práce ISCP (MPSVR SR) 1-04.

RISK MANAGER - THE IMPORTANT PROFESSION CURRENTLY

MANAŽÉR RIZÍK - DÔLEŽITÁ PROFESIA V SÚČASNOSTI

Mária HUDÁKOVÁ[46]
Peter KARDOŠ[47]
Patrik LAHUTA[48]

Abstract: *The paper presents a proposal of competencies, tasks, and responsibilities for the creation of a job position - risk manager, resulting from the current requirements of practice in Slovakia and respecting global trends. The job position of a risk manager should be directed to strategic management and should take responsibility for risk management, creating and setting rules, frameworks, and limits for risk management in order to minimize the negative impact of risks. The profession of a risk manager should be a permanent job performed in accordance with theoretical training and practice, which will bring in the managing of an organization, as well as in times of pandemic, increased likelihood of achieving objectives, greater resilience, increased preparedness for crisis situations, increased application of preventive measures, increased value, and competitiveness of an organization.*

Key words: *risk manager, job position, practice requirements, competencies*

Abstrakt: *Podstatou príspevku je prezentovať návrh vytvorenia pracovnej pozície – manažéra rizík, tvorenou kompetenciami, úlohami a zodpovednosťou manažéra rizík, vyplývajúcich zo súčasných požiadaviek praxe na Slovensku a rešpektovaním celosvetových trendov. Pozícia manažéra rizík, by mala byť smerovaná do strategického riadenia a mala by niesť zodpovednosť za manažment rizík, vytvárať a stanovovať pravidlá, rámce a limity manažmentu rizík s cieľom minimalizovať negatívne dopady rizík. Profesia manažéra rizík by mala mať trvalé pracovné zamestnanie vykonávané v súlade s teoretickou prípravou a praxou, ktorá prinesie v riadení organizácie aj v čase pandémie zvýšenie pravdepodobnosti dosahovania cieľov, väčšiu odolnosť, zvyšiu pripravenosť na krízové situácie, zvýšenie uplatňovania preventívnych opatrení, zvýšenie hodnoty a konkurencieschopnosti.*

Kľúčové slová: *manažér rizík, pracovná pozícia, požiadavky praxe, kompetencie*

JEL Classification: *L22, M12, M51*

1. INTRODUCTION

The current state of the business environment is largely influenced by the pandemic situation caused by Covid 19 worldwide. Unpredictable development of the organization's environment, changing sources of risks create situations that affect the quality and efficiency of managerial decision-making processes (Buganová et al., 2021). This uncertainty and the requirements of practice raise the need for prevention and the importance of creating a risk manager profession. While in some countries it is common for the job position of a risk manager to be included in the organizational structure of companies, banks as well as public administration bodies, in Slovakia the job position of the risk manager is mainly in financial institutions, in industrial enterprises, but it mostly results from the responsibility for a certain area within the standard job position of a manager (Delloite, 2020; IRMI, 2021). These conclusions are also confirmed by the results of the VEGA project at FBI UNIZA

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implemented by the authors of the paper focused on the evaluation of the current state of application of corporate risk management in Slovakia, in the years 2017-2020. The results show that almost 70.26% of companies in Slovakia would welcome the job position of the risk manager in their company (Hudáková et al., 2021).

2. OBJECTIVE AND METHODOLOGY

The aim of the paper is to present a proposal for the creation of a job position - risk manager, consisting of competencies, tasks and responsibilities of the risk manager, resulting from the current requirements of practice in Slovakia and respecting global trends.

The analysis and comparison of the existing knowledge to the job position of the risk manager confirms the high topicality of the issues addressed. Various scientific methods were used to meet the stated goal of the paper:

- The basic initial analysis was used in the process of evaluating the position of the risk manager's position in the world on the basis of various global surveys, e.g. companies AICPA, FERMA, ACCA.
- The key methodological source is our own research aimed at finding out the current state of application of risk management and the position of risk manager in companies in Slovakia. The research is part of the VEGA No. project. 1/0243/20 - Integrated risk management system in the conditions of contemporary changes in the enterprise environment in Slovakia realized during the years of 2018-2020.
- Generalization of current knowledge about the importance of the job position of risk manager for companies in Slovakia resulting from global trends.
- Assessment of the findings for the proposal of the concept of creating a job position - risk manager resulting from the innovation of the study program Crisis Management at the Faculty of Safety Engineering UNIZA.
- Proposal of competencies (qualifications - knowledge, skills, personal skills), roles and responsibilities to create a job position - risk manager.

3. PROBLEM SOLUTION, RESULTS, DISCUSSION

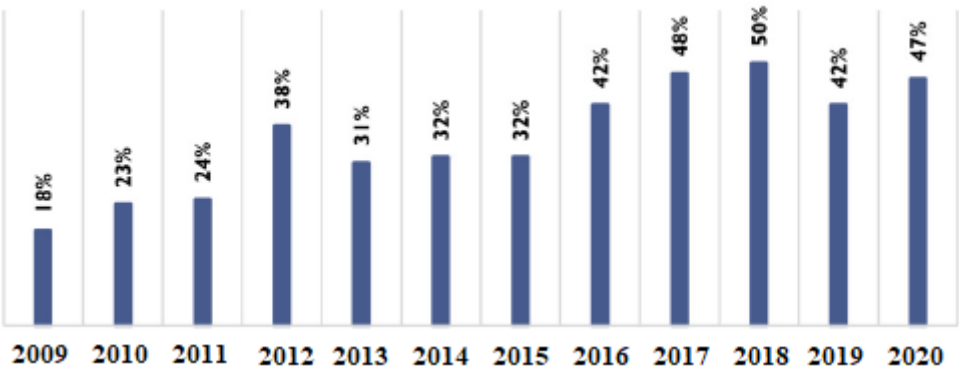
3.1 Evaluation of the position of the risk manager in the world

In 2020, AICPA Business and Industry Group conducted a global risk management survey in 420 companies (130 large companies - revenues of more than $ 1 billion, 113 public companies, 108 financial institutions, 116 non-profit organizations). The results of the survey show that the design and implementation of the risk management process cannot be done without specialized management, namely the position of *risk manager* (CRO - Chief Risk Office). Assigning responsibilities to a person for risk management is crucial for companies to succeed in the proper management of corporate risks. Managers responsible for individual processes know their risks in the process, but it is important to ensure the integration of corporate risks throughout the company, providing an overall view of the risk management that can be implemented by the chief risk manager. It follows that companies need a person responsible for risk management who will organize and coordinate the organization's efforts towards risks. This person should act as Chief Risk Officer (CRO) or Senior Executive Officer (Risk Manager) (AICPA, 2020).

The AICPA survey shows that, although organizations have been involved in risk management for a long time, the importance of the position of risk manager has changed completely over the last two decades. Compared to the number of risk managers 10 years ago, the number of risk managers has now more than doubled. However, more than half of the companies currently do not use the risk manager, fig. 1. The highest increase in the created

job position of risk manager in companies was in 2018, when it was 50% of the addressed companies (AICPA, 2020).

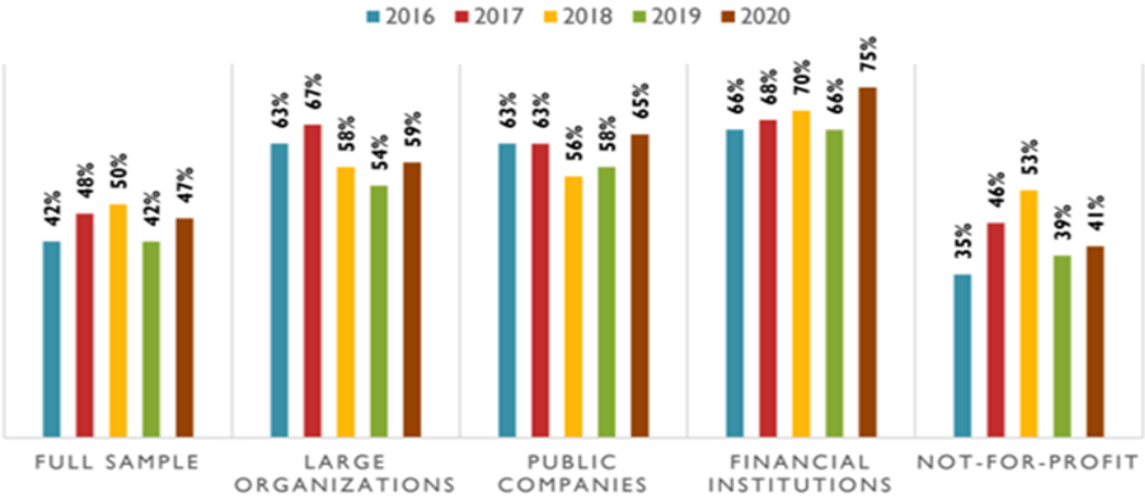
Figure 1. Percentage of created risk manager jobs in individual years in companies around the world



Source: AICPA 2020

Figure 2 shows the percentage of created positions of risk manager in individual years in companies in the world from the point of view of the division of the organization, i.e. large enterprises, public companies, financial institutions, non-profit organizations. Financial institutions as well as public companies have the highest number of created risk manager positions. Interesting results show that non-profit organizations have also created a job as a risk manager (AICPA, 2020).

Figure 2. Percentage of organizations with a created position of risk manager in the specified years 2016-2020



Source: AICPA 2020

Given the events of 2020 and the uncertainty throughout the business and economic environment, it seems that all types of organizations are reconsidering the need to appoint someone to take up the position of risk manager (Dvorský et al., 2021). This is confirmed not only by a survey carried out by AICPA but also by the statements of the CEOs of large

companies in the world, as well as other studies carried out by various authors or companies (Cera et al., 2019; Hollá, 2018; Fraser, Simkins, 2016). The survey shows that there is **a visible increase in the positions of risk manager** in any of the organizations surveyed compared to the previous year. This is especially valid for public companies and financial services organizations. The key results of the survey were findings focused on the reasons for not creating a job position of risk manager according to individual organizations and the overall joint assessment, Table 1 (AICPA, 2020).

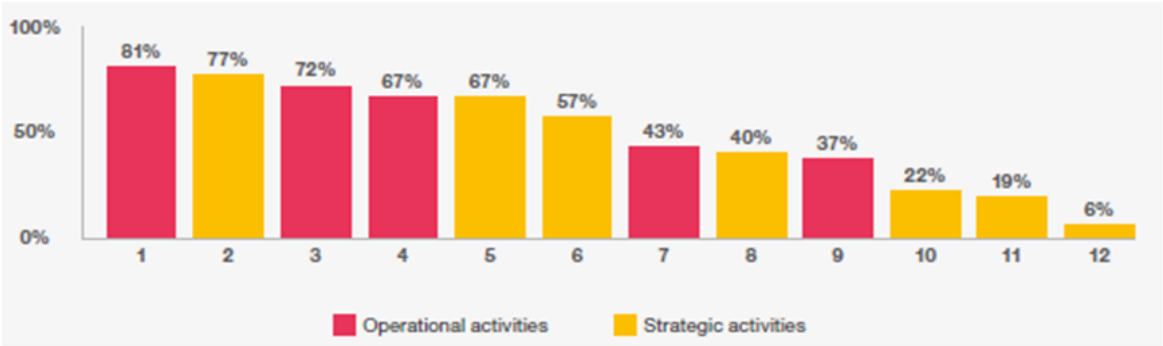
Table 1. Barriers to risk manager engagement

Barriers to risk manager engagement	Overall	arge companies revenue > $ 1 billion	Public companies	Financial institution	Non - profit organizations
Risk monitoring only	27%	22%	21%	34%	24%
Lots of related needs	20%	16%	25%	12%	19%
There are no requirements to change the approach to risk management	18%	18%	12%	30%	22%
The costs to the risk manager outweigh the benefits	12%	12%	4%	6%	10%
Lack of support from strategic management	12%	16%	21%	3%	16%
Complicated set processes	11%	16%	17%	15%	9%

Source: AICPA 2020

The European company FERMA, as part of its survey conducted in 2020, in which it addressed 764 companies from 34 countries in Europe, identified the **most common activities for which the company's risk manager is responsible**. The results of the survey show the following activities, fig. 3 (FERMA, 2020):

Figure 3. Percentage of strategic and operational risks taken by risk managers in companies in Europe



Source: FERMA 2020

1. Development of risk maps: risk identification, analysis, evaluation, prioritization and reporting.
2. Development, implementation and evaluation of a risk culture throughout the organization.
3. Definition of the company's risk management, framework, processes and / or tools.
4. Design and implementation of risk controls / prevention.

5. Harmonization and integration of risk management as part of the business strategy.
6. Definition of risk strategy / statement.
7. Development and integration of business continuity management/emergency management/ crisis management/incident response.
8. Assistance to other functional areas in contract negotiation, project management, acquisitions and investments.
9. Definition of compliance (management, framework, insertion and assurance).
10. Design and implementation of risk financing strategy and solution of associations.
11. Analysis of capital projects and delivery of business plans.
12. Other.

The development of risk maps, the integration of risk culture into the organization and the implementation of the risk management framework are the top 3 activities of a risk manager. 43% of risk managers are involved in crisis management and business continuity planning, which are increasingly in the center of organizations' strategies to solve cyber attacks, terrorism and the current global spread of Covid-19. The individual activities were assessed according to the level of management performed, i.e. strategic or operational level, fig. 3. There is a balance between operational and strategic activities between the six most important activities under the responsibility of risk managers. The development of strategic activities by risk managers observed in 2018 has stabilized globally in terms of risk culture, strategy and willingness to take a risk. However, the share of risk managers' activities responsible for harmonizing and integrating risk management as part of the business strategy has decreased from 75% to 67% (FERMA, 2020).

In order to be able to carry out strategic or operational activities effectively, the risk manager should have certain qualifications (Agarwal, Ansell, 2016). The company's risk manager should meet several requirements in order to perform its function as efficiently as possible (Buganova, Simickova, 2019). ACCA recommends that the choice of risk manager take into account the so-called Risk Intelligence, abbreviated RI-Skeet. This concept is based on the measurement of risk intelligence, which can be used to determine the extent to which the selected person meets the required risk intelligence. The *Risk Intelligent* **(**RI-Skeet) concept includes (ACCA, 2021): S – Skills, K – knowledge, E – experience, E – education, T– training. It is a test of basic skills, knowledge, experience, education, training in terms of effective risk management throughout the company. The risk manager should have a balanced risk intelligence that will allow him to fully understand the dynamics of risk management, not only in risk reporting to strategic management but also at the operational level of risk management (executive component of risk management) (Bogodistov, Wohlgemuth, 2017; Brachert et. al, 2017).

These statements are also confirmed by the results of other surveys and studies (IRM, 2021; Rozsa et al., 2021; FERMA, 2020; Avilova et al., 2017), which claim that *risk managers represent added value for the company, but need to have the appropriate qualifications.* According to FERMA (2020), 64% of companies think that a risk manager should have a special qualification in risk management. Two thirds of risk managers currently have a risk management qualification, 67% have a university or business degree and 50% have a vocational education, 20% have both (university or business education and vocational education). The proportion of risk managers with a diploma is similar across Europe. The share of risk managers with a university or business degree is higher in Western Europe at 45% than in Northern Europe, where it is falling to 28% (FERMA, 2020).

3.2 Evaluation of the position of the risk manager in Slovakia

In the years 2018 - 2020, the authors of the article carried out empirical research. The main goal of the research was to identify key business risks in companies in Slovakia, to evaluate the state of implementation of risk management as well as the position of risk manager in

companies. A total of 422 business owners and managers in Slovakia took part in the research (Hudáková et al., 2021)

One of the priority topics was to find out how business owners perceive the need and interest in dealing with risk management, ie:

- 26.07% of companies stated that the reason for the application of risk management was the prevention of property damage and personnel injuries,
- 22.5% of companies see the importance of the cost of prevention being lower than dealing with the consequences of negative events,
- 18.92% of companies think that the safety of staff in the workplace will increase,
- 16.51% of companies deal with monitoring and risk management mainly due to increasing the competitiveness and resilience of the company,
- 15.99% of companies hope that the chances of achieving the set goals and plans of the company will increase.

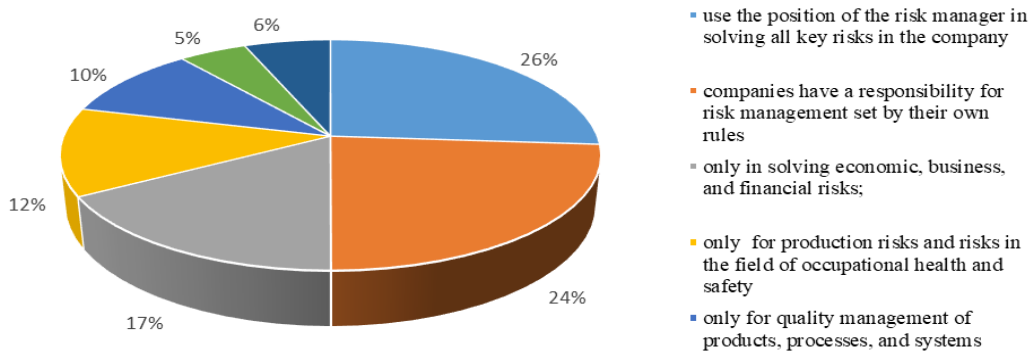
Part of this survey was to identify responsibility for risk management. The results show that business owners and managers have defined responsibilities as follows:

- in 35.93% of companies, the owner of the company is responsible for risk management,
- in 22.5% of companies they are the owners of the main processes,
- in 19.37% of companies an authorized manager from the top management,
- in 13.6% of companies it is a specialist in the position of risk manager,
- in 9.1% of companies it is a person designated by a superior employee.

The following results show that almost *70.26% of business owners and managers would welcome the position of risk manager* in their company (fig. 4), i.e.:

- 26.19% of companies would use the position of risk manager in addressing all key risks in the company,
- 23.88% of companies have a responsibility for risk management set by their own rules,
- 16.77% of companies are interested in risk manager only in solving economic, business and financial risks;
- 12.35% of companies are interested in a risk manager in solving production risks and risks in the field of occupational health and safety;
- 10.17% only for quality management of products, processes and systems;
- 4.78% in dealing with project risks;
- 6.05% does not need such a position in the company.

Figure 4. Percentage share of interest in the job position of risk manager in a company in Slovakia



Source: own processing

3.2 Proposal of competencies, tasks and responsibilities for the creation of a job position - risk manager

The Faculty of Security Engineering of the University of Žilina (FBI UNIZA) has a special position among educational institutions that also deal with the issue of risk management and are trying to prepare experts for practice. The FBI has a managerial-technological focus and educates university-educated professionals for the needs of business entities and public administration. The issue of risk management appears in selected subjects of the crisis management study program (Veľas et al., 2018). On the occasion of the planned accreditation in Slovakia, the study program Crisis Management was innovated, which respects current global trends in business management, higher education, as well as requirements from practice and the labor market. A more significant strengthening of subjects related to the theory and practice of risk management in the company was created, tab. 2. The basic change consists in strengthening those subjects in which the *specific competencies necessary for the position of risk manager will be acquired and deepened.*

Based on long-term experience in the problem and from a comparison of different approaches applied in several countries, it is possible to summarize that the risk manager is responsible for:

- the readiness of the system to analyze the situation, monitor the development of sources of risk, respond in a timely manner to the symptoms of changes in the environment,
- the preparation and timely implementation of effective preventive anti-risk measures, for readiness to manage the organization during a crisis situation,
- providing the necessary information and for coordinating the entities involved in resolving the situation and restoring the functions of the system.

The risk manager should perform tasks aimed at identifying, analyzing and assessing the risks associated with the operation of the business and proposing risk reduction measures. It presents improvements, applies methods and uses approaches to streamline processes and prevent corporate crises. The risk manager provides the company's management (top managers) with the necessary support in terms of procedures and methods that will allow them to more effectively anticipate possible changes as well as their impact on the company's goals. Can assess the strengths and weaknesses of management, support and key processes and improve their management. The stated *responsibilities and tasks of the risk manager* require specific *qualifications*, i.e. knowledge, skills and personal prerequisites, on the basis of which it is possible to determine the *competencies of the risk manager* and create a job position of the risk manager in practice, tab.2.

Current practice respects the need to train risk managers and responds to current changes in the environment in Slovakia but also in the world (Gavurova at el. 2021; IRMI, 2021; Dvorsky et al., 2019). The position of risk manager is important especially in strategic decision-making in setting the company's goals and should be responsible for risk management, creating and setting rules, frameworks and limits for risk management in order to minimize the negative impact of risks. This is related to the need to monitor the development of possible sources of risk, to the analysis of possible impacts as well as to the preparation of anti-risk measures at the strategic level. The role of the risk manager is to integrate operational objectives into the company's strategy and all key processes in the company, so that it is possible to assess risks in a timely and comprehensive manner, determine their importance for the overall threat to the company. The risk manager should be a possition for which the specific risk is relevant to his job and which has the resources, knowledge and authority to manage and coordinate mitigation and monitoring measures.

Table 2. Required competencies for the position of risk manager

Professional knowledge	Risk management, Financial risk management, Economic risks, Software support in risk management, Risk management methods and techniques, Quality management risks, Production risk management, Industrial process risks, Integrated risk management, Information risk management, Project risk management, Personnel risk management, Personality of risk manager, Crisis management of a company, Continuity management, Creation of crisis scenarios.
Professional skills	▪ Review and resolve management disagreements. ▪ Forecast of possible effects of the external environment on the company. ▪ Assessment and proposal to reduce risks in the internal environment of the company. ▪ Proposal of measures to reduce risks and take advantage of opportunities in the company. ▪ Control and decision-making on adjustments to the company's processes in order to meet its objectives. ▪ Proposal for adjustment of goals and their control in the company. ▪ Proposal of measures to improve the system of internal management. ▪ Assess the suitability and effectiveness of the proposed risk minimization measures. ▪ Assessing and influencing interpersonal relationships and internal communication.
Interpersonal skills	▪ Analyzing and solving problems ▪ Flexibility in thinking (adaptability, flexibility ...) ▪ Creativity ▪ Communication (dealing with people, ability to express oneself) ▪ Organizing and planning work ▪ Personal development ▪ Teamwork ▪ Presentation
Personality prerequisites	Analytical thinking, Practical thinking, Imagination, Assertiveness, Initiative, Reliability, Precision, Internal stability

Source: own processing

CONCLUSION

The benefit of the paper is the evaluation of the position of the risk manager in the world and in Slovakia on the basis of surveys in the issues addressed. Innovation of the study program Crisis Management at KKM FBI UNIZA, accepts global trends, growing needs and requirements of practice, professionally and methodically prepare experts in the field of risk management, i. risk managers. The established competencies, responsibilities and tasks create the job position of risk manager, which will bring in the management of the organization and in times of pandemic increase the likelihood of achieving goals, greater resilience, increase preparedness for crisis situations and increase the application of preventive measures. The proposed solutions are benefit to FBI UNIZA management to reach more potential students for the position of risk manager. The results of the paper can be used at other universities with a similar focus and also for other study programs in which the interdisciplinarity of the issue is manifested not only in Slovakia but also in foreign countries.

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REFERENCES

[1] ACCA. (2021). *Risk and the strategic role of leadership*. [online]. [2021-01-31]. Available from: https://www.accaglobal.com/sg/en/professional-insights/risk/risk-and-the-strategic-role-of-leadership.html.

[2] Agarwal R. & Ansell J. (2016). Strategic Change in Enterprise Risk Management. *Strategic change-briefings in entrepreneurial finance,* vol. 25, iss. 4, pp. 427-439.

[3] Avilova, T. V., Voytolovskiy, N. V., Dikareva, V. A. & Chernysheva, A. M. (2017). Efficiency of applying risks management systems at industrial enterprises under market conditions. *Journal of Applied Economic Sciences*, vol. 12, iss 3, pp. 766-771.

[4] AICPA (2020). *The state of risk oversight 2020*. [online]. [2020-10-05]. Available from: https://www.cgma.org/content/dam/cgma/resources/reports/downloadabledocuments/ erm-research-study-2019.pdf.

[5] Bogodistov, Y. & Wohlgemuth, V. (2017). Enterprise risk management: a capability-based perspective. *Journal of risk finance*, vol. 18, iss. 3, pp. 234–251.

[6] Brachert, M., Hyll, W. & Titze, M. (2017). On the simultaneity bias in the relationship between risk attitudes, entry into entrepreneurship and entrepreneurial survival. *Applied Economics Letters*, vol. 24, iss. 7, pp. 477–480.

[7] Buganova, K., Luskova, M., Kubas, J., Brutovsky, M. & Slepecky, J. (2021). Sustainability of Business through Project Risk Identification with Use of Expert Estimates. *Sustainability*, vol. 13, iss 11, nr. 6311, doi: 10.3390/su13116311.

[8] Buganova, K. & Simickova, J. (2019) Risk management in traditional and agile project management. *In: 13th International Scientific Conference on Sustainable, Modern and Safe Transport (TRANSCOM)*. Novy Smokovec, Slovakia, vol. 40, pp. 986-993, doi: 10.1016/j.trpro.2019.07.138.

[9] Çera, G., Belás, J. & Strnad, Z. (2019), Important factors which predict entrepre-neur's perception in business risk. *Problems and Perspectives in Management*, vol. 17, iss. 2. doi: 10.21511/ppm.17(2).2019.32.

[10] Delloite (2020). *Extended enterprise risk management survey* [online]. [2020-11-08]. Available from: https://www2.deloitte.com/us/en/pages/risk/articles/third-party-risk.html.

[11] Dvorsky, J., Belas, J., Gavurova, B., & Brabenec, T. (2021). Business risk management in the context of small and medium-sized enterprises. *Economic research – ekonomska istrazivanja*, vol. 34, iss. 1, pp.1690-1708. doi: 10.1080/1331677X.2020.1844588.

[12] Dvorsky, J., Petrakova, Z. Zapletalikova, E. & Rozsa, Z. (2019). Entrepreneurial propensity index of university students. The case study from the Czech Republic, Slovakia and Poland. *Oeconomia copernicana*, vol. 10, iss 1, pp. 173-192. doi: 10.24136/oc.2019.009.

[13] FERMA 2020. *European rik manager reort*. [online]. [cit.2020-03-13]. Available from: https://www.ferma.eu/publication/the-european-risk-manager-report-2020-key-findings/.

[14] Fraser, J. R. S. & Simkins, B. J. (2016). The challenges of and solutions for implementing enterprise risk management. *Business horizons*, vol. 59, iss. 6, SI, pp. 689–698.

[15] Gavurova, B, Belas, J., Cepel, M. & Kmecova, I. (2021). Perception of the Quality of Educational System for Entrepreneurship - Comparative Analysis. *Acta polytechnica Hungarica*, vol. 18, iss. 3, pp. 65-86.

[16] Holla, K. (2018). Adapting the Directive SEVESO III in the Slovak Enterprises and Identifying Problem Areas during the Years 2013-2017. In: *22nd International conference on circuits, systems, communications and computers (CSCC 2018).* Majorca, SPAIN, vol. 210, nr. 02020, doi: 10.1051/matecconf/201821002020.

[17] Hudakova, M., Masar, M, Vodak, J., Lahuta, P., Ciechomski, W. & Gabrysova, M. (2021). Personnel risks and their impact on business in the V4 countries. *Polish journal of management studies*, vol. 23, iss.1, pp. 188-203, doi: 10.17512/pjms.2021.23.1.12.

[18] IRMI. (2021a). International Risk Management Institute, [online]. [2021-06-05]. Available from: https://www.irmi.com/; https://www.theirm.org/.

[19] Rozsa, Z., Belas, J., Khan, K.A. & Zvarikova, K. (2021). Corporate social responsibility and essential factors of personnel risk management in SMEs. *Polish journal of managemet studies*, vol. 23, iss. 2, pp. 449-463, doi: 10.17512/pjms.2021.23.2.27.

[20] Vel'as, A., Sventekova, E., Holla, K, & Svetlik, J. (2018). Increasing the attractiveness of study programs in the field of security and safety. In: *Edulearn18: 10th International conference on education and new learning technologies*, Palma, SPAIN, pp. 4135-4140.

THE VALUES OF AN INDIVIDUAL AS PART OF THE LOCAL COMMUNITY IN YENISEI SIBERIA AND THEIR RELATIONSHIP TO THE POTENTIAL VALUE OF AN EMPLOYEE TO EMPLOYERS

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Abstract: *A variety of mechanisms are used in managing a workforce. It is the view of the authors that the key tools are selection and recruitment. The data from the study revealed that the role of human values in creating and managing a workforce is minimal: the main method of personnel selection is passive recruiting aimed at identifying professional competences and minimising the role of social and communicative competences and personal values. Beyond the usual selection methods, we propose to focus on personal values and to use associative methods as part of active recruitment. Based on the results of the study on the current state of self-awareness of the residents of Yenisei Siberia with regard to their own prospects, groups of associations that correlate with the basic values of the respondents have been identified. The more the values of job seekers coincide, the higher the level of well-being of the workforce and the more effective corporate governance is.*

Key words: *workforce management, personal values, socio-psychological climate, associative techniques, self-awareness of the residents of Yenisei Siberia.*

JEL Classification: *J2, J8, J24.*

1. INTRODUCTION

The communication processes and changes occurring in the workforce comprise a complex object of management. It is obvious that the understanding of the above processes development might have multiple interpretations. The management processes and values which are representative for the company and the established team also encounter problems with individual or group values within the company staff. The choice of a management type and its methods is often criticized due to current trends (e.g. overuse of AGILE, SCRUM and other methods). The factors that influence a company development cannot always be fully or properly taken into account. It is also impossible to exclude destructive influences caused by a crisis, sudden market fluctuations, or spontaneous events of man-made or natural origin which also create diffusion in the body of the company corporate structure. Under these conditions, the solidity of a corporation can be backed by adherence to not always obvious personal and / or group values (for example, territorial patriotism, religious unity, social conformity).

One of the mechanisms of corporate governance activity that has proven to be effective is personnel selection and recruitment. In addition to the usual selection methods (solving case studies, competence-based interviews, assessment centre, and psychological testing, for example using the DISC methodology), we suggest focusing on personal values and using associative methods as part of active recruitment.

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1.1 Features of workforce management

People participate in most stages of production and bring in some uncertainty into the processes. Production management is aimed at reducing this type of uncertainty by taking into account numerous parameters of human behavior.

Any workforce belongs to complex systems that have to maintain balance in a situation of uncertainty and increase its performance in normal stable conditions. In the process of the workforce formation attention is most often paid to the human resources level of professional training and to the development of formalized regulations, contracts, laws, etc. However, in practice complexity of human behavior exceeds the possibility of control based on formal requirements. It is also important that work life in compliance with a large number of rules and strict control is characterized by low performance (Ayoko, Konrad, Boyle, 2012).

People in the modern workforce are taking an increasingly subjective role, turning from a tool or a resource into a powerful force. Team management is possible not only through the motivation of human behavior by economic or organizational and administrative methods, but primarily through an increase in the social maturity of the team, its active participation in the strategic planning of the organization (Babintsev, 2017).

Our hypothesis is that the formation and cohesion of a workforce can be achieved more quickly if individual psychological characteristics, encompassing core values, psychological traits and the level of social competence, are taken into account when selecting employees.

This method of team management is especially relevant in project activities, which are often implemented in unstable and difficult to predict conditions, as a result of which the need for flexible project management increases (Belyuchenko, 2015). Both iterative and incremental project management methods (AGILE-approach and SCRUM) and classical target programs are based on communication values: the importance of people and interactions is proclaimed, rather than processes and tools (Bodtker, Jameson, 2001). The impact of the psychological climate on the efficiency of a workforce cannot be overestimated. This, in turn, depends on similarities between employees' life values and their level of social competence.

1.2 Active recruiting as a way to find motivated employees

Modern recruiting methods can be divided into passive and active. The passive recruiting method is the simplest, inexpensive, but labor-intensive technique that forces a recruiter to work with a large flow of applicants and takes a lot of time to work with questionnaires, interviews, etc. In this case, recruiters primarily evaluate professional competence; they do not have time to pay attention to psychological features of a candidate or to learn their personal values, life objectives and motivations.

Active personnel searching methods are used in cases where a person is recruited for a managerial position - an exclusive specialist for a challenging vacancy. Not only active applicants are considered as candidates, but also employed citizens. The active recruiting method also includes “preliminaring”, i.e. attraction of university students, young specialists for internships or training, with subsequent employment. “Preliminaring” allows the formation of a strong and motivated workforce since they have similar values and motivations, which were laid down during their academic studies and internships.

2. PROBLEM FORMULATION AND METHODOLOGY

The work uses data from the two-component interdisciplinary study: interviews with companies’ representatives – employers; and interviews with residents who are employed.

The authors believe that the scheme, which is proposed to be used as a basis in the work program, can help to achieve the objectives of this study.

Since here we are talking about the categories of specialists working with human resources (HR), about managerial decisions aimed at the formation of work teams, and about the search for a decent job, the authors distinguish three groups of respondents: HR professionals, managers (decision makers) and potential employees. Among the factors that the authors propose to consider as extremely important is the employee's commitment to the community formed by territorial attribution. This is due to the conditions of relatively low mobility of Russian residents, long distances, and transport isolation of large territories from the main and central parts of the country. In the Yenisei Siberia - as in the Far East, in the North-East of Russia - these conditions are more pronounced.

The main categories of interdisciplinary research are employees' professional competencies, employees' personal values, and company values. The study tracks the verbalization of these categories, in other words, whether these categories are being talked about or just thought about.

2.1 Interview with company representatives

In July-August 2021, a sociological survey was conducted in the Krasnoyarsk Territory applying the interview method. In the companies and organizations of the region two types of respondents were interviewed: HR specialists engaged in recruitment and company executives. The targeted sampling method was chosen, including recruiters and managers from the governmental and business spheres in the amount of 42 people from 21 companies.

The purpose of this study was to determine the main methods of personnel selection and to identify the role of the applicants' personal values in the decision to select them for a position.

The objectives of the study are: to identify the main approaches to the selection of personnel; to determine the preferred qualities of social competence and personal values of applicants; to ascertain the diagnostic techniques used by recruiters to establish the personal and value characteristics of the applicant; to identify gender preferences in the selection of personnel.

2.2 Interview with residents of Yenisei Siberia

In the summer of 2020 an interdisciplinary study was conducted in order to test the design method (the method of associations) to reveal the current state of self-awareness of Yenisei Siberia residents in terms of their own prospects for living there and of projecting their personal and collective future. Research method was semi-formalized interview with the inclusion of the projective technique of verbal associations and the qualitative method of biographical research. Research sample was a random sample of 120 respondents. The general population is represented by residents of the following settlements: Turukhansk, Staro-Turukhansk, Ilanskoe.

The nature of the research method is mediated by the essence of public self-awareness, which reflects the social experience of people living in the same territory, but in different conditions and possessing varied knowledge, habits, and aspirations. Emotional and rational elements of self-awareness can manifest themselves both in an indiscreet psychological background (in the form of emotional assessments) and in specific identified events. To study the irrational components of the self-awareness of Yenisei Siberia residents, the projective technique of verbal associations was used.

The questionnaire included the following items: biographical data (such as full name, place of birth, studies, marital status, interests, and occupations), images associated with the place of

residence (features, activities, notable personalities, beliefs and legends). Local words and expressions were noted separately. In order to identify associations related to the place of residence, the following questions were asked: "What does Turukhansk (or any other settlement) mean to you?", "What images does your settlement evoke in you?" It should be noted that one respondent could name several associations.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

3.1 Results of interviews with company representatives

The main recruiting method in companies and organizations of the Krasnoyarsk Territory is passive recruiting. “We are talking with applicants for the position. We are looking at their profile". First of all, HR specialists assess professional competencies; managers are also guided by the professional level of potential employees. Not a single respondent noted that they pay attention to the psychological characteristics of a person, their personal values. One third of HR specialists and half of the interviewed managers noted the importance of potential employees' knowledge of a company's values, familiarity with the company's mission, understanding the differences from competitors. It should be noted that the respondents mentioned the company values when answering the question "Do you take into account the value-based characteristics of applicants when selecting personnel?" The most common answer was “Yes. They must correlate with the values of the company. If the company proclaims family values, then the preference will be for a candidate with family and children". Thus, the company does not care about the personal values of the applicant, their life goals, and motivation. It is only important how the potential employee shares the values of the company.

This means that the diagnostic techniques of personal and value-based characteristics are not applied in companies. Instead of various methods, recruiters use stereotyped subjective observation: “If we select a person for a specific project, then the roles that they will play in it are important: if we need a creator, then we choose an active and energetic one; if a team player is needed, then soft and correct; if a performer, then reliable and diligent". Only in three large companies, respondents noted that they use psychological testing to select candidates for a status position. Six interviewed company’s representatives noted gender preferences in workforce selection. “Personally, I have no preferences, but clients are more likely to deal with a male employee because they are believed to be more professional than females. However, without bias women can be more professional than men".

Unlike recruiters, company leaders more often referred to the quality of employees’ social competence. In different spheres their own priorities vary: in the field of media - responsibility, prompt problem solving, work ethics, the ability to identify trends, flexibility in decisions are important; in sales - communication skills, resistance to stress, responsiveness, ambition, the ability to quickly adapt to changes; in the field of energy managers more often note diligence, initiative, teamwork, honesty. Less than a third of managers mentioned the possibility of a positive influence of personal values associated with birth and residence in a certain territory on the recruitment decision: "Because they understand the context of reality and are familiar with regional experience". This is mainly the sphere of public administration and communications. The heads of sales and energy sectors noted that living in a certain territory has no connection with professional competencies and work specifics.

The leaders of several polar Krasnoyarsk companies believe that the main qualities that can be expected from job applicants are professionalism and hard work, interest in the work performed, in the profession, honesty in relations with the work collective. One of them added that his former leader liked to hire athletes who played volleyball, girls with good looks and

other properties. But this is all fraught with consequences, because the company has collapsed. Another leader said: "Why do I need a man who plays the balalaika when I need to repair an old collapsed tractor in the tundra, and then drive it to Tmutarakan (that is, no one knows where)." Interview findings: HR specialists use a passive method of personnel selection, focusing on professional competencies. Managers also concentrate on the company interests and pay little attention to the informal needs of employees, to a favorable psychological climate in particular. Thus, selection of people for a team, based on psychographic characteristics is not a priority for company's representatives.

3.2 Results of interviews with residents of Yenisei Siberia

Answers to the questions: "What does Turukhansk (Staro-Turukhansk, Ilanskoe) mean to you?", "What images does your village (city) evoke in you?" were obtained in the form of associations and emotionally charged facts. The respondents found it difficult to verbalize personal values, expressed in this case through attachment to the place of residence due to the fact that they rarely become a subject of discussion and are very personal for the respondents.

As a result of the systematisation of associations related to the respondents' place of residence, the following groups of images were identified (Table 1).

Table 1. Groups of associations with the respondents' place of residence

Associations and their specific nature	Frequency with which mentioned
Home town 'homeland / I was born here' (rodina / ya rodilas' zdes'), 'born here' «zdes' rodilsya), 'native' (rodnaya), 'native here' (rodnoye tut), 'family home' (dom otchii), 'family' (sem'ya), 'all my life' (vsya zhizn'), 'childhood / parents / ancestors) 'detstvo / roditeli / predki), 'home settlement' (posyelok rodnoi), 'significant place' (zhnachimoye mesto), 'history' (istoriya)	23
Feelings of attachment 'love' (lyubov'), 'I like it here, I feel drawn here' (nravitsya zdes', tyanet), 'I am comfortable' (mne komfortno), 'no bustle' (net suyety), 'tranquil' (spokoino), 'I have always felt drawn here' (tyanula menya syuda vsegda), 'Pride and resentment that people live like this. I don't want to go anywhere. My husband and son are buried here. How can I be without Goroshikha?! Everything is good here. Goroshikha is irreplaceable' (Gordost' i obida, chto tak lyudi zhivut. Nikuda ne khochu uyekhat'. Zdes' muzh i syn pokhoroneni. Kak ya mogu bez Goroshikha?! U nas tut vse khorosheye. Goroshikha – nezamenimaya)	19
The beauty of nature 'wonderful air' (prekrasnyi vozdukh), 'beautiful places' (mesta krasivye) 'beautiful nature' (priroda krasivaya) 'clean air' (vozdukh chistaya), 'favourite views, beaches' (lyubimye vidy, plyazhi), 'beauty, nature' (krasota, priroda), 'freedom for children / open space' (svobooda dlya detei / privol'ye)	19
Good ecology 'The views – please look' (vidy – pozhalu'sta glyan'te), 'quiet' (tikhii), 'tranquil, clean' (spokoinyi, chistyi), 'lots of snow' (mnogo snega), 'river' (reka), 'rich land' (zemlya bogataya), 'fish / birds / animal' (ryba / ptitsy / zver'), 'clean air / confluence of two rivers / lots of fish) 'chistii vozdukh / sliyaniye dvukh rek / mnogo ryby) 'you can grow anything if you want' (mozhno pri zhelanii vse vyrastit')	17
Good people 'trust in people' (doveriye k lyudyam) 'good-natured people' (dobrozhelatel'nye lyudi) 'kind people' (dobriye lyudi), 'good people / clever people'	14

(khoroshikh lyudei / umnykh lyudei)	
Negative associations ‘mosquitoes’ (komary) ‘no asphalt / dirt / high prices / no unemployment’ (asfal’ta net / gryaz’ / tseny vyshe / net bezrabotitsy), ‘leaving home / learning new things / less work’ (uyekhat’ iz doma / poznat’ novoye / raboty men’she), ‘it was very rich / interesting / fruitful / developing / now nobody needs it / no prospects’ (byl bogateishii / interestnyi / plodotvornyi / razvivayushchiisya / seichas ne nuzhen nikomy / neperspektivnyi)	12
Habits, work, hobbies ‘used to it’ (privyk), ‘we live and live’ (zhivyem i zhivyem), ‘everything is alright’ (vse normal’no), ‘we share work and leisure’ (razdelyaem rabotu i otdykh), ‘hunting / fishing’ (okhota / rybalka)	11
The ability to control the situation ‘this is my everything’ (eto moye vse), my home (svoi dom), ‘the feeling of home (oshchushchenie doma), ‘no enemy will reach here’ (ni odin vrag ne doidet)	10
Animals, farming ‘Fedor the cat’ (kot Fedor), ‘cow’ (korova)	2
Total	134

Of the 134 associations, 122 are positive and only 12 are negative. The resulting associations are focused on cooperation, love for the place of residence, local nature. They exclude a predatory attitude towards natural resources; the respondents feel responsible for what is happening in their city or village. This responsibility is combined with the ability to control what is happening. In negative associations, love for one's birthplace is also seen. However, it is only verbalized through regrets about the lost opportunities of the northern territory. A person who is devoted to the homeland easily forms a loyal attitude towards the organization they are employed with. If applicants with different attitudes towards their homeland, their neighbours and their community are recruited into the same workforce, no cohesive team can be formed even after a long period of work. We propose to use projective associative technique to determine the basic personal values of the applicant. A significant advantage of projective techniques is that they allow "avoiding" the psychological defenses of the respondents.

3.2 General research results

HR specialists and managers declare the importance of potential employees’ professional competencies; they consider it crucial to know the company values, but do not mention the employees’ personal values. In their opinion, the role of life values is minimal in the work cycle of an enterprise or organization. Especially sad is the lack of understanding that the personal values of employees and their vision of their own professional prospects in the future (after they are hired) will have to be combined and mutually complemented with corporate values and the future of the company.

Potential employees in their resumes, questionnaires and interviews also focus the employers' attention on their professional competencies. Job seekers know little about corporate values. Employees rarely talk about personal values. Thus, personal values are unfortunately remotely associated with the potential value of an employee in modern organizations of the Krasnoyarsk Territory. At the same time, it is objectively important for management to create a favorable environment applying the methods and tools that encourage innovation and increase the efficiency of an enterprise. It is especially important to take into account the

personal values of potential employees who will work in a team and implement innovative projects in practice.

4. CONCLUSION

The research carried out by the authors of the present article shows that an “eco-friendly” attitude towards a person, which implies an individual who is responsible for their “home” (house, habitat, and then company), is rewarding. What is more rewarding is the development of the company employees’ reflection, the reason why the company becomes their home and family, but not just a place where the owner or employer "exploits” the workforce. An emotional approach can give a company more than a temporary employee; it can provide a sensible and responsible one. The involvement of such an employee will inevitably improve their performance. If we add to involvement an employee's compliance as compliance with production procedures, compliance with ethical norms and law provisions, we will obviously acquire an ideal company.

The authors believe that modern ESG approaches can and should become a guideline for the formation of recruitment strategies, with periodic screenings of the workers’ mood at different levels. For goal-setting in the development of Siberian largest companies, time horizons should be moved by at least 20-30-40 years, i.e. reach the horizon of no less than 2050. This means that the employer will deal with dynasties, successive generations of workers. Hence, strengthening of a person’s values and family values are inevitable, and will become the values of the company.

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REFERENCES

[1] Ayoko, O. B. & Konrad, A. M., & Boyle, M. V. (2012). Online work: Managing conflict and emotions for performance in virtual teams. *European Management Journal*, iss.30, pp.156 – 174.

[2] Babintsev, V. P. (2017). Corporate relations in Russian universities: Breaking the tradition. *Higher education in Russia.* iss. 7, pp. 26–35.

[3] Belyuchenko, A.A. (2015). System of values of interpersonal relations of medical labor collective in modern society. *System of values of modern society.* iss.40. pp. 7–10.

[4] Bodtker, A. M., & Jameson, J. K. (2001). Emotion in conflict formation and its transformation: Application to organizational conflict management. *International Journal of Conflict Management*, iss.12. pp.259–275.

[5] Bogdanov, E. N. & Ivanov, G. P. & Shishkina, E. A. (2011). The structure of labor motives of employees of the organization as a factor of efficiency of their activity. *Applied legal psychology*, iss.2. pp. 127–133.

[6] Chigova, E. A. & Plyushch, I .V. & Leskova, I. V. (2019). Organization of structured interaction on the base of psychographic characteristics within the model of personality traits DISC. IOP Conference Series Materials Science and Engineering, vol.483. iss. 1 [online]. [cit.2017-09-22]. Available at: https://www.researchgate.net/publication/331905923_Organization_of_structured_interaction_on_the_base_of_psychographic_characteristics_within_the_model_of_personality_traits_DISC

[7] Chen, M.-H., & Chang, Y.-C. (2005). The dynamics of conf lict and creativity during a project's life cycle: A comparative study between service-driven and technology-driven teams in Taiwan. *International Journal of Organizational Analysis*, iss.13. pp. 127–150.

[8] Frampton, J. R. & Fox, J. (2021). Monitoring, Creeping, or Surveillance? A Synthesis of Online Social Information Seeking Concepts. *Communication and media technologies*, iss. 9. pp. 1–42.

[9] Grigorieva, Ya. I. & Nikaeva, T. M. (2016). The universal values of "Motherland" and "Patriotism" in the linguistic consciousness of Russians and Yakuts. *Gazette NEFU*, iss. 4 (54). pp. 67–77.

[10] Grebenyuk T. N. (2007). The image of the motherland: universal value versus political value. *Bulletin of Tomsk State University*, iss.301. pp. 14–16.

[11] Govorukhina, G. V. & Kovaleva, A. V. (2020). A Communicative Component in Higher Education of Russia. *Journal of History Culture and Art Research*, vol. 9, iss. 4, pp. 246–250.

[12] Gavrilyuk A.V. (2019). Culture of innovation activity in organizations: modern practices and methods of development. *Theory and practice of social development*, vol. 6, iss.136. pp. 37–41.

[13] Kahlow, J. & Klecka, H. & Ruppel, E. (2020). What the differences in conflict between online and face-to-face work groups mean for hybrid groups: A state-of-the-art review. *Communication and media technologies*, iss. 8. pp. 51–77.

[14] Kovaleva, A. V. & Natarov D. D. (2018). Translation of the values of work in the media. *PR and advertising in a changing world: Regional aspect*, iss. 18, pp. 53–63.

[15] Luzakov, A. A. (2017). The structure of the employee's motivational profile. *Bulletin of Science and Education*, iss.12. pp. 103–106.

[16] Naidis I. O. (2020). Agile method in project management: implementation of the method, competence of the team and the project manager. *Bulletin of the AGTU. Series: Economics*, vol. 4. pp. 15–24.

[17] Panina I. N. (2016). Structure, formation and development of motivation to achieve success among employees of the organization. *ANI: pedagogy and psychology*, iss.4 (17). pp. 477–480.

[18] Pryadko, K. V. (2015). Interrelation of motivational factors of labor activity and value orientations of the personality of employees of the organization. *Prospects of science and education*. iss.3, pp. 132–139

[19] Rozhkova, L. V. & Vasilyeva, N. D. (2014). Citizenship and patriotism as the foundations of social consolidation of Russian society. *Monitoring*, iss. 3 (121). pp. 123–129.

[20] Strizhova, E. A. (2016). Dynamics of labor motivation before and after employment. *National Psychological Journal*, iss.1 (21). pp. 78–87.

[21] Strizhova, E. A. & Gusev, A. N. (2014). Diagnostics of labor motivation in a problem-solving situation: methodology and method. *National Psychological Journal*, iss.2 (14). pp. 50–57.

[22] Tkhagalizhokova, L. V. (2012). Motivational factors of the personality of a young specialist. *Scientific journal of KubGAU*, iss. 84. pp. 992–1002.

INDUSTRY 4.0 - A CHALLENGE FOR THE 21ST CENTURY LABOR MARKET

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Abstrakt: *Industry 4.0 is a challenge and future related to changes in the business model, economy and state support. It represents a drastic change in the field of industry. These changes are mainly related to digitization, artificial intelligence, networking and sophisticated services. It has a significant impact on the labor market. Therefore, it is important to prepare an intelligent workforce with the skills and abilities needed to succeed in the 21st century. The aim of the article is to point out the changes that can be observed in the labor market due to the influence of Industry 4.0 and the skills that are for the employees of companies supporting the idea of Industry 4.0. For the purposes of this article, the methods of analysis, synthesis, abstraction, comparison and scientific abstraction have been used. In this article, we relied on secondary sources available to the general public.*

Key words: *company,employee, Industry 4.0, labor market, production*

JEL Classification: *E24, J24, L60*

1. INTRODUCTION

Industry 4.0, in other words, the industrial revolution number four, is next of the society key milestones. Unlike all other revolutions, this is supposed to result in a huge increase in productivity in the industry. The mainstay of these changes should be highly intelligent systems – the artificial intelligence. Artificial intelligence can be described as its most important feature. Through artificial intelligence, there will be an extreme increase in productivity, high technical level of products, growth of qualitative skills of employees in the field of digital skills and critical thinking. The end result of the application of Industry 4.0 ideas is to build an extraordinarily, highly sophisticated industry, based on smart technologies.

How will this revolution really manifest itself and what effects will it have on the society, economy or the labor market? Forecasts make it clear that the fourth industrial revolution will have a societal impact. The labor market will be hit as first one. A situation will arise which will result in an insufficient number of jobs for a potential workforce. This situation will be related to high demands on industry employees (eg. technical skills, critical thinking, creativity and continuous professional development). The resulting effect will be a social reversal.

According to a McKinsey study, people will have to change their careers and learn to develop completely new skills. Morgado also points to this fact. At the same time, he emphasizes that "professions will change, not disappear" (Morgado, 2019).

The impact of advanced digital technologies will be intensively perceived within the new job structure. This means that some positions and specializations will have to be based on new sets of knowledge and expertise. Industry 4.0 will not be possible without this new job structure.

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2. THE FOURTH INDUSTRIAL REVOLUTION FROM A THEORETICAL PERSPECTIVE

The fourth industrial revolution represents changes in the organizational and technological basis of the production of material goods. However, it also applies to the social basis, i.e. the intangible elements of society. This customary way of perceiving industry and labor market issues is going to be changed.

With regard to Industry 4.0, the President of the World Economic Forum points out that "in its scope and complexity, this revolution will be different from all the previous ones that humanity has experienced" (Schwab, 2018). In this sense, it is necessary to maximize the interconnection of Industry 2.0 to 4.0 ideas, i.e. the transfer of technology and knowledge (Yudhistira, 2021) to kinetics and physics systems (Frontoni et al., 2018, Roser, 2018, Al-Alia et al. 2018, Pirvu et al., 2016).

Many economists and experts describe the reindustrialization, modernization and especially the technologies used in Industry 4.0 as "revolutionary" and extremely advanced (Roblek et al., 2021; Kumar et al., 2020; Seet et al., 2018). It is technology and artificial intelligence that will be the ones who will have a positive impact on society and the development of industry. The task of Industry 4.0 is not to achieve only extremely high labor and production productivity (Kamal-Chaoui, 2018). The purpose of this change is flexible adaptation to production, building a safer environment, saving time and material (Pardi, 2019) or positive changes and impacts on employment and the labor market. Positive change should be achieved through dialogue with business, trade unions, scientists and government. This interaction will have a major impact on the labor market and the working environment (Masárová et al., 2019).

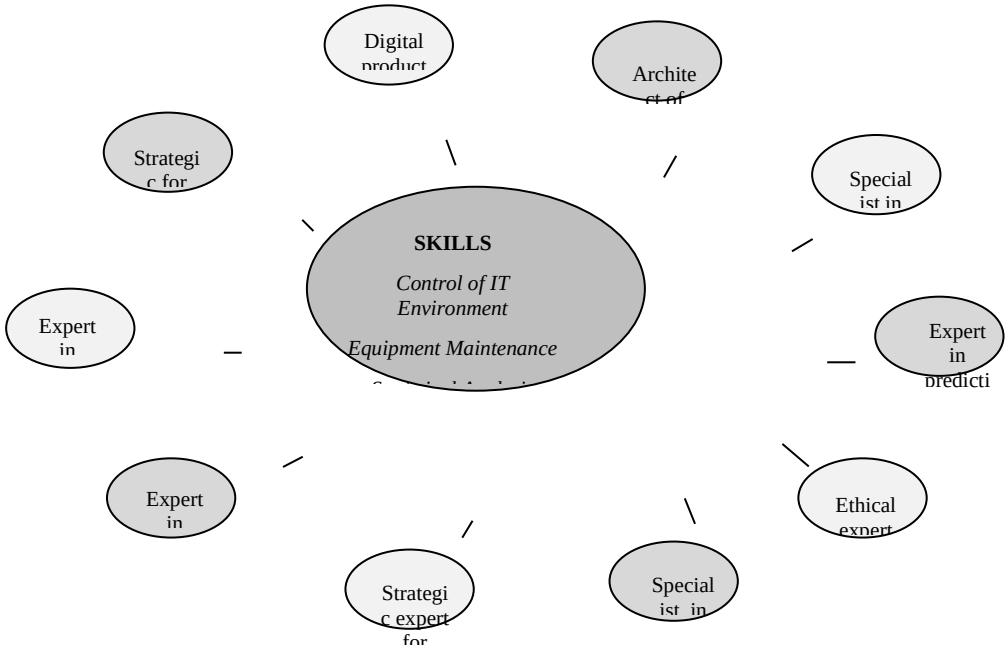
According to Boston Consulting Group forecasts, the degree of automatization of manual tasks will increase exponentially worldwide and will reach full saturation. This will be achievable by robots as a "cheaper, more efficient and more flexible" artificial workforce (Sirkina et al., 2015).

With the accession of Industry 4.0, the type of profession, its structure, professional profile of employees and competency models will change (Záležáková, 2020, Piccarozzi et al., 2018). Transforming most jobs will make you more dependent on artificial labor. However, this does not mean a complete shutdown of the human workforce. The employee whose smart company and industry needs him, will have to have a professional skills (Da Silva et al. 2020), especially in the field of digital skills (Chechulin and Esacheva, 2020, Ivanová et al., 2020, Hrnčiar and Rievajová, 2020) and in the process of continuous professional development (Grenčíková and Berkovič, 2020).

According to Morháč (2018), new requirements for employees are already being created on the basis of the application of technological changes. Many professions are changing in a fundamental way, several are slowly disappearing and new ones are emerging naturally.

Changes and qualification requirements must be reflected in education and training. It will be necessary to significantly adjust educational standards and reform education for the needs of job practise. According to WEF forecasts (2018), 65% of today's students entering primary education will pursue a profession that does not yet exist (50% of current ones will disappear or be automated). Unless training programs are adjusted and aligned with the needs of job practise, no one will work in technologically advanced factories. The threat is the quantum of vacancies and a significant decline in production (Figure 1). Current evaluations of the surveys already show a disproportion between the needs of job practice and the market.

Figure 1. Industry 4.0 - TOP 10 most sought jobs



Source: Own research based on Industry4sk (2021), Industry4um (2018)

These disproportions of needs can be eliminated by the prompt reaction of the Ministry of Education. Attention needs to be focused on technical and personal skills. The weight of personal skills is comparable to the weight of technical skills. Read the research by Gehrke, Maxwell et al. (Table 1) for more information.

Table 1. Industry 4.0 – Employees technical and personal skills

	Skills that employees MUST HAVE	Skills that employees SHOULD HAVE	Skills that employees MAY HAVE
Technical skills and abilities	• IT knowledge and skills • data and information processing and analysis • statistics • understanding of organizational and procedural matters • ability to interact with modern devices	• knowledge management • interdisciplinarity • special knowledge of production activities and processes • information on IT security and data protection	• programming skills • knowledge of ergonomics • understanding of legal issues
Personal skills and abilities	• self-management and time management • adaptability to change and the ability to accept change • ability for team work • social skills • communication skills	• confidence in new technologies • emphasis on continuous improvement and lifelong learning	

Source: Maxwell (2010), Gehre et al. (2015)

We also agree with the statements of Berkovič and Krajč (2020), who point out that "in the future, talent will be much more than capital to be an important component of production". This is also pointed out by Manpower (2021) “the shortage of talent

with the necessary skills is the highest in the last 15 years. The biggest shortcomings in the case of vacancies relate to positions closely related to technology and technical skills (e.g. transport, logistics, manufacturing, IT professionals, etc.).

2. OBJECTIVE AND METHODOLOGY

The aim of the article is to point out and provide an overview of selected labor market trends. We want to achieve this goal on the basis of the evaluation of previous knowledge from research and studies related to the Industry 4.0. We focus on the requirements, abilities, professional skills and job positions structure. The inter-connection of the jobs structure with the requirements of employers leads us to formulate conclusions resulting from the findings.

In accordance with the set goal, research methods such as analysis and synthesis of available bibliographic references, secondary data sources, comparison of opinions of the professional public, induction and deduction as a theoretical general method of scientific knowledge and scientific abstraction has been choosen. The key information was drawn from the official websites of the Statistical Office of the Slovak Republic, the Ministry of Justice, the OECD, Eurostat, etc.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

The labor market is under enormous pressure from several interacting circumstances. These circumstances include the transformation of industry and its ideas. The introduction of Industry 4.0 requires a constant supply of skilled labor, not only in terms of current needs, but also in terms of long-term needs (Table 2).

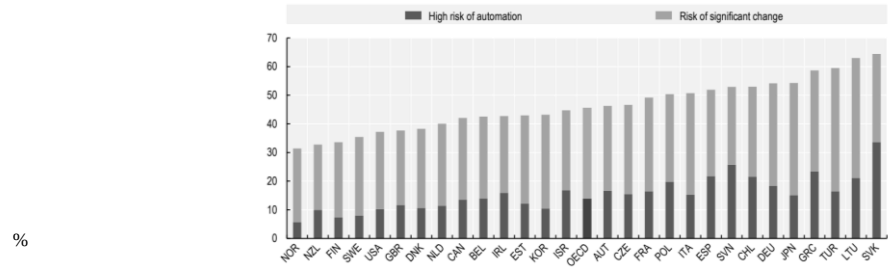
Table 1. Global workforce numbers 2030

	2019	2030		
Technical automation potencial	***~ 50 % of current work activities are technically automatable***	***6 of 10 current occupations have more that 30% of activities that are technically automatable***		
Impact of adoption	Impact	slowest	midpoint	fastest
	Work potentially displaced by adoption of automation	0% 10 million	15% 400 million	30% 800 million
	Workforce that could need to change occupational category	0% < 10 million	3% 75 million	14% 375 million
Impact of demand for work	Impact	low		high
	Trendline demand scenario	15% (390 million)		22% (590 million)
	Step-up demand scenario	6% (165 million)		11% (300 million)
	Total	21% (555 millon)		33% (890 million)
	Workforce of 2,66 billion, 8 - 9 % will be in new occupations			

Source: McKinsey Global Institute analysis (2019)

Roughly 40% of companies in Slovakia (Industry4um, 2019) apply the Industry 4.0 concept. There is a significant transformation of production and jobs, the depth of which is striking. In addition, as industrial production is the most attractive production sector for Slovaks, it will significantly affect the employees of this sector (Graph 1).

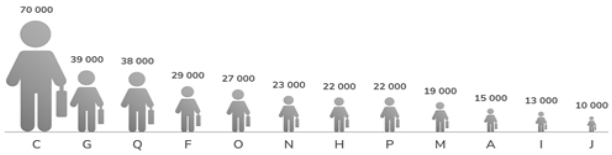
Figure 2. Threat to jobs - automatization



Source: OECD (2019)

However, the results and findings do not show structural unemployment so far. The employment rate is growing in most OECD countries (OECD, 2020), as it is in our country. According to Labor Trends forecasts (2019), however, increased attention needs to be paid to the needs of industry. The total additional need for manpower in the industry will climb to the level of 70,000 people (Figure 3), which is certainly not a small amount.

Figure 3. Forecast of the total additional need of selected labor force in the Slovak Republic (2020 - 2025)



C Industrial production

G Wholesale, Retail, Repair of vehicles and motorcycles

H Transportation

P Education

Source: Trendy trhu (2019)

When comparing the values related to the labor market, we observe that about 30% of the workforce works in industry (Table 3). Compared to previous periods, there is a very slight slowdown. However, this cannot be evaluated as significant change. Since 2017, the number of industrial workers has not fallen below 696 000 employees (note: not even during the COVID19 pandemic). It can also be pointed out that, compared to total employment in 2020, that the industry is also doing well. However, the worse situation is in evaluating the unemployment data. Here we can see, in the last monitored year, that up to 25% of unemployed people come from industry. This may be due to the impact of the pandemic, when the production of goods and services fell down, especially in the area of jobs requiring a lower level of education.

Table 3. Labor force sample survey within the Slovak Republic

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Employment									
Industry (in thous. persons)	633,4	601,5	614,2	661,5	679,2	696,3	696,9	696,7	696,0
Rate (%)	-	- 5,3	2,07	7,15	2,61	2,46	0,09	-0,03	-0,10
Total (in thous. persons)	2329	2329,3	2363,0	2424,0	2492,1	2530,7	2566,7	2583,7	2531,3

Rate (%)	-	0,01	1,42	2,52	2,73	1,51	1,40	0,66	-2,07
Unemployment									
Industry (in thous. persons)	83,2	87,7	73,1	66,7	50,9	42,3	34,9	34,4	45,6
Rate (%)	-	5,13	-19,97	-9,60	-31,04	-20,33	-21,20	-1,45	24,56
Total (in thous. persons)	377,5	386,0	358,7	314,3	266,0	244,0	179,5	157,7	181,4
Rate (%)	-	2,20	-7,61	-14,13	-18,16	-9,01	-35,93	-13,82	13,07

Source: own research according to ŠÚ SR data

Therefore, it is important that the State also participates in the development and support of mechanisms that will make it possible to retrain and develop the skills of the workforce. It has to support the development of new jobs and the labor market environment. As part of the educational process, it has to address the issue of the conceptual approach to education and the connection of schools with practice. The State has to communicate with companies and create a constructive platform for dialogue. It is vital for the State to immediately start the preparation for the full application of Industry 4.0 concepts and to have the opportunity to get the most out of it.

4. CONCLUSION

A rapid rebirth of thinking, new view of society and the sophistication of production processes does not mean a decline in demand for human resources. Based on studies, research and forecasts related to Indrustry 4.0, robotics, smart technology, networking and much more will bring benefits to all. With the development and application of new elements, we get to the stage where it is necessary to adjust to new schemes and needs that will become a common part of life and society. By pushing up our own boundaries, as well as the boundaries of technology, we have the opportunity to gain more area for self-improvement and increase in our own creditworthiness. The starting point is conscious approach of the individual, society and the State. Moving forward does not mean losing or sacrificing the "comfort" we claim. Moving forward means working on your own improvement and growing. By pushing the limits and hard work, we get more freedom and more area for self-realization, which is definitely worth. The idea of Industry 4.0 is not to take out a job and shut down a company, but to show the value that belongs to people, to motivate and lead them to higher goals, to evoke a desire for search and knowledge, as well as to develop their creativity, critical thinking and relieve them of those activities that are not benefical to them. The labor market offers many opportunities that can be seized. However, if we want to work in the field of industry, it is appropriate to address the question of what we can offer to it.

Acknowledgements

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REFERENCES

[1] Al-Alia, A. R., Guptab, R. & Al Nabulsic, A. (2018). Cyber physical systems role in manufacturing technologies. In: *AIP Conference Proceedings*.

[2] Berkovič, V. & Krajčo, K. (2020). Štruktúra pracovných mieste budúcnosti z pohľadu zamestnávateov. In: *Vplyv Industry 4.0 na tvorbu pracovných miest*. Trenčín: TnUAD, pp. 96-74.

[3] Berkovič, V., Masárová, T. & Grenčíková, A. (2019). Vplyv industry 4.0 na zmeny v štruktúre pracovných miest. In: *Proceedings of the Conference of Impact of Industry 4.0 on Job Creation*. Trenčín: TnUAD, pp. 44–52.

[4] BIM (2020). Look Before You Leap to Industry 4.0 in Building Construction**.** [online]. [cit. 2021-09-22]. Available at: https://bimlearningcenter.com/look-leap-industry-4-0-building-construction/

[5] Chechulin, A. & Usacheva, E. (2020). The Impact of Digital Economy on the Employment and Career Prospects of Management Specialists. In: *Conference Proceedings: The impact of Industry 4.0 on job creation.* pp. 87-93.

[6] Da Silva, V.L,. Kovaleski, J.L., Pagani, R.N., Silva, J.D.M. & Corsi, A. (2020). Implementation of Industry 4.0 concept in companies:Empirical evidences. *International Journal of Computer Integrated Manufacturing*. Vol. 33, pp. 325–342.

[7] Eurostat. (2020). Unemployment statistics. [online]. [cit.2021-10-22]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Unemployment_statistics

[8] Frontoni, E., Loncarski, J., Pierdicca, R., Bernardini, M. & Sasso, M. (2018). Cyber Physical Systems for Industry 4.0: Towards Real Time Virtual Reality in Smart Manufacturing. [online]. [cit.2020-09-02]. Available at: https://cris.unibo.it/handle/11585/799830?mode=full.3085#.YXm6e6Rnqr8

[9] Gehrke, L. a kol. (2015). A Discussion of Qualifications and Skills in the Factory of the Future: A German & American Perspective. *VDI The Association of German Engineers & ASME American Society of Mechanical Engineers*. [online]. [cit. 2021-09-22]. Available at: https://m.vdi.eu/fileadmin/vdi_de/redakteur/karriere_bilder/VDI-ASME_2015__White_Paper_final.pdf

[10] Hrnčiar, M. & Rievajová, E. (2020). Vplyv Industry 4.0 na sektor dopravy a súvisiacich služieb v kontexte rozvoja ľudských zdrojov v podmienkach Slovenskej republiky. In: *Conference Proceedings: The impact of Industry 4.0 on job creation.* Trenčín: TnUAD, pp. 133- 141.

[11] Industry4.sk (2021). [online]. [cit.2021-10-22]. Available at: https://industry4.sk/magazin/industry-4-0/na-reformu-vzdelavania-pre-potreby-industry-4-0-je-najvyssi-cas/

[12] Ivanová, E., Masárová, J. & Koišová, E. (2020). Hodnotenie úrovne rozvoja digitálnej ekonomiky a digitálnych zručností v Slovenskej a Českej republike. In: *Conference Proceedings: The impact of Industry 4.0 on job creation.* Trenčín: TnUAD, pp. 167-175.

[13] Kumar, S., Suhaib, M. & Asjad, M. (2020). Industry 4.0: Complex, disruptive, but inevitable. *Manag. Prod. Eng. Rev.* Vol. 11, pp. 43–51.

[14] Masárová, T., Kordoš, M. & Strunz, H. (2019). The Impact of Industry 4.0 Initiative on Labour Market. In *International Scientific Conference Economic and Social Policy*. pp. 221-230.

[15] Maxwell, S. A. (2010). Prioritize your Projects the MuShCo Method. [online]. [cit. 2021-09-22]. Available at: http://www.intentionstoaction.com/2010/06/prioritize-yourprojects-mushco-method.html

[16] McKinsey and company. (2019). Global Institute analysis, 2019 Jobs lost, obs gained: Workforce Transitions in a time of automati. [online]. [cit. 2021-09-22]. Available at: https://epic.org/foia/epic-v-ai-commission/EPIC-19-09-11-NSCAI-FOIA-20200529-5th-Production-pt4-Outside-Reports-Resources.pdf

[17] Mordago, F. (2019). What is Industry 4.0 and how can it affect your job?. [online]. [cit.2021-10-22]. Available at: https://bluevisionbraskem.com/en/innovation/what-is-industry-4-0-and-how-can-it-affect-your-job/

[18] Morháč, 2018. *Koncept Industry 4.0 si žiada prísun kvalifikovaných pracovníkov*. [online]. [cit.2021-10-22]. Available at: https://www.istp.sk/clanok/13978/koncept-industry-4-0-si-ziada-prisun-kvalifikovanych-pracovnikov?__cf_chl_jschl_tk__=pmd_gOMox333.XVWj28WE8NDikBSgoT0nk0wJZhA8.CfxEA-1635229597-0-gqNtZGzNAmWjcnBszQm9

[19] OECD (2020). *Jobs at risk od automation in OECD countries*. [online]. [cit.2021-10-22]. Available at: https://www.oecd-ilibrary.org/employment/jobs-at-risk-of-automation-in-oecd-countries_02c13de8-en

[20] OECD (2021). *Future od Work.* [online]. [cit.2021-10-22]. Available at: https://www.oecd.org/future-of-work/reports-and-data/what-happened-to-jobs-at-high-risk-of-automation-2021.pdf

[21] Pardi, T. (2019). Fourth industrial revolution concepts in the automotive sector: Performativity, work and employment. *Associazione Amici di Economia e Politica Industriale. V*ol. 46(3), pp. 379-389.

[22] Piccarozzi, M., Aquilani, B. & Gatti, C. (2018). *Industry 4.0 in Management Studies: A Systematic Literature Review.* Sustainability, vol. 10, iss. 10, pp. 465–475.

[23] Pirvu, B. C., Zamfirescu, C.B. & Gorecky, D. (2016). Engineering insights from an antrhopocentric cyber-physical system: A case study for an assembly station. *Mechatronics.* Volume 34. pp. 147-159.

[24] Roblek, V., Meško, M., Pušavec, F. & Likar, B. (2021). The Role and Meaning of the Digital Transformation As a Disruptive Innovation on Small and Medium Manufacturing Enterprises. *Frontiers in Psychology*. [online]. [cit. 2021-10-23]. Available at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.592528/full

[25] Schwab, K. (2018). *The Fourth Industrial Revolution*. [online]. [cit.2021-10-22 Available at: https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution

[26] Seet, P-S, Jones, J., Spoehr, J. & Hordacre, A-L. (2018). *The Fourth Industrial Revolution: the implications of technological disruption for Australian VET.* [online]. [cit. 2021-09-22]. Available at: https://www.ncver.edu.au/__data/assets/pdf_file/0019/3161125/The-Fourth-Industrial-Revolution-the-implications-of-technological-disruption-for-Australian-VET.pdf

[27] Sirkin, H.L., Zinser, M. & Rose, J. (2015). *The Robotics Revolution: The Next Great Leap in Manufacturing.* [online]. [cit.2020-09-02]. Available at: https://www.bcg.com/publications/2015/lean-manufacturing-innovation-robotics-revolution-next-great-leap-manufacturing (accessed on 28 December 2020)

[28] WEF. (2018). *The future of jobs report*. [online]. [cit.2020-09-02]. Available at: http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf

[29] Yudhistira. B. (2021). *Indonesia pins hopes on Hanover Trade Fair to draw Industry 4.0 investors.* [online]. [cit. 2021-10-22]. Available at: https://www.dw.com/en/indonesia-indutry-40-hannover-messe/a-57186823

[30] Záležáková, E. (2020). *Nástup INDUSTRY 4.0* . [online]. [cit.2021-10-22]. Available at: https://www.sam-km.sk/sites/www.sam-km.sk/files/2020-04/Zalezakova_Nastup_industry_4.0.pdf

[31] Zisk manažment (2018). Môj kolega robot: hrozba či príležitosť? *Zisk manažment*, vol. 7. p. 20-22. [online]. [cit. 2021-09-22]. Available at: https://industry4um.sk/wp-content/uploads/2018/07/zisk_manazment_2018.pdf

CONSEQUENCES OF COVID-19 ON ADULT EDUCATION SECTOR – DEVELOPMENT OF HUMAN RESOURCES IN LATVIA

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Abstract: *Since the onset of the Covid-19 pandemic, many educational institutions that offer adult education programmes have faced challenges due to restrictions. Adult education institutions have necessarily moved towards e-learning to compensate for the interruption in classroom education, such that traditional classes have been replaced with e-learning. These rapid, extensive changes in teaching and learning approaches have consequences for educational institutions. At the same time, the pandemic situation has caused processes that optimise both teaching and administrative processes. This study aims to explain the consequences of Covid-19 on the adult education sector in Latvia, focusing on benefits to human resources participating in the adult learning process. Following research methods have been used: scientific literature studies, a survey of adult education institutions of Latvia (N=60), statistical data analysis. Main findings of the research: a survey of adult education institutions in Latvia showed that the pandemic period brought different benefits to adult learners, adult educators and administrators, throughout Latvia, especially regarding the development of digital skills and savings related to optimisation of processes.*

Key words: *adult education, Covid-19, Latvia, human resources*

JEL Classification: *I25, J24, O15*

1. INTRODUCTION

Covid-19 has a significant impact on both the economy and the education system. The process of teaching and learning has shifted mostly online, particularly in the adult education sector. Adult educational institutions all around the world were obliged to switch to online teaching mode, resulting in unprecedented fast digitalization of the adult education industry. Adult education institutions adopted measures to adapt to shifting conditions, transferring existing programmes to online mode, and designing new programmes to meet the demands of employers during the epidemic.

The advantages of online adult education are widely argued by scholars. Flexibility, time-saving, an increase of social capital (Cocquyt et al., 2017), development of digital skills (Gegenfurtner et al., 2020), access to and from geographically isolated communities around the globe, multiple and collaborative among widely dispersed individuals, ultimate convenience, ability to focus on participants' ideas, without knowledge of age, race, gender, or background (Wang, 2011) are listed as the main benefits of online adult learning mode.

At the same time, it is argued that nowadays, nearly 75% of adult education is related to the workplace, thereby serving the need of the economy (Boeren & Roessger, 2020). During the pandemic, employers as topical skills have indicated the availability to operate in a fully digital environment (Agrawal et al., 2020), advanced digital skills (Gigauri, 2020), data literacy (Rehnuma, 2020), collaborative skills (Sheppard, 2020). Thereby, online education programmes should mainly serve these needs and expectations of the employees.

Even though online adult education is highly valued for its convenience and flexibility, it should be stressed that not all adult learners have access to a reliable internet connection,

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computer or hold digital literacy skills. Thereby, online learning can further serve to disadvantage the most vulnerable groups in society. This situation could cause a “Matthew effect,” where education frequently benefits the already well-educated adults (Boeren, 2016). In addition, according to leading studies, such as the OECD's Survey of Adult Skills (PIAAC), individuals with lower levels of education, lower-paid occupations, and a lack of or inadequate employment are the least likely to participate in adult learning (OECD, 2019).

In the case of Latvia, adult education institutions mostly had to shift to online mode from March 2020. The Ministry of Education and Science of Latvia has acknowledged the advantages of the online learning process by stipulating in the Education Law that full-time educational programmes may include the component of distance learning (Education Law, 1998). In addition, the Ministry has developed a support programme "Improvement of professional competence of employed persons" (funded by ESF) aimed at adult education institutions to develop adult education programmes (online or blended) to serve the needs of the economy (State Education Development Agency, 2021). Thereby, the digitization of the adult education sector in Latvia has been supported.

In the context of digitization of the online education sector in Latvia, it should be noted that one of the strategic priorities of Latvia is polycentric development (Cross-Sectoral Coordination Centre of Latvia, 2010). Riga is a centre of commerce, as well as formal and non-formal education. The recently implemented administrative-territorial reform intends to reduce imbalances between regions and municipalities (Ministry of Environmental Protection, 2020). On the one hand, established territorial units should provide excellent services, including education; on the other hand, new territorial units are in desperate need of human capital, which might secure the region's economic progress. Both of these issues may be addressed through online adult education.

2. PROBLEM FORMULATION AND METHODOLOGY

Taking into consideration the foregoing background information, the research problem to be addressed within this paper is the impact of Covid-19 on the adult education sector in terms of the development of human resources in Latvia. The research paper aims to explain the consequences of Covid-19 on the adult education sector in Latvia, focusing on benefits to human resources participating in the adult learning process. The research question is formulated as follows: what benefits to human resources has Covid-19 gained through online adult learning and teaching? To achieve the research aim and answer the research question, the following research methods have been used: scientific literature studies, a survey of adult education institutions of Latvia (N=60), statistical data analysis. The survey of Latvian adult education institutions was conducted in May and June 2021. The questionnaire was created in partnership with the Ministry of Education and Science of Latvia, the State Education Development Agency, the Latvian Adult Education Association, and other social partners. All registered and licenced adult education institutions were emailed invitations to participate in the survey. Furthermore, the invitation was made available on the websites and social media accounts of the aforementioned collaboration partners. In all, 60 educational institutions took part in the study; however, only 43 completed the questionnaire completely. in total, in the Register of Education Institutions, 100 adult education institutions were registered at the time of the survey (Ministry of Education and Science, 2021).

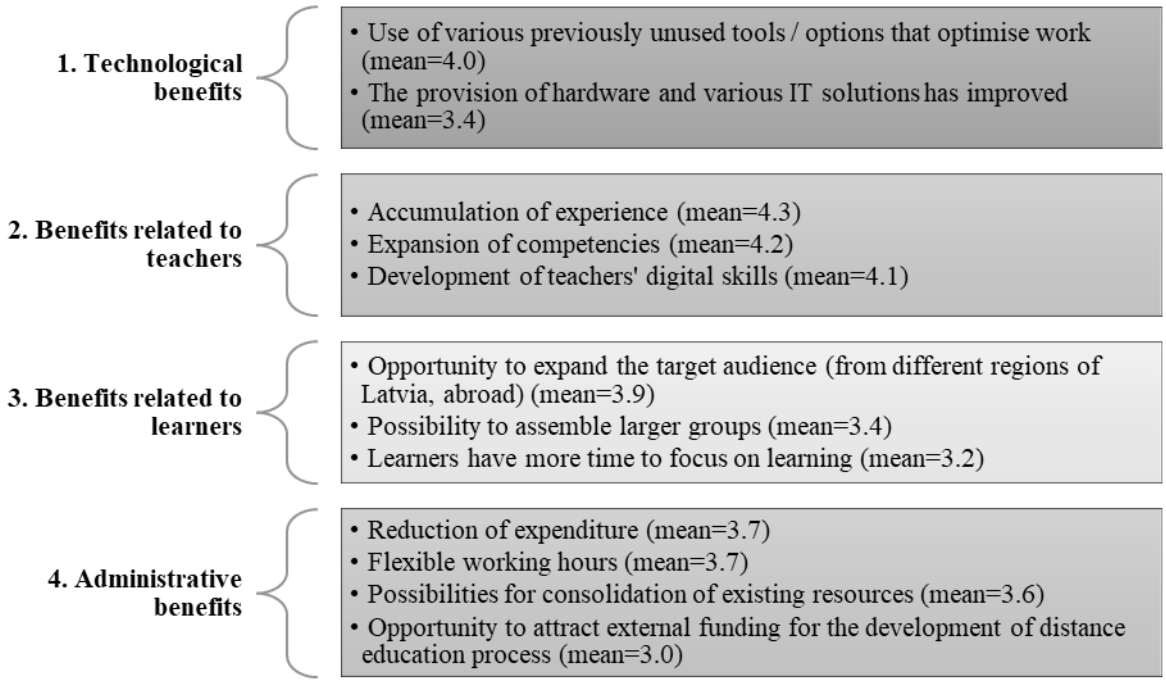
Furthermore, after analysing the geographical distribution of the surveyed adult education institutions, it was determined that it conforms to the actual geographical distribution of adult education institutions in Latvia. The same applies to the provided learning and teaching process (face-to-face; distance; both). As a consequence, it is possible to assume that the sample is representative, and the survey results may be used to understand the whole Latvian adult education sector.

3. RESULTS AND DISCUSSION

In this study, the survey findings are examined in terms of the benefits that Covid-19 provided to adult education institutions. The Covid-19-related challenges to adult education institutions in Latvia are analysed in Jekabsone & Gudele (2021).

In the beginning, adult education institutions were asked to rank the groups of the benefits faced by their institution during the Covid-19 restrictions in order of importance. Next, respondents were asked to evaluate (where "1" is not a significant benefit and "5" is a very important benefit) the list of indicators within each group of benefits (see Fig.1).

Figure 1. Main Benefits to Adult Education Institutions in Latvia during the Pandemic (where "1" is not a significant benefit and "5" is a very important benefit)



Source: authors' calculations based on the survey results (N=43); research period: May – June 2021

Adult education institutions admitted that the main group of benefits is "Technological benefits", such as the use of various previously unused tools and options (average assessment equals 4.0; where "1" is not a significant benefit and "5" is a very important benefit) that optimise work and the improvement of provision of hardware and various IT solutions (average assessment equals 3.4).

As the second-most assessed group of benefits was indicated "Benefits related to teachers". It should be noted that indicators of this group were evaluated even higher than indicators related to the group "Technological benefits". Respondents admitted that within this area the main benefit is the accumulation of teachers' experience (average assessment equals 4.3) and expansion of their competencies (average assessment equals 4.2). Also, the development of teachers' digital skills was highly evaluated by the respondents (average assessment equals 4.1).

As the third-most assessed group of benefits was indicated "Benefits related to learners". Within this group of benefits, the respondents especially highlighted the opportunity to expand the target audience (average assessment equals 3.9). In addition, the online teaching and learning process provides a possibility to assemble larger groups of learners (average

assessment equals 3.4). Also, the respondents admitted that due to the pandemic, learners have more time to devote to learning (average assessment equals 3.2).

As the less important group of benefits were indicated "Administrative benefits". Nevertheless, the adult education institutions admitted that due to the online teaching and learning process, there is a reduction of expenditure such as rent of premises (average assessment equals 3.7) and more flexible working hours (average assessment equals 3.7). Furthermore, there is a possibility to consolidate existing resources (average assessment equals 3.6) and attract external funding for the development of the distance education process (average assessment equals 3.0).

In addition, the respondents also had mentioned other benefits like overall time saving, more interaction possibilities for learners (e.g., use chat option to clarify some matters with the teacher), higher self-motivation for learners, greater availability of teachers as they do have more time for teaching.

Further analysis was carried out to see if there were any significant differences in survey results between educational institutions that only offered face-to-face learning and those that offered both face-to-face and distance learning processes or only the distance learning process before the pandemic.

An F-test was run to check if there was a significant difference in the assessments between educational institutions that offered just face-to-face learning before the pandemic and those that offered both face-to-face and distance learning or simply distance learning before the epidemic. The computations revealed (see Table 1) that in the situations of "Administrative benefits", the value of F was larger than the critical value of F. This implies that at the significance level $\alpha = 0.05$, the null hypothesis of equal variances in these samples can be rejected, and the variations in both samples are significantly different in these circumstances.

Table 1. Results of F-Test Two-Sample for Variance (Group of Benefits) by the Form of the Learning Process (N=43)

Group of benefits	F value	F critical value	Result
Technological benefits	1.175595	2.326357	Ho cannot be rejected → there is no statistical significance
Benefits related to teachers	1.519468	2.326357	Ho cannot be rejected → there is no statistical significance
Benefits related to learners	1.08828	2.326357	Ho cannot be rejected → there is no statistical significance
Administrative benefits	0.972222	0.481198	Ho rejected → there is statistical significance

Source: authors' calculations based on the survey results (N=43); research period: May – June 2021

Then, the relevant t-test was then run, with the null hypothesis (Ho) proposed that the averages of both samples (education institutions that only offered face-to-face learning before the pandemic and education institutions that offered both face-to-face and distance learning or only distance learning before the pandemic) for each group of benefits are equal at a significance level $\alpha = 0.05$. (see Table 2).

Table 2. Results of t-Test Two-Sample Assuming Equal and Unequal Variances (Group of Benefits) by the Form of the Learning Process (N=43)

Group of benefits	t value	t critical value one tail	Result
Technological benefits	-0.01364	1.682878	Ho cannot be rejected → there is no statistical significance
Benefits related to teachers	0.858337	1.683851	Ho cannot be rejected → there is no statistical significance
Benefits related to learners	0.815514	1.682878	Ho cannot be rejected → there is no statistical significance
Administrative benefits	-1.64588	1.708141	Ho cannot be rejected → there is no statistical significance

Source: authors' calculations based on the survey results (N=43); research period: May – June 2021

The calculations showed that there are no differences in assessments of the group of benefits between educational institutions that offered only face-to-face learning before the pandemic and those educational institutions that offered both face-to-face and distance learning or only distance learning before the pandemic. It can be concluded that the previous form of the learning process of adult education institutions does not impact the assessment of the benefits caused by the pandemic.

The analysis continued to determine whether the main activity of the education institutions (distribution: educational institutions whose main activity is adult education; educational institutions whose main activity is not adult education). The results of the F-test showed that in all cases there is a significant difference in variance for those educational institutions whose main activity is adult education and those educational institutions whose main activity is not adult education (see Tab.3).

Table 3. Results of F-Test Two-Sample for Variance (Group of Benefits) by the Main Activity of Educational Institution (N=43)

Group of benefits	F value	F critical value	Result
Technological benefits	0.94078	0.474163	Ho rejected → there is statistical significance
Benefits related to teachers	0.73903	0.470989	Ho rejected → there is statistical significance
Benefits related to learners	0.843074	0.474163	Ho rejected → there is statistical significance
Administrative benefits	0.843074	0.474163	Ho rejected → there is statistical significance

Source: authors' calculations based on the survey results (N=43); research period: May – June 2021

Next, the t-test for two-sample unequal variances was run (see Tab.4).

Table 4: Results of t-Test Two-Sample Assuming Equal and Unequal Variances (Group of Benefits) by the Main Activity of Educational Institution (N=43)

Group of benefits	t value	t critical value one tail	Result
Technological benefits	-0.82833	1.684875	Ho cannot be rejected → there is no statistical significance
Benefits related to teachers	-0.28761	1.685954	Ho cannot be rejected → there is no statistical significance
Benefits related to learners	0.251624	1.684875	Ho cannot be rejected → there is no statistical significance
Administrative benefits	1.06693	1.687094	Ho cannot be rejected → there is no statistical significance

Source: authors' calculations based on the survey results (N=43); research period: May – June 2021

The calculations showed that there are no differences in assessments of the group of benefits between educational institutions whose main activity is adult education and those educational institutions whose main activity is not adult education. It can be concluded that the main activity of educational institutions does not impact the assessment of the benefits caused by the pandemic.

In the end, adult education institutions were asked if they intend to offer online adult programmes in the post-pandemic period. 89% of respondents admitted that their represented educational institutions will provide adults with face-to-face and online programmes, while only 2% of respondents claimed that they will offer only face-to-face programmes. In addition, it should be noted that before the pandemic, only 65 % of surveyed educational institutions offered only face-to-face programmes. Thereby, it can be concluded that educational institutions have gained from the digitization process caused by the pandemic.

4. CONCLUSION

The Covid-19-related regulations in Latvia, like in the rest of the world, led to the digitalization of the adult education industry. Answering the research questions (*What benefits to human resources has Covid-19 gained through online adult learning and teaching?),* the results of the conducted survey showed that adult education institutions have reaped a variety of benefits as a result of the epidemic. Aside from technological benefits such as improved technological provision and the use of IT tools that optimise the institution's work as well as financial benefits, educational institutions have acknowledged that the shift to online mode has contributed to the development of human resources through the development of digital skills, the expansion of competencies, and the accumulation of experience of all parties involved (learners, teachers and administrative staff of educational institution). The benefits of online learning should be highlighted by the fact that the vast majority of surveyed educational institutions (89%) expect to provide online education in the post-Covid-19 timeframe. Furthermore, because the online educational process is not geographically limited, adult learners from any location can participate in the online programmes. In addition, educational institutions can convene larger numbers of learners online. As a result, it is possible to infer that online adult programmes have an impact on the development of human resources in the regions.

The survey results revealed that there is no significant difference in the assessments of educational institutions based on the main activity (educational institutions whose main activity is adult education vs educational institutions whose main activity is not adult education) or the type of learning process prior to the pandemic (educational institutions that provided distance learning process vs educational programmes that did not provide distance learning process). As a result, it may be inferred that the majority of educational institutions have reaped comparable benefits.

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REFERENCES

[1] Agrawal, S., De Smet, A., Lacroix, S. & Reich, A. (2020). To Emerge Stronger from the COVID-19 Crisis, Companies Should Start Reskilling Their Workforces Now [online]. [cit.2021-10-23].

Available at: https://www.ceskainfrastruktura.cz/wp-content/uploads/2020/06/To-emerge-stronger-from-the-COVID-19-crisis.pdf

[2] Boeren, E. (2016). *Lifelong Learning Participation in a Changing Policy Context*. London: Palgrave Macmillan, p. 205.

[3] Boeren, E., Roumell, E. A. & Roessger, K. M. (2020). COVID-19 and the Future of Adult Education: An Editorial. *Adult Education Quarterly*, vol. 70, iss. 3, pp. 201–204.

[4] Cocquyt, C., Diep, A.N., Zhu, C., de Greef, M. & Vanwing, T. (2017). Examining Social Inclusion and Social Capital among Adult Learners in Blended and Online Learning Environments. *European Journal for Research on the Education and Learning of Adults*, vol. 1, pp. 1-25.

[5] Cross-Sectoral Coordination Centre of Latvia (2010). Sustainable Development Strategy of Latvia until 2030 [online]. [cit.2021-10-20]. Available at: https://www.pkc.gov.lv/sites/default/files/inline-files/LIAS_2030_en_1.pdf

[6] Education Law of Republic of Latvia (1998). *Latvijas Vestnesis*. [online]. [cit.2021-10-20]. Available at: https://likumi.lv/ta/en/en/id/50759-education-law

[7] Gegenfurtner, A., Schmidt-Hertha, B. & Lewis, P. (2020). Digital Technologies in Training and Adult Education. *International Journal of Training and Development*, vol. 24, iss. 1, pp. 21-25.

[8] Gigauri, I. (2020). Effects of Covid-19 on Human Resource Management from the Perspective of Digitalization and Work-life-balance. *International Journal of Innovative Technologies in Economy*, vol. 4, iss. 31.

[9] Jekabsone, I. & Gudele, I. (2021). COVID-19 and Adult Education – a Path to Transformation of Regions in Latvia. Paper accepted for publishing at *Pedagogika*.

[10] Ministry of Education and Science of Latvia (2021). State Education Information System – Register of Educational Institutions [online]. [cit.2021-10-20]. Available at: https://viis.lv/Pages/Institutions/Search.aspx

[11] Ministry of Environmental Protection and Regional Development of Latvia (2020). Administratīvi teritoriālā reforma (Administrative-Territorial Reform). [online]. [cit.2021-10-20]. Available at: http://www.varam.gov.lv/lat/administrativi_teritoriala_reforma/

[12] OECD (2019). Skills Matters: Additional Results from the Survey of Adult Skills [online]. [cit.2021-10-22]. Available at: https://www.oecd.org/skills/piaac/publications/Skills_Matter_Additonal_Results_from_the_Survey_of_Adult_Skills_ENG.pdf

[13] Rehnuma, K. (2020). Skills and Strategies for the Post-COVID-19 Workplace. *International Journal of Career Development*, vol.3, pp. 20-23.

[14] Sheppard, B. (2020). A Guide to Thriving in the Post-COVID-19 Workplace [online]. [cit.2021-10-20]. Available at: https://www.weforum.org/agenda/2020/05/workers-thrive-covid-19-skills/

[15] State Education Development Agency (2021). ESF projekts "Nodarbināto personu profesionālās kompetences pilnveide" (ESF Project "Improvement of Professional Competence of Employed Persons") [online]. [cit.2021-10-20]. Available at: https://www.macibaspieaugusajiem.lv/esf-projekts-nodarbinato-personu-profesionalas-kompetences-pilnveide

[16] Wang, V. (2011). Marketing and Promoting Online Adult Education. In U. Demiray, & S. Sever (Eds.), *Marketing Online Education Programs: Frameworks for Promotion and Communication* (pp. 41-55). IGI Global

"CREATIVE CLASS": THE FAILED PROMISE? "CREATIVE CLASS" AND CREATIVITY IN THE LABOUR MARKET

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Abstract: *The concept of "creative class" (Florida, 2002) was welcomed by sociologists, policy makers and urbanists, who wanted to transform the society, economy, and cities, towards more productive and advanced states. In this paper, we outline the major promises of "creative class" concept – from urban renewal to talent retention. We consider the major factors which inhibited the innovative potential of "creative class". Based on research literature analysis, we formulate and explain how the recent labor market developments failed the promise of "creative class". These developments are: a. growing economic returns to talent and increasing margins in tech sectors; b. diminishing returns to creativity as productive skill; c. growing between-firm differentiation; d. labor market polarization. These factors operate in a broader social context characterized by rising social inequalities and diminishing returns to creative skills in the developed and developing world. We conclude that the "creative class" concept remains misinterpreted and overstated.*

Key words: *creative class, creative skills, human capital, labor market, returns to skills*

JEL Classification: *I28; O38; P36*

1. INTRODUCTION

In the expanding sectors of industries 4.0, the demand on highly qualified workers who are able to do non-routine work and innovate, is growing. However, the labor market share of workers employed at lower-rank and middle-rank positions, which require mostly routine skills and are concentrated in services and production, remains high. This situation generates uncertainties for both individual and families, who take professional and educational choices, as well as for policy makers. The major question is what kind of educational investment will meet the future economic (and social) demands and will be rewarded?

Sociologists, educationalists and political scientists (Bell, Fukuyama), suggest various options regarding the types of skills which will be demanded in the future. In this paper, we will focus on the influential concept of "creative class" by Richard Florida, which he developed in the 2002 book "The Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life"; the book received more than thirty thousand citations on Google Scholar by 2021.

According to Florida, the representatives of creative class are scientists, engineers, poets, academics, architects, create "meaningful new forms" (2002). In sum, all working in such spheres as "design, education, arts, music and entertainment, whose economic function is to create new ideas, new technology and/or creative content" form the creative class (Florida, 2002, p. 8).

In addition to recognizing social and economic power of creative occupations, and this was achieved by explicitly stating that they are a socioeconomic class, the "creative class" concept offers a promise to many individuals who possess creative skills. Such individuals are disempowered by the system which prioritizes credentials and does not sufficiently reward work which brings self-fulfillment. Following Florida, creativity as a skill will be increasingly

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rewarded in the future economy and will be in growing demand. Moreover, creativity will be at the core of economic production and social development.

The goal of this paper is to outline the major promises of "creative class" concept – from urban renewal to talent retention. In the paper, we will also outline the major factors which inhibit the innovative and economic potential of "creative class". The contribution of creativity to economic and social development is still highly debated. Based on the analysis of relevant research literature, we formulate and explain how the recent labor market developments failed the promise of the "creative class". We will also discuss how "creative class" is understood in the transitional economy in Russia.

2. THE PROMISE OF "CREATIVE CLASS" AND THE LABOUR MARKET

The relationship between human capital and regional economic growth has been debated by many authors (Glaeser, 1994). The contribution of Florida is defined by his focus on occupational standing of an individual and the occupational composition of the local labor market. Previous studies focused on human capital defined as individual's level of education. Instead, Florida suggests that "occupations provided an alternative and more precise measure of human capital or talent than the conventional one that was based on education" (Florida, 2014, p. 197). His argument is that many creative individuals, for example, Steve Jobs, did not have a college degree. Creativity is neither enhanced nor impeded by elite universities (however, the latter is rather the case). The emphasis of human capital theorists on prestigious credentials was therefore 'elitist' and excluded many creative individuals from consideration. This was fundamentally wrong, as the number of those who have no higher education degree amounted up to 60% among creative professionals in the US in 2002 (ibid.). Their contribution to the regional economic growth was nevertheless high (ibid.).

Another novelty in Florida's theory is his emphasis on bohemianism and social freedom. Representatives of different occupations have different lifestyles and consumption preferences. They are attracted to places where their expectations with regards to the lifestyles and the quality of life are met. This is why creative individuals tend to concentrate in those communities which offer safe and welcoming environments, where cosmopolitan cultural beliefs prevail.

Put it simply, "urban success comes from being an attractive "consumer city" for high skill people" (Glaeser 2005, p. 594). In the 'thick labor market', job seekers can more easily find a job, which increases economic security for workers. Such labor markets also attract companies and encourage creation of new businesses, as companies can more easily find qualified workers (Florida, 2002). Altogether, these processes generate such positive outcomes as urban renewal, regional economic development, improved quality of life, and talent retention.

It would be too simplistic, however, to view creative class theory as a theory of consumption and economic growth. Florida believes that the concentration of creatives with certain lifestyles has an added value which can not be measured directly. He refers to intersubjectivity as the flow of creativity, which stems from clustering of people in one area. The clustering of creative professionals can enhance economic growth:

> *"I had come to the conclusion that it was not the technologies we build or the knowledge that is poured into our heads that is our key human and economic resource, but our shared creativity—a creativity that extends across all kinds of people, that is embedded in every kind of occupation, and that cuts across all social categories. Unlike land, capital, and labor, creativity is not a stock of things that can be depleted but an unlimited*

> *resource that is constantly renewed and improved by education, on-the-job experience, and the stimulation that is provided by human interaction"* (Florida, 2014, p. 197).

Therefore, human interaction can boost innovation and productivity, and it is enabled by social proximity. He emphasizes proximity not only to other humans, but also to objects of culture, for example, opera theaters. Creativity is embedded in a complex network of human and non-human objects, and creativity is both a process and an outcome.

In his earlier writings, he emphasizes that creativity primarily resides in certain occupations and professions, and especially in the "super-creative core", e.g. university professors, novelists, designers, thought leaders. In his 2002 book, Florida rejected the idea that creativity is embedded in every type of job. This view was later criticized for being elitist, and for presenting a generalized picture of how creativity and creative processes operate in society and the economy (Glaeser 2005).

Another argument he makes in his earlier writings is the idea that there are returns to having a creative class job, and they offset the returns to human capital, measured conventionally as the level of education and experience. This thesis later made his theory vulnerable to criticism. First, it is difficult to measure this empirically. Second, the economic reality does not meet the expectations that the returns to creative skills will be growing over time. In the next paragraphs these and other promises of Florida's creative class concept will be considered in the context of recent labor market developments. In addition, the reference to the situation in a transitional economy will be made, and Russia will serve as an example.

2.1 Growing economic returns to talent and increasing margins in tech sectors

Recent studies document increasing economic returns to skills (Author et al., 2020). However, most of the studies considered conventional human capital characteristics such as education (Autor et al. 2008). Specifically, returns to higher education remain mostly stable, the returns to the most prestigious diplomas are the highest (Goldin and Katz, 2008). Some scholars attribute this to the rapid technological advancements in the economy, which increase the demand for high-skilled employees who have up-to-date qualifications (ibid.). Growing returns to elite higher education and diminishing returns to degrees from mass universities or colleges are explained by polarization of the labor market.

The recent statistics for EU countries show that creative professionals are also those who are more likely to have higher education than other professional groups (Autor et al., 2008; Author et al., 2017). The group is very diverse, and there are no regularities with regards to the prestige of diploma.

These developments, on the one hand, demonstrate that higher education is inflated, and more creative professionals are likely to have a higher education degree in the future. This is counter to Florida's theorizing. On the other hand, they do not contradict his major assumption that workers will be rewarded for being in creative occupations on top of their university degrees. His arguments look less persuasive in case we consider returns to creative skills compared to other types of skills, e.g., analytical, managerial, and social.

2.2 Diminishing returns to creativity as productive skill

Florida did not apply any direct measures of creativity and relied on occupational status, which was a limitation of his empirical analysis (2002). Liu and Grusky (2013) in their study of payout to creativity and other skills, based on US census data, use measurements of occupational skill in addition to the information about the occupational status. Specifically,

they generate the creative skills as a factor which includes such categories as originality, thinking creatively, and innovation (ibid., p. 1344).

In line with Florida's theory, they find that the demand for creativity as a skill has been steadily growing between 1980 and 2010 (2014). This can be partially attributed to the spread of social values which celebrate individual autonomy and self-expression among young graduates, which drives young graduates to enter creative professions (ibid.).

However, the resulting oversupply of labor force in creative sectors impedes the growth of payoff to creative skills (Liu and Grusky, 2013). Using statistical data, they look whether increases in demand yield a long-term increase in the payout to skills. They find that the highest payoff over the recent decades was to the analytical skills. Moreover, prestigious university diplomas were required at all analytic jobs (ibid., p. 1357). Despite the high demand for creative skills, which has been constantly growing, the returns to creative skills declined. Surprisingly, there was even a wage penalty for creative skills. Between 1980 and 2010, the penalty increased by 3.2% up to 10.2% in 2010 (ibid., p. 1359). Liu and Grusky explain this by the fact that many creative workers are driven by intrinsic motives: they prefer to forego high wages and feel privileged just for having a creative job (ibid.).

This is a very important finding. In case creative workers represent a socioeconomic class, their economic deprivation (which results from low pay) constraints their economic mobility. In other words, they can afford less than their parents (in the same age). Furthermore, their opportunity for socioeconomic mobility is constrained by the labor market institutions, which will be considered in the next section.

2.3 Growing between-firm differentiation

Growing differentiation between firms is observed in many countries. Author et al. (2020) based on the analysis of the US census data show that "firms initially gain large market shares by legitimately competing on the merits of their innovations or superior efficiency. Once they have gained a commanding position, however, they use their market power to erect various barriers to entry to protect their positions" (Author et al., 2020). Smaller firms struggle to attract talent. Larger firms gain the most productive labor force by offering highly attractive compensation, at the same time, they optimize corporate payrolls by outsourcing jobs. This trend counters Florida's argument about creativity and local proximity as driving forces of economic productivity.

2.4 Labor market polarization

As a result, the labor market is highly polarized, mostly due to entry barriers. There is a growing tension between creative workers hired in the secondary labor market, characterized by low pay and job security, and those employed in the primary labor market, where the most attractive jobs are concentrated. Increased employer monopsony power therefore undermines solidarity and trust among creative professionals, and their market power (Lui and Grusky, 2013).

First, creative workers employed in the secondary labor market segment are hired at low-paid temporary positions, their jobs are standardized. They share many characteristics with service workers, for example, shop assistants, nurses, and others. Many of such workers find themselves in precarious work situations, especially in case they are hired as independent service providers by large on-line platforms.

Second, the competition for positions in the primary labor market grows. This drives competition for prestigious educational credentials. Again, credentialization diminishes the

value of creativity, as the latter often cannot be as easily credentialized as, for example, technical skills.

This enables the opponents of Florida to criticize him for romanticizing creativity. In the highly competitive labor market, professional groups rely on certification in establishing entry barriers. The highly creative individuals such as novelists, poets, opinion leaders (the "creative core"), are at risk in the credentialized education system and in the polarized labor market.

2.5 "Creative class" and the economic transition in Russia

In Russia, the pace of technological innovation is low compared to many other countries, and the share of shadow economic sector remains high (Zakharov et al., 2021). According to 2020 estimates, the creative sector in Russia amounts to less than 3% of GDP (Savina, 2020). Nevertheless, the Agency of Creative Industries was founded in Moscow in 2020. It is expected that creative industries will contribute to the development of the city; the infrastructure such as creative clusters and business-incubators were set up (ibid.).

The academic commentators of Florida's concept consider "creative professionals" as innovators who can possibly evoke economic and social modernization (Volkov, 2013). From the very start, Russian commentators either emphasized only the productivity dimension of creativity and its economic impact, or neglected the productivity argumentation completely. The latter emphasized the "mass" character of creativity which involves many types of professionals, and the willingness of people to achieve self-realization, collaboration and the create a more just society. The study of "creative dispositions" of Russian youth, originally inspired by Florida's book, revealed that many young Russians prioritize "interesting job" over "well-paid job", and demonstrate the prevalence of communitarian values over individualist ones (ibid.). Some commentators (e.g., Kurennoy, in Savina, 2020) wrongly believe that creative class will be the new middle class in Russia, neglecting the diversity of creative professionals and their low capacity to accumulate material resources.

3. DISCUSSION

For many young graduates, romanticized creativity turned out to be a myth which produced unfulfilled professional expectations. There are two possible solutions to this issue.

First, the programs which aim at balancing local demand for skills and their supply can be implemented. For example, the skills deployment policies such as ecosystems of skills might prevent oversupply of graduates of creative education programs.

Second, on the country level, tax incentives to create more jobs should be set up. Author et al see the problem in the decline in the share of labor in GDPs of many countries, therefore, "capital needs an incentive to invest in creating more jobs" (Author et al., 2020, p. 667). This will allow to bridge the divide between larger and smaller firms and form a more balanced labor market.

4. CONCLUSIONS

In this paper, we outlined the major developments in the labor market which unfold counter to the trends formulated by Florida in his famous 2002 book. We show that these developments unfold in a broader social context characterized by rising social inequalities and diminishing returns to creative skills in the developed and developing world. As creative skills are in growing demand across various occupations and economic sectors, and the supply of these

skills grows, creative workers lose their labor market power, whereas the "creative class" concept loses its analytic potential.

Many young professionals who embarked on the career pathway in "creative sectors" (design, journalism and some others), face demising returns to their skills, job insecurity and uncertainty about their future. At the same time, some analysis shows that young people especially value creative jobs as they bring more job satisfaction and offer opportunities for self-realization.

However, the fact that creative skills are in demand across various occupations and economic sectors, weakens the analytic power of the concept "creative class", as well as the market power of the creative workers. We conclude that in many countries, including Russia, the concept of creative class was rather misinterpreted. For many young graduates, romanticized creativity turned out to be a myth which produced unfulfilled professional and economic expectations.

REFERENCES

[1] Autor, D., Dorn, D., Katz, L. F., Patterson, C. & Van Reenen, J. (2020). The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics*, 135(2), pp. 645-709.

[2] Autor D., Dorn, D., Katz L. F., Patterson C. & Van Reenen J. (2017). The Fall of the Labor Share and the Rise of Superstar Firms, CEP Discussion Papers dp1482, Centre for Economic Performance, LSE.

[3] Autor, D. H., L. F. Katz & M. S. Kearney (2008). Trends in U.S. Wage Inequality: Revising the Revisionists. *Review of Economics and Statistics*, vol. 90, pp. 300–323.

[4] [Goldin, Claudia, and Lawrence F. Katz (2008). *The Race between Education and Technology*. Cambridge, Mass.: Harvard University Press.

[5] Liu, Y. and D. Grusky (2013). The Payoff to Skill in the Third Industrial Revolution. *American Journal of Sociology*, vol. 118, pp. 1330 - 1374.

[6] Florida, R. (2002). The Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life, 2002. Basic Books.

[7] Florida R. (2014). The Creative Class and Economic Development. *Economic Development Quarterly*, 28(3): 196-205.

[8] Glaeser, E. (1994). "Cities, Information and Economic Growth," Cityscape 1(1): 9-47. Glaeser, E. (2003) "The New Economics of Urban and Regional Growth," in G. Clark, M. Feldman and M. Gertler, Eds. The Oxford Handbook of Economic Geography. Oxford: Oxford University Press, pp. 83-98.

[9] Glaeser, E. (2005). Review of Richard Florida's The Rise of the Creative Class. *Regional science and urban economics*, 35(5), 593-596.

[10] Savina, O. (2020). Tworchestvo kak tovar. Kak razvivayetsya kreativnaya ekonimka v Rossii? [Creativity as a good. How is creative economy developing in Russia?]. Polit.ru (retrieved from https://polit.ru/article/2020/08/24/creative/ on 25.10.2021). [in Russian]

[11] Volkov, Y.G. (2013). Kreativnyi klass kak integriruyusheye yadro rossiskogo obshestva [Creative class as an integrative core of Russian society]. Vestnik Moskowskogo universiteta [Moscow university bulletin], 18(2), pp. 72-91. [in Russian]

[12] Zakharov, N., I. Britvina, and A. Kuznetsov. (2021). The Dilemma of Job Creation and Job Loss Before of Industry 4.0. 2nd International Scientific Conference "Vplyv Industry 4.0 na Tvorbu Pracovnyh Miest". 21.11.2019 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2021, pp. 456-452.

APPROACHES TO ASSESSING BANKRUPTCY RISK OF ENTERPRISES

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Abstract: *The bankruptcy risk and the possibility of bankruptcy are of a major interest for banks, financial institutions, clients, etc. but also for investors and for the firms' managers. In the course of time, the diagnosis of bankruptcy had an impetuous development due to the use of statistical methods in the risk analysis. If this organization is insolvent, it is important to examine the level of insolvency (in other words, to check if it is temporary or permanent insolvency). It is necessary for making the decision what to do with the organization (if it is possible to reorganizate it or it is better to liquidate this organization (to let it pass through the procedures of bankruptcy).*

Key words: *bankruptcy risk, reorganization, liquidation, insolvency*

JEL Classification: *J38, J61, R23*

1. INTRODUCTION

The bankruptcy risk can be analysed from different points of view: the static analysis of the bankruptcy risk by means of the financial balance, the analysis of the bankruptcy risk by means of the functional balance and the analysis of the bankruptcy risk by means of the scoring method. The simplest way of financial analyses of bankruptcy is to examine some important indexes. This type of analysis allows to investigate the levels of insolvency and to divide enterprises to bankrupts, enterprises with difficult financial situation and solvent enterprises. According to the bankruptcy legislation of The Republic of Belarus, there are three main financial indexes, the calculation of which is carried out according to the balance sheet.

2. PROBLEM FORMULATION AND METHODOLOGY

The first is the index of current liquidity (K1). It shows the level of working assets of an organization for its business.

$$K1 = \frac{SA}{SL},$$

where

SA – short-term assets,

SL – short-term liabilities.

The second is the index of the provision of an organization with own working assets (K2) which are needed for its financial stability.

$$K2 = \frac{E + LL - LA}{SA},$$

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where

E – company equity,

LL – long-term liabilities,

LA – long-term assets,

SA – short-term assets.

And the third one is the index of the provision of financial obligations with assets (K3). It shows the possibility of an organization to pay all its debts after its assets are sold.

$$K3 = \frac{LL + SL}{B},$$

where

B – balance sheet total,

LL – long-term liabilities,

SL – short-term liabilities.

All this indexes have their norms, which are different for different branches of economy. Only K3 has its permanent norm for all branches.

If the level of indexes K1 and K2 of an organization are higher than their norms and the level of index K3 is lower than its norm, that means the organization is solvent. If the situation is the opposite, that means that the organization is insolvent.

In this case the level of insolvency can be defined. So, if K1 and K2 are lower than their norms during one financial period (financial quarter) that means that the organization has temporary insolvency. And it is possible to rescue its financial situation by taking some simple financial measures.

If K1 and K2 are lower than their norms during four financial periods (financial quarters), that means that the insolvency of the organization is going to be permanent. And more serious financial measures are to be taken (like reorganization).

If K1 and K2 are lower than their norms during one financial period (financial year) and K3 is higher than its norm that means that the organization has permanent insolvency and this organization is a bankrupt. Only the liquidation of this organization is possible in this case.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

Now look at some examples. So, for that let us imagine that 6 organizations are working in the sphere of heavy industry. The norms of indexes for heavy industry in our country are the following: K1 has to be higher or equal to 1.30; K2 has to be higher or equal to 0.20 and K3 has to be lower or equal to 1.

Table 1. Example of insolvency levels of organizations

organizations	indexes	financial periods					norms	the level of solvency (insolvency)
		1	2	3	4	5		
		01.01.20	01.04.20	01.07.20	01.10.20	01.01.21		
A	K1	1.32	1.34	1.36	1.40	1.36	1.30	solvent
	K2	0.21	0.23	0.25	0.27	0.25	0.20	
	K3	0.64	0.66	0.68	0.70	0.68	1.00	
B	K1	1.26	1.24	1.20	1.01	0.20	1.30	permanent insolvency
	K2	0.18	0.16	0.12	0.08	-0.34	0.20	
	K3	0.85	0.85	0.90	0.98	2.08	1.00	
C	K1	1.30	1.24	1.20	1.01	0.60	1.30	the insolvency

	K2	0.20	0.16	0.12	0.08	-0.10	0.20	is going to be permanent
	K3	0.70	0.74	0.74	0.78	0.90	1.00	
D	K1	1.32	1.34	1.32	1.21	1.32	1.30	temporary insolvency
	K2	0.21	0.23	0.21	0.11	0.21	0.20	
	K3	0.64	0.66	0.64	0.74	0.64	1.00	
E	K1	1.32	1.30	1.26	1.24	1.20	1.30	the insolvency is going to be permanent
	K2	0.21	0.19	0.18	0.16	0.12	0.20	
	K3	0.64	0.79	1.00	1.00	1.07	1.20	
F	K1	1.32	1.26	1.28	1.29	1.32	1.30	temporary insolvency
	K2	0.21	0.14	0.16	0.19	0.21	0.20	
	K3	0.64	1.00	1.06	0.75	0.64	1.00	

To make it clear, it is necessary to pay attention to the following table with the calculated significance of the three main indexes for five financial periods (quarters) for 6 different organizations.

As we can see, organization A is absolutely solvent, because all the indexes are within the norms. The other organizations are insolvent. Let us check the level of their insolvency.

So, the insolvency of organization B is permanent and this organization is a bankrupt because it has had bad indexes during 5 financial quarters. Organization C is facing a very difficult financial situation. It is not a bankrupt yet, but because of bad indexes (K1 and K2) during 4 financial quarters the insolvency of this organization is going to be permanent.

You can see that organization D was insolvent in the fourth period and the insolvency was temporary, because the financial situation in this firm has changed for the better.

All of these examples are very simple. Let us discuss a more difficult situation when an organization has been insolvent during three periods in succession. The dynamics of indexes' changes plays the main role in financial analysis in such situations.

For instance, we have two organizations which have been or were insolvent during three periods in succession. These are organizations E and F.

The insolvency of organization E is going to be permanent because the financial situation in this firm is changing for the worse.

The situation in organization F is the opposite. The insolvency of this organization is not permanent because we can notice positive changes in their financial situation.

This kind of analysis (financial analysis) is used only to identify the companies' present situation. To assay the future of financial situation of these companies we have to use another type of analysis (for instance – the discriminant analysis) which is based on different models and will be the best one for concrete organization.

This method is based on statistical techniques and involves observing a set of companies that consists of two distinct groups: one group of enterprises with financial difficulties (bankrupt) and a group of financial-relaxed companies (non-bankrupt).

Observation is based on the calculation of some financial ratios determined for both groups of companies. The significance of indicators and the way of combining them depend on the specific interest of each analyst. This combination of indicators forms a linear function 'z' called 'score function' determined for each enterprise. The distribution of different scores allows to separate all enterprises in two groups which were shown above.

The z-score for each enterprise is calculated as follows:

$$z = v_1 x_1 + v_2 x_2 + \cdots + v_n x_n,$$

where:

$x_1, x_2, \ldots, x_n$ – independent variables,

$v_1, v_2, \ldots, v_n$ – discriminant coefficients.

The discriminant function transforms the individual variable values to a single discriminant score or z-value which is then used to classify the analyzed company.

The advantage of discriminant analysis is that many characteristics can be combined into a single score. So, to build an analysis model based on this method the following steps have to be followed:

1. the analyst selects the financial indicators that best reflect the financial health of a company;
2. the evolution of the selected indicators is compared on two categories of companies within the same field of activity, some of them in distress and others financially relaxed;
3. the predictive function 'z' is developed by combining those financial ratios that have a strong and constant action;
4. the cut-off values of z-function are determined in order to establish the interpretation of the z-score that reflects the occurrence probability of bankruptcy risk.

However, there are some difficulties with the use of discriminant analysis.

First of all we have to understand that there is no any unique model which is good for all kinds of organizations of different countries. That is because of the national character of those models that have been developed for companies of concrete macroeconomic climate.

Another disadvantage is that till now, almost all z-score models use only quantitative variables (financial ratios). All the financial ratios of the models above and of models in general were obtained on the basis of certain statistical data of the activities of enterprises in different countries or regions. Therefore it can be assumed that these models can be used most effectively for a certain group of companies operating in a particular economic situation and in a particular period of time for which they were originally designed.

4. CONCLUSION

The discriminant analysis expectations and variances can be used in the application of mathematical tools. This means that when we calculate the integral index of the model we cannot get the true value of that coefficient, we get only its evaluation.

For solving all this problems better is proposed the following:

- the selection of z-model for the discriminant analysis should be based on the possibility of its use for the particular enterprises of concrete country in concrete period of time;
- we should use financial ratios which allows to consider all individual characteristics of the company best;
- in case, when it is impossible to use the existing model, we should invent 'alternative' one which allows us to consider the features of our local economy in the current period of time.

REFERENCES

[1] Instructions on the procedure for calculating solvency ratios and analyzing the financial condition and solvency of business entities, approved by the Ministry of Finance of the Republic of Belarus and the Ministry of Economy of the Republic of Belarus 27-th of December, 2011 № 140/206.

[2] Pripoaie, R., Onica, M.C., Sirbu, C.G. (2018). The Analyze and Prognose of Risk Bankruptcy – Case Study, Arcelor Mittal Steel Galati, *MIBES Transactions International Journal, June*, 2008, Larissa, Greece, pp.182-194.

[3] Resolution of The Council of Ministers of The Republic of Belarus from the 12-th of December, 2011 № 1672.

[4] Altman, E.I. (1968). F inancial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy, Blackwell Publishing, American Finance Association, *Journal of Finance*, vol.23, iss.4, pp.589-609.

[5] Altman, E.I. (2002). Revisiting Credit Scoring Models in a Basel II Environment, Credit Risk, Credit Rating: Methodologies, Rationale and Default Risk, Ong M. Ed London Risk Books, pp.7-19.

MACHINE LEARNING APPLICATION FOR SUSTAINABLE DEVELOPMENT OF HUMAN CAPITAL: LINKING PERSONAL VALUES WITH SKILLS AND COMPETENCIES

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Abstract: *The impact of digitalisation and globalisation on the future demand for specific skills requires new approaches for developing human capital and skills at all stages, from future-oriented education and on-site training to changing human resources management and hiring practices. The research is a part of the project to design a practical instrument capable of assisting individuals, employers, education institutions and public authorities to develop and profit from the labour market and skills intelligence in real-time. The objective of the study is to explore the relationship between values and skills for the development of a machine learning solution based on a survey of a nationally representative sample of 1,741 working-age respondents, including economically active and inactive persons. The survey instruments include a self-assessment questionnaire of the current level of 79 skills in 12 groups and personal values tests deploying image-based and statement-based approaches. The results were matched with the survey of 1023 Latvian companies represented by their recruitment and personnel development decision-makers. The novelty of the method is replacing lengthy and less precise value measurement routines with image tests using Motival machine-learning algorithms. The research results reveal a significant skills mismatch for skills and personal values demanded and available in the labour market. A machine learning application provides a practical solution and opportunities to grow human capital by linking personality traits with the current skills and aspiration to obtain new skills by employees and improve the process of hiring.*

Key words: *human capital, skills, competencies, personal values, sustainability*

JEL Classification: *J24, A13, M5*

1. INTRODUCTION

Currently, the world faces a significant change of societies driven by globalisation and digitalisation. Dubbed the Fourth Industrial Revolution, this transformation of society and business is becoming a focal point for both academia and business. However, often it is perceived primarily as a technological shift. However, the rapid development of technologies significantly impacts the way humans live, work, interact and relate to each other.

This change is evident in the labour market as well. First, introducing new technologies in business facilitates the demand for new skills. Second, more and more occupations and functions are subject to automation - manual labour and the human workforce is increasingly substituted by technologies. These changes determine the demand for specific skills in the market. However, the human capital or the total stock of skills available in the labour market lags behind the industry's rapid transformation. It might take years and significant investments in people to build skills that businesses need to sustain their productivity and competitiveness in the fast-changing environment. It takes time to develop and implement formal education programmes. Companies have to invest in on-site training and retraining of the current employees. However, this might not be enough to close gaps if the new skillset requires a longer time to develop, the specific training or education programme is not available in the market, or current employees are not suitable candidates for retraining.

Furthermore, COVID-19 pandemics had exerted a significant shift to the business models of most employers, e.g. remote work requires new skills, some businesses have stopped their

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operations completely or restructured them significantly. It illustrates the rapid changes that pose new challenges for companies to find the required competencies and skills in the labour market where they are scarce today, and it takes time to build them for the future.

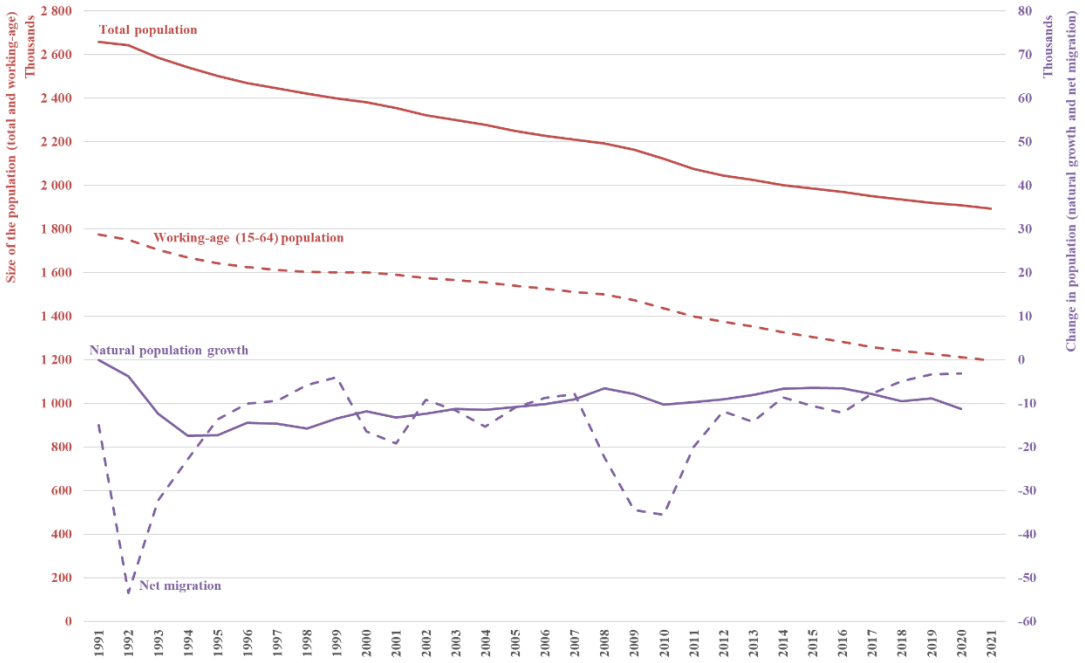
2. CURRENT ISSUES IN THE LABOUR MARKET OF LATVIA

While the study refers primarily to the context of Latvia, the challenges outlined below are shared by most developed market economies today. Their combination represents a significant challenge for companies to attract and retain employees with the skills required for sustainable business development with the current recruitment practices.

Negative demographic trends

The working-age population in Latvia has declined significantly, driven by several factors such as low reproduction rate and negative net migration. Over the last 30 years, the country's total population has declined from 2.66 million in 1991 to 1.89 million in 2021 or -29% (CSB, 2021), with natural population growth and net migration negative each year. The working-age population (15-64 years) in Latvia has declined from 1.77 million (1991) to 1.19 million (2021). It represented only 63.2% of the total population in 2021 compared to 66.7% in 1991, or 67,4% in 2011. The steeply declined birth rate of the 1990s has contributed to the remarkable decline of the working-age population over the last decade.

Figure 1. Population Dynamics in Latvia 1991-2021



Source: Author's calculations based on the CSB statistics (CSB, 2021)

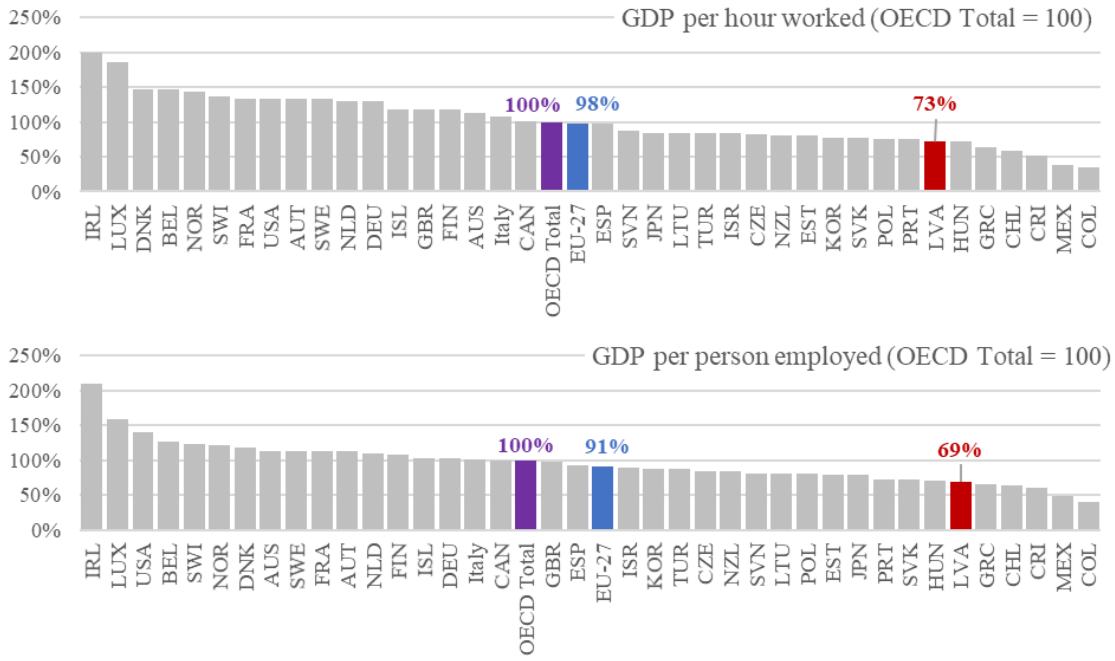
At the same time, the employment rate in the working-age population of Latvia remains high despite the recent impact of COVID-19 pandemics – 72.3% before pandemics in 2019 and 71.6% during pandemics in 2020 (CSB, 2021). 2019 figure is the highest historical figure, e.g. compared to the lowest of 58.5% in 2010 (the effect of the economic downturn) or 68.1% in 2015. A similar situation is evident in neighbouring markets of Estonia, with a 73.5% employment rate and Lithuania – 71.6% (Eurostat, 2021). The unemployment rate in 2019 (6.5% in 15-64 yo and 6.3% in 15-74) was the lowest since the economy's peak in 2007 (6.2% and 6.1%, respectively). While pandemics impacted employment, unemployment rates remain significantly low in 2020 – 8.4% (15-64) and 8.1% (15-74). The situation illustrates

the challenges for the industry to recruit employees due to a shortage of labour force supply in the small market of Latvia.

Low productivity

Labour productivity in Latvia is low compared to other developed economies such as OECD countries and EU countries (see Figure 2), with Latvia having the seventh lowest GDP per hour worked and 6th per person employed among OECD countries (OECD, 2021) and the 8th lowest among EU (Eurostat, 2021).

Figure 2. Labour Productivity in Latvia and OECD Countries in 2020



Source: Author's calculations based on the OECD statistics (OECD, 2021)

The nominal unit labour costs (ULC) increase reflects discrepancies of skills already. Although Latvia is one of the EU leaders in relative productivity growth, labour costs have risen faster than productivity since 2012, endangering the cost competitiveness of Latvian businesses, as stated by the Ministry of Economics of Latvia (EM, 2018).

Low productivity indicates that the workforce is not utilising its skills and competencies to the maximum potential. Combined with the declining availability of the workforce, low productivity increases companies' resourcing costs and decreases their ability to attract skilled personnel, with bargaining power remaining at the supply side of the labour market. Growing human capital in the market becomes challenging because companies have fewer financial resources for retraining and upskilling their personnel after securing their regular pay. COVID-19 has notably increased the recognition of the threat of recruiting and retaining skilled employees. For instance, according to KPMG, talent risk was the #1 threat for the companies to grow – 21% of the surveyed companies in the July-August 2020 study (KPMG, 2020) named it the most significant risk compared to 1% in January-February, 2020 (risk was ranked #12 then).

European skills and jobs survey (ESJS), measuring the importance of factors that influenced respondents' decision to accept their current job, revealed that job security provision scored higher than the match between individuals' skills with those needed by the job (Cedefop,

2018). The motivation of employees for upskilling and engagement with the employer is relatively low today.

As a result, the sustainability of the company and its competitiveness in a rapidly advancing technology-driven world and limited human capital in the market becomes an issue that is often resolved by growing automation of the processes to replace high-cost and low-availability workforce where possible.

Technology-driven change in skills demand

Occupations and their skills requirements are dynamic and can adjust to shifts in the economic environment (Becker & Muendler, 2015). There is a dramatic shift in occupations and skills required at the workplace driven by technological advancement. European Centre for the Development and Vocational Training (Cedefop) ESJS reveals that 43% of EU employees experienced a recent change in their work technologies (Cedefop, 2018). The studies (McKinsey Global Institute, 2017) suggest that less than 5% of existing occupations are wholly automatable, though, for 60% of occupations, at least ⅓ of the tasks can be automated. While automation adoption will take decades, technologies could provide significant benefits for companies facing current challenges of availability and growing cost of labour. The more employers encounter shortages or high costs of labour resources, the more they are inclined to substitute them with automation.

According to a study by Deloitte and Oxford University (Deloitte, 2016), 18% of employed in public administration could be replaced by automated solutions, and the number of customer service staff to be reduced by 90% in the UK by 2030. The Future of Skills: Employment in 2030 suggests that 18.7% of the current USA and 21.2% of the UK workforce is in an occupation that will likely experience a fall in workforce share (Bakhshi et al., 2017, p.49-50). Latvia faces a similar fast transition into automation – according to 2017 research by Tele 2 in Latvia, 5% of Latvian employers admitted readiness to replace at least a half of their employees with bots. In 2018, a survey by KPMG revealed that 8% of companies surveyed in Latvia had already started the implementation of automated solutions such as machine learning solutions, artificial intelligence, virtual assistants or chatbots. However, the current state of the labour market is not motivating the employees to assess their skills and develop the ones that will be likely more demanded in the future labour market. There is limited or no information about the potential future demand for the skills in the market. It poses a challenge for the employee to develop these skills and for the educators to supply that education programme.

The lag of the education system

Latvia has challenges for the workforce to adapt to the rapidly advancing technological environment. Latvia was ranked 22 in DESI Report (EC, 2021) by individuals with above basic level of digital skills with 24.5% (EU-27 average 31.1%) and ranked 24 (43.0%) for individuals with at least basic digital skills (EU-27 average 56.1%) among individuals aged 15-74 in 2019.

A higher involvement of the population in lifelong learning is required to close a growing structural gap of the skills. However, only 6.6% of the Latvian population aged 25-64 was involved in education and training in 2020 (Eurostat, 2021). These figures were remarkably higher in the leading countries, e.g. Sweden 28.6%, Finland 27.3%. The former goal of increasing the proportion of people involved in adult education to 15% by 2020 has not been achieved, and even achieving it will not suffice to close the growing gap in the skills in demand.

Education systems in most markets, including Latvia, are reactive to the changes in the demand for specific skills in the market. Most academic and professional education institutions design their offering of formal education and training programmes based on the

current state of the labour market. Therefore, it typically takes over five years from the programme's inception till the first graduates are available to the employers. However, future-oriented education programmes require information about the potential demand in the market and the supply dynamics to fill the current skills gaps.

A New Skills Agenda for Europe (Soldi et al., 2016) proposed by the European Commission has suggested many policy actions and initiatives to improve skill formation quality and relevance, making skills more visible and comparable, and improving skills intelligence for better career choices. Since the launch of this initiative, policymakers have strongly emphasised the importance of the labour market and skills intelligence.

Cedefop (2018) research states that it is clear that further expansion of higher education attainment rates may not be the best recipe to tackle the growing skill mismatch. However, labour-market-relevant vocational education and training have proved their worth. The study confirms that skills mismatch is a balancing act between the demands of workers' jobs and their skills and attitudes. We may come across individuals who seemingly possess the knowledge and skills to perform a specific task; however, only with a positive attitude there will be motivation, engagement and intention to complete it.

The employers would be motivated to provide relevant on-site training assuming they would be able to design it in a way that contributes to both the skills and motivation of their employees. Employees would be motivated to acquire skills assuming they are informed about the future demand for these skills, contributing to their motivation to develop these specific skills.

2. THE CONTEXT OF PERSONAL VALUES

However, skills are not a source of personal development or growth *per se*. When deployed to execute tasks, they are embodied in people and translate into productivity and innovation. On the other hand, attitudes arise from our core values and beliefs internally. Beliefs are assumptions and convictions that people hold based on their past experiences. Values are conceptions that form human attitudes towards things, concepts and people. These attitudes determine their behaviours and choices. Our choices of certain activities we practice more often and with a higher motivation help develop our skills.

A proper understanding of personal motivators might help employers focus their efforts on hiring and training the people for specific knowledge and skills much more effectively if they are naturally motivated to acquire them. However, current hiring practices in the market are based on selecting candidates by their current skills rather than attitudes and ability to acquire new skills easy or deploy their natural talents, i.e. transforming their values into the desirable mode of conduct and thus developing specific skills. Therefore, we consider an individuals' personal values the fundamental element in their motivational construct that determines their willingness and ability to acquire particular skills.

2.1 The Concept of Values

The study of individual social values to explain the human behaviour has a long track record. The first systematic attempts to provide a classification method for social values took place over a century ago (Spranger, 1914). Spranger defined values as the "belief[s] upon which a man acts by preference" and categorised them into six basic dimensions (theoretical, economic, aesthetic, social, political, and religious).

The subsequent studies focused on interpreting values and their dynamics, exploring their impact on behaviour (Rokeach, 1973; Schwartz, 1992; Triandis, 1985; Hofstede, 2001;

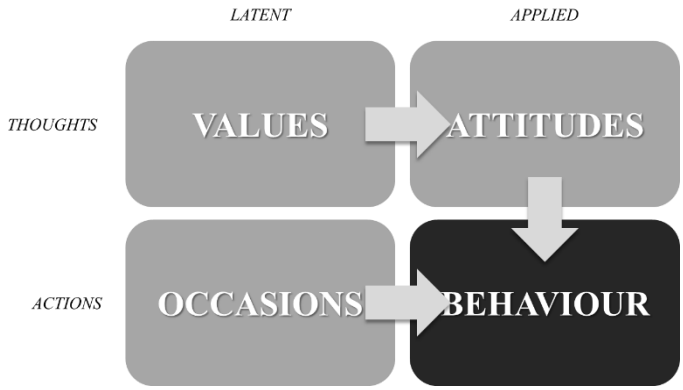
Inglehart & Baker, 2000). The study of values has grown into an interdisciplinary area of research that includes psychology, sociology, marketing and education.

Values are "enduring beliefs that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973) or "desirable trans-situational goals of variable importance applied as broader guiding principles by a person or social entity" (Schwartz, 1992, 1994).

Studies have confirmed that there is a correlation between personal values and behaviour at the workplace (Purc & Laguna, 2019; Anderson et al., 2014) and that discrepancies between an individual's values and their work environment can lead to job burnout (Retowski & Podsiadly, 2016) and declining job satisfaction (Amos & Weathington, 2008). While values are considered universal in structure, individual behaviours are shaped by the interpersonal differentiation of values and each individual's hierarchy of values (Cieciuch, 2017). All values impact us simultaneously; however, the importance of any value can vary at the individual level.

Another factor influencing an individual's values and behaviours is the occasion or the specific circumstances under which the individual makes a specific decision (see Figure 3). By identifying and measuring the impact of values, we can explain and predict the individual's behaviour, choices, and natural preferences, including his/her preferences towards performing specific job duties and developing the relevant skills.

Figure 3. The Impact of Values on Behaviour of an Individual



Source: Author's elaboration

2.2 Measuring Personal Values

The key challenge has been identifying and measuring personal values due to their complexity and latent nature. Although many instruments have been developed and applied, most are questionnaire-based tools with high complexity and time required to measure.

Vernon and Allport (1931) developed the Study of Values instrument, a self-administered, self-scoring test based on Spranger's system using an ipsative or forced-choice method for measuring the predominance of specific values in an individual.

The Rokeach Value Survey (Rokeach, 1973) was among the first instruments to gain wide recognition, and it remains popular to this day. The method deploys two sets of values, each containing 18 individual items—'terminal values' that refer to desirable end-states (what the individual wants to achieve) and 'instrumental values' that refer to preferable modes of behaviour employed to achieve the terminal values. Respondents evaluate both sets of values, grouping and then ranking them by importance to them personally. It is a time-consuming exercise and allows much freedom to interpret the possible meaning of individual values

provided as text-based statements. Rokeach Value Survey is widely used and has influenced tools such as the List of Values (Kahle, 1983) and Values and Life Style (Mitchell, 1983).

One of the most popular instruments is the Schwartz Value Inventory (Schwartz, 1992, 1994, 2006). Schwartz identified and validated ten value domains or distinct value groups with 56 or 57 values. Survey respondents rate the values in order of importance to them personally. The domains represent either individualistic or collective values or a combination of the two. The domains are interpreted in a framework of four dimensions. An updated and refined version defines the goals by nineteen fundamental motivational values.

Despite values research gaining a growing acceptance, it has limited application in business, particularly in human resource management, due to the complexity of these instruments.

Most instruments today represent time-consuming text-based surveys that have the following issues and limitations:

1. time: the long time required to complete the questionnaire leads to diminishing engagement and hence a low quality of responses;
2. complexity: text-based surveys with semantically ambiguous statements are prone to interpretation by respondents depending on their level of education, personality, social background, the context of the study, and situational factors;
3. social bias: explicitly named values might make respondents choose answers that they find more socially desirable than others more important for them personally.

It might negatively affect the quality of the research; therefore, we deployed Motival social technology that enhances the text-based research by using images associated with the values in question.

3. MACHINE LEARNING SOLUTION TO LINK VALUES WITH SKILLS

3.1 The Instrument for Measuring Personal Values

Contrary to the research done in education or psychology, the use of image-based research methodologies in marketing or recruiting is not described in academic literature.

Motival (short for Motivation and Values) is a method developed by researchers in Latvia since 2002. Since 2017, Motival has replaced the traditional way of measuring values by asking respondents to react to written value statements with visual images. This approach reduces the participant's time strain and taxing element compared to the Rokeach Value Survey. Motival addresses high-score skew resulting from a tendency to give the majority of the values a high score that is notable in the Schwartz Value Inventory.

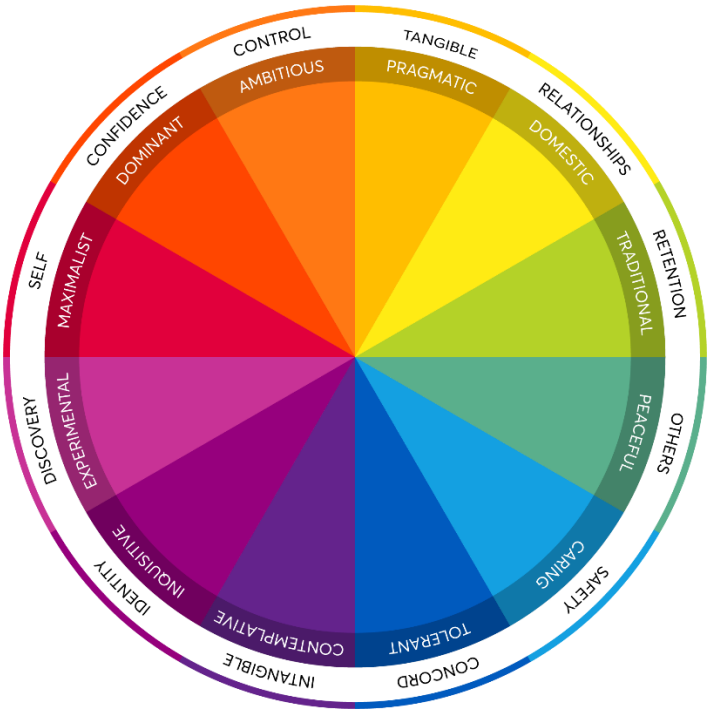
Visual representations play a significant and functional role in social-cognitive processes—images capture the individual's attention and assist in judgment and decision-making because they successfully represent complicated concepts (Carlston et al., 2013; Adaval, 2019). As demonstrated by numerous studies, images can convey a concept in greater detail with a greater likelihood of retention than the same concept expressed verbally (Curran & Doyle, 2011; McBride & Dosher, 2002; Defetyer et al., 2009).

Motival deploys random collages of 4 images to measure values as a replacement of written value statements. The collages are presented to the respondents asking a question "Which image series do you personally associate the most with an accomplished, fulfilled life - not just in moments of leisure but in everyday life as well?"

It combines 64 values in 12 groups and 12 dimensions by their similarity (Figure 4). All groups and dimensions are derived through statistical methods based on former research and approbation in real-world cases in 2002-2020. This algorithm enables values to be grouped by

similarity, and the group is attributed a common name (inner circle in Figure 4). Each value has its weight in determining a particular value group. Value groups can be aggregated to represent dimensions (outer circle in Figure 4) where three values groups constitute a single dimension from the respective value group and its two closest adjacents (e.g. Tangible = Pragmatic + Ambitious + Domestic).

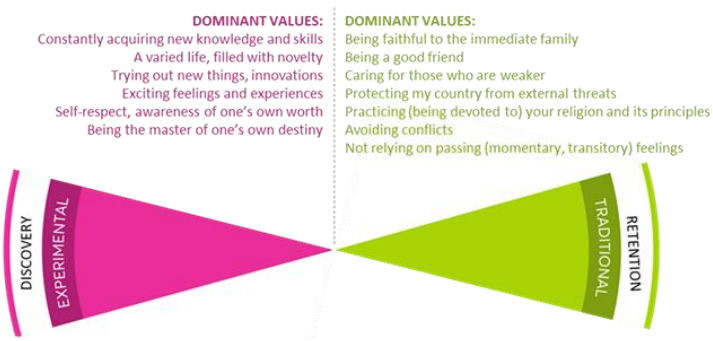
Figure 4. Motival Value Groups and Dimensions



Source: Author's elaboration

Motival algorithm uniquely scales answers by determining interval scale hierarchy for each respondent by converting ranks to an interval scale hierarchy. It has enabled the development of semantically exclusive scales – e.g. one cannot be traditional and experimental to a high degree simultaneously (Figure 5). Value groups are calculated to arrive at their spatial positioning necessary for different data plotting in the same space in multi-dimensional scaling analysis.

Figure 5. Sample Visualization of Semantically Exclusive Dimensions and Values



Source: Author's elaboration

Simple correlations (Table 1) enable us to show the structure of value groups reflected in a motivational map – e.g. Traditional values have a negative correlation with Experimental - the opposite group on map (Figure 5). Negative correlations for the Traditionalist exist with the other oppositely positioned groups like Maximalist and Inquisitive (Table 1).

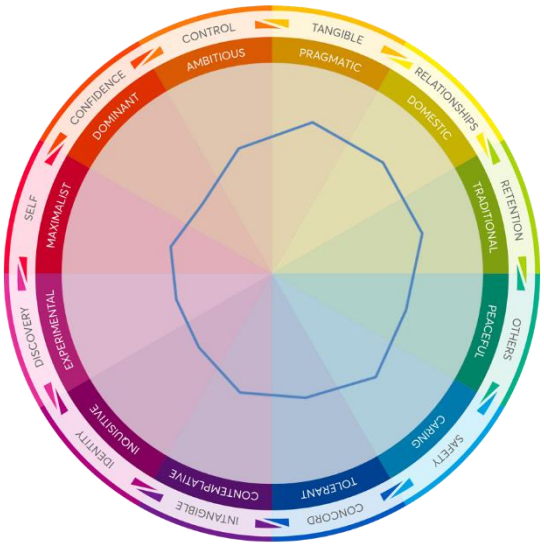
Table 1. Correlation Map of Value Groups

		Pragmatic	Domestic	Traditional	Peaceful	Caring	Tolerant	Contemplative	Inquisitive	Experimental	Maximalist	Dominant	Ambitious
Pragmatic	Pearson Correlation	1	0.37	-0.01	-0.21	-0.24	-0.27	-0.19	-0.23	-0.21	-0.15	0.05	0.19
	Sig. (2-tailed)		0	0.712	0	0	0	0	0	0	0	0.014	0
Domestic	Pearson Correlation	0.37	1	0.50	0.00	-0.01	-0.30	-0.30	-0.30	-0.30	-0.20	-0.20	-0.10
	Sig. (2-tailed)	0		0	0.267	0	0	0	0	0	0	0	0.007
Traditional	Pearson Correlation	-0.01	0.47	1	0.28	0.22	-0.10	-0.31	-0.30	-0.35	-0.31	-0.22	-0.14
	Sig. (2-tailed)	0.712	0		0	0	0	0	0	0	0	0	0
Peaceful	Pearson Correlation	-0.21	0.02	0.28	1	0.33	0.15	-0.19	-0.16	-0.29	-0.32	-0.27	-0.25
	Sig. (2-tailed)	0	0.267	0		0	0	0	0	0	0	0	0
Caring	Pearson Correlation	-0.24	-0.08	0.22	0.33	1	0.42	-0.09	-0.16	-0.28	-0.33	-0.29	-0.30
	Sig. (2-tailed)	0	0	0	0		0	0	0	0	0	0	0
Tolerant	Pearson Correlation	-0.27	-0.25	-0.10	0.15	0.42	1	0.15	0.01	-0.21	-0.29	-0.26	-0.32
	Sig. (2-tailed)	0	0	0	0	0		0	0.631	0	0	0	0
Contemplative	Pearson Correlation	-0.20	-0.30	-0.30	-0.20	-0.10	0.10	1	0.09	-0.03	-0.02	-0.15	-0.16
	Sig. (2-tailed)	0	0	0	0	0	0		0	0.129	0.315	0	0
Inquisitive	Pearson Correlation	-0.23	-0.29	-0.30	-0.16	-0.16	0.01	0.09	1	0.22	0.05	0.04	-0.13
	Sig. (2-tailed)	0	0	0	0	0	0.631	0		0	0.011	0.059	0
Experimental	Pearson Correlation	-0.21	-0.32	-0.35	-0.29	-0.28	-0.21	-0.03	0.22	1	0.30	0.10	0.10
	Sig. (2-tailed)	0	0	0	0	0	0	0.129	0		0	0	0.001
Maximalist	Pearson Correlation	-0.15	-0.21	-0.31	-0.32	-0.33	-0.29	-0.02	0.05	0.30	1	0.20	0.20
	Sig. (2-tailed)	0	0	0	0	0	0	0.315	0.011	0		0	0
Dominant	Pearson Correlation	0.05	-0.17	-0.22	-0.27	-0.29	-0.26	-0.15	0.04	0.14	0.18	1	0.29
	Sig. (2-tailed)	0.014	0	0	0	0	0	0	0.059	0	0		0
Ambitious	Pearson Correlation	0.19	-0.06	-0.14	-0.25	-0.30	-0.32	-0.16	-0.13	0.07	0.19	0.29	1
	Sig. (2-tailed)	0	0.007	0	0	0	0	0	0	0.001	0	0	

Source: Author's elaboration

The motivational profile of any individual or social group is visualised as a radar chart plot by the mean importance of the specific value group to the individual or average of individuals within the social group (Figure 6).

Figure 6. Sample Visualization of Value Profile



Source: Author's elaboration

The images for the collages are acquired through text-based surveys where respondents' values are measured, and at the end of the survey, respondents are asked to upload images that they associate with an accomplished, fulfilled life. Using images instead of text-based statements eliminates the social bias factor as the respondent is not aware of which value the image represents. At the same time, the images shown are tied to a profile of values measured using text-based statements in the past for other respondents.

At the end of each survey, the respondent evaluates individual images from the collages shown to him/her – if the individual likes them and associates them with a fulfilled life. Motival uses algorithms to deploy respondents' feedback to evaluate the individual images. The images scored lower are removed and replaced by higher-scoring ones.

3.2 The Instrument for Measuring Skills

After the value survey, the instrument deploys a self-assessment questionnaire of the current skills by the individual – a total of 79 skills in 12 groups are presented to the respondent. The respondent evaluates his/her current proficiency level (5 levels from 'skill is not developed' to 'expert level') and an interest in developing the particular skill in the future using a modified O*NET Skills Survey (O*NET, 2021).

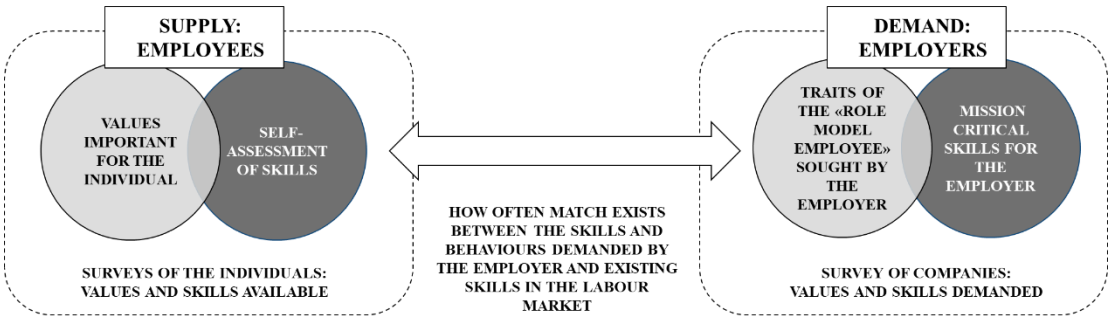
The skills are mapped on the value map using statistical methods. Motival algorithms match the individual's values and skills to explain the individual's motivation and identify his/her current skill set and interest to develop specific skills in the future.

4. APPLICATION OF MOTIVAL IN THE LATVIAN LABOUR MARKET

We performed a study of the Latvian labour market using Motival instruments from December 2020 to October 2021. We used a conceptual framework of the study (Figure 7) that enabled us to match the available skills and values combination in the market with the demand for specific attitudes and skillsets from the employers.

The study aimed to test Motival instruments and their potential application to assess if there is a skills mismatch in the market.

Figure 7. The Conceptual Framework of the Study



Source: Author's elaboration

4.1 Demand Side Instrument

We surveyed 1023 Latvian companies (08.12.2020-12.03.2021) to assess the demand side of the market. A representative sample was reached by geography (regions of Latvia) and industry (registered NACE 2 code of activities) of companies with at least ten full-time employees. The representatives of the companies surveyed were engaged in the recruitment

process for their companies – 50% are the ultimate decision-makers for hiring, 52% define requirements and candidate profiles, 41% search and screen candidates, 44% perform interviews and 48% perform an in-depth assessment of the candidates. The survey was a self-administered web-based survey due to the constraints set by COVID-19 pandemics. The included the questions related to the following topics:

- *personnel recruitment experience* over the last year: frequency, roles recruited, channels and methods used and the evaluation of their effectiveness;
- *skills profile demanded*: which of the skills groups included in Motival instrument are mission-critical for sustainable development and competitiveness of the company, followed by the evaluation of the importance of individual skills in each group selected as mission-critical and an assessment of the availability of these skills in the market;
- *values* as traits of the role-model employee: Motival value set was used with a scale of preference between the opposite values;
- *training practices* in the company: priorities by skill groups, budget and decision-making process for allocating it to employees, selection of training providers;
- *assessment practices*: the current use and future interest in using skills, values, personality and motivation tests in the recruitment process.

4.2 Supply Side Instrument

We surveyed 1741 respondents (12-16.10.2021) – a nationally representative sample of the Latvian population aged 18-65, including economically active and inactive individuals. The survey was a self-administered web-based survey that included the following sections:

- *employment profile*: current status of their employment, role and industry of the current or the last employment;
- *job seeking profile*: their past experience of looking for a job (channel and its effectiveness, the time required, roles and profiles sought), reasons of changing jobs;
- *skills profile*: Motival skills instrument with 79 skills in 12 groups with 5 level self-assessment of the current level and indication of the willingness to develop skills in future;
- *values profile*: Motival image-based values test.

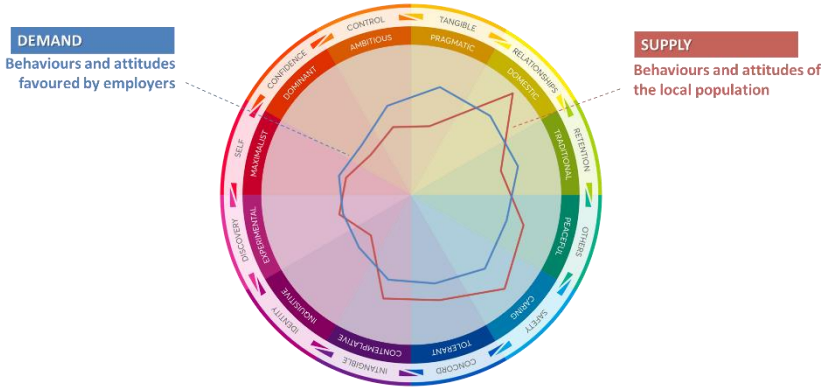
4.3 Main Findings of the Study

The average value profiles of the Latvian population (supply side of the labour market) and the values sought in their employees by Latvian companies (demand side) reveal remarkable discrepancies in all values groups (Figure 8). The discrepancies are seen across all value groups, being particularly evident, for instance, on the opposite pairs of Ambitious and Tolerant, Inquisitive and Domestic, Experimental and Traditional values.

It indicates that the expectations of the Latvian employers regarding their role-model employee and their favoured attitudes are not matching the available profile of potential employees in the market. The companies are seeking a specific type of employees and communicating the respective values in their public communication, recruitment advertising and throughout the recruitment and selection process directly to the candidates. However, the discrepancy in the profiles might become a significant barrier there – the personal values of individuals are not aligned with the company's profile. Companies are often looking for

personality traits that are unnatural to their targets. Adjusting the expected profile towards the one more pronounced in the local market would increase the chance of filling the vacancies faster.

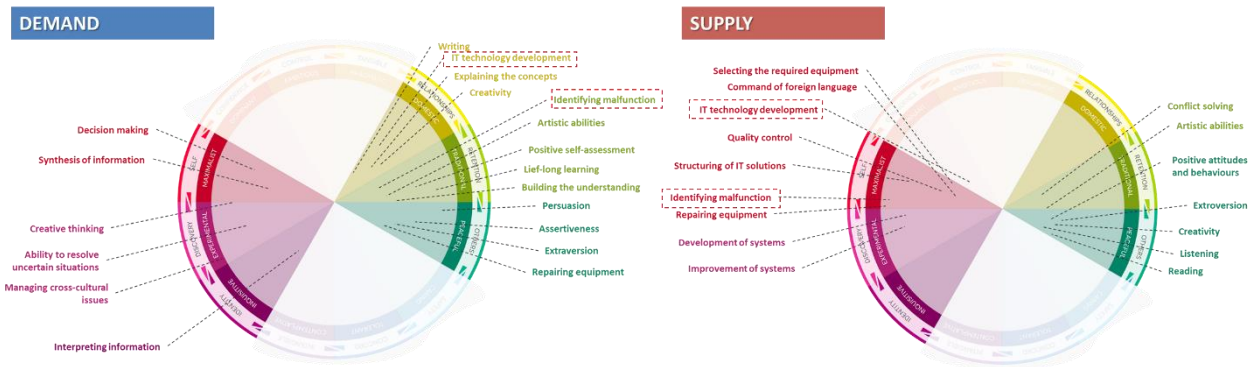
Figure 8. The Discrepancy of Values Demanded and Available in the Latvian Labour Market



Source: Author's elaboration

The skills of the individuals (the supply side) and skills associated by companies (demand side) with a particular profile of the favoured employee were projected on the values map. A discrepancy of the perception was evident across all value dimensions. See the example of Discovery vs Retention dimensions (Figure 9) which reveals how specific skills (e.g. Ability to identify a malfunction and IT development skills – marked) are more developed "natural talents" of individuals with Maximalist values. However, employers predominantly associate these skills with individuals of Domestic and Traditionalist values. Once again, the employer's expectations serve as the guiding principle in designing the recruitment brief and selecting candidates with matching properties. Searching for candidates with a skills-values profile that is less represented in the labour market decreases the effectiveness of the recruitment, increases its cost, and still might attract candidates that are less suited and hence less productive and engaged with the company.

Figure 9.The Example of Skills-Values Mismatch in the Latvian Labour Market

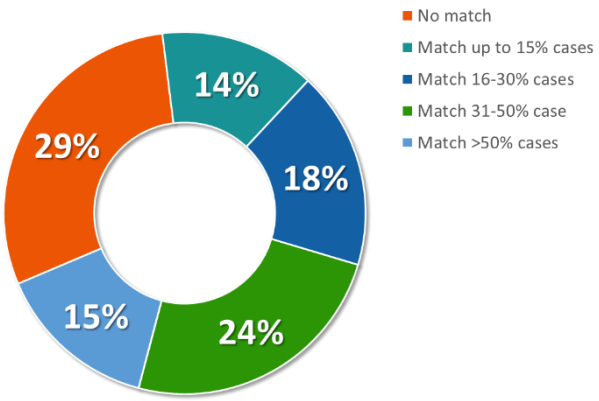


Source: Author's elaboration

The gaps between the supply of particular skills-values combination in the market and expectations of the employers exist in all dimensions and value groups. Due to the limitations of the paper, we are using just the previous example to illustrate these findings.

We assessed how often the match exists between specific values and skills based on the employers' responses (Figure 10). While there was no match in 29% of the companies, more frequently, these were companies with a tiny training budget (less than EUR 500 per annum) and micro-businesses (turnover less than EUR 30 thousand per annum) located outside of the capital metropolitan area. The companies are using paid tests and assessments during the recruitment process are less frequently represented in the segment. On the opposite side - among the companies where the match was over 50%, more frequently there were companies that deploy skills tests before training and rely on internal and on-site training as an alternative to international. In the segment with a match in 31-50% cases, companies deploying the skills tests before training were more frequent.

Figure 9. The match between specific values and skills based on the employers' responses



Source: Author's elaboration

CONCLUSION

The application of Motival instruments that deploy machine-learning solutions to link personal values and skills in the pilot research of the Latvian labour market suggests that:

1. the relation between individuals' values and skills exists;
2. machine-learning solutions can uncover it and overcome the limitations of former values research methods;
3. it is applicable to reveal and explain the gap between the combination of values and skills demanded by employers and available in the market;
4. the potential application of the machine-learning solution can potentially assist companies in recruiting, engaging, retaining and training employees based on a proper understanding of their motivation and ability to acquire new skills;
5. these insights might be valuable for the development of labour market policies (particularly – in the post-COVID world) and future-oriented education and training curricula;
6. Motival instrument represents a practical hands-on solution for employers, job seekers, educators and policymakers - further research and testing of the method is recommended;
7. the universal nature of values and the method itself suggests its potential international replication.

Acknowledgements

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REFERENCES

[1] Adaval, R, Saluja, G, Jiang, Y. (2019). Seeing and thinking in pictures: A review of visual information processing. *Consumer Psychology Review*, vol. 2, iss. 1, pp. 50–69.

[2] Amos, E.A. & Weathington, B.L. (2008). An Analysis of the Relation between Employee-Organization Value Congruence and Employee Attitudes. *The Journal of Psychology*, vol. 142, pp. 615-631.

[3] Anderson, N.; Potočnik, K. & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, vol. 40, pp. 1297–333.

[4] Bakhshi, H., Downing, J., Osborne, M. & Schneider, P. (2017). *The Future of Skills: Employment in 2030*. London: Pearson and Nesta.

[5] Becker, S. O. & Muendler, M. (2015). Trade and tasks: an exploration over three decades in Germany, *Economic Policy*, vol, 30, iss. 84, pp. 589-641.

[6] Carlston, D., Libby, L., & Eibach, R. (2013). *The Role of Visual Imagery in Social Cognition.* In The Oxford Handbook of Social Cognition: Oxford University Press.

[7] Cedefop. (2018). Insights into skill shortages and skill mismatch: Learning from Cedefop's European skills and jobs survey. Luxembourg: Publications Office. Cedefop reference series; No 106. [online]. [cit.2021-10-30]. Available at: http://data.europa.eu/doi/10.2801/645011.

[8] Cieciuh J. (2017). Exploring the complicated relationship between values and behaviour. In Roccas, S. & Sagiv, L. (2017). *Values and Behavior: Taking a Cross-cultural Perspective*. Springer, 237–247.

[9] CSB / Central Statistical Bureau of the Republic of Latvia. (2021). Statistics. [online]. [cit.2021-10-30]. Available at: https://data.stat.gov.lv/pxweb/en/OSP_PUB.

[10] Curran, T. & Doyle, J. (2011). Picture superiority doubly dissociates the ERP correlates of recollection and familiarity. *Journal of Cognitive Neuroscience*, vol. 23, iss. 5, pp. 1247–1262.

[11] Defetyer, M. A. Russo, R. & McPartlin, P. L. (2009). The picture superiority effect in recognition memory: a developmental study using the response signal procedure. *Cognitive Development*, vol. 24, iss 3, pp. 265–273.

[12] Deloitte. (2016). The State of the State 2016-17: Government through a business lens. London: Deloitte.

[13] EC / European Commision. (2021). Digital Economy and Society Index (DESI) 2021 Report. [online]. [cit.2021-10-30]. Available at: https://digital-strategy.ec.europa.eu/en/policies/desi.

[14] EM / Ministry of Economics of the Republic of Latvia. (2018). Informative Report on Medium and Long-term Labour Market Forecasts 2018. [online]. [cit.2021-10-30]. Available at: https://www.em.gov.lv/sites/em/files/dt_zin_2018_eng1_0.pdf.

[15] Eurostat (2021). Statistics [online]. [cit.2021-10-30]. Available at: https://ec.europa.eu/eurostat/web/main/data/database.

[16] Hofstede, G. (2001). *Culture's Consequences* (2nd ed.). Thousand Oaks, CA: Sage.

[17] Inglehart, R. & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review*, vol. 65, p. 19–51.

[18] Kahle, L.R. (Ed.). (1983). *Social values and social change: Adaption to life in America*. New York: Praeger.

[19] KPMG. (2020). KPMG 2020 CEO Outlook COVID-19 Special Edition. [online]. [cit.2021-10-30]. Available at: https://home.kpmg/content/dam/kpmg/xx/pdf/2020/09/kpmg-2020-ceo-outlook.pdf.

[20] McBride, D. M. & Dosher, B.A. (2002). A comparison of conscious and automatic memory processes for picture and word stimuli: a process dissociation analysis. *Consciousness and Cognition*, vol. 11, iss. 3, pp. 423–460.

[21] McKinsey Global Institute (2017). A future that works: automation, employment and productivity: executive summary.

[22] Mitchell, A. (1983). *The Nine American Life Styles*. New York: Warner Books.

[23] OECD / The Organisation for Economic Co-operation and Development (2021). Statistics [online]. [cit.2021-10-30]. Available at: https://stats.oecd.org.

[24] O*NET (2021). O*NET Data Collection Program questionnaires database [online]. [cit.2021-10-30]. Available at: https://www.onetcenter.org/questionnaires.html.

[25] Purc E. & Laguna M. (2019). Personal Values and Innovative Behavior of Employees. *Frontiers in Psychology*, vol. 10, pp. 865.

[26] Retowski, S., Podsiadły, M. (2016). When our job matches our values. Employee-organization values congruence estimation and burnout. *Psychologia Społeczna*, vol 36, pp. 56-68.

[27] Rokeach, M. (1973). *The Nature of Human Values*. New York: The Free Press.

[28] Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology*, vol. 25: p. 1–65.

[29] Schwartz, S.H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues*, vol. 50, pp. 19–45.

[30] Schwartz, S. H. (2006). A theory of cultural value orientations: Explications and applications. *Comparative Sociology*, vol. 5, pp. 137–82.

[31] Soldi, R., Cavallini, S., Friedl, J., Volpe, M., Zuccaro, C.P. (2016). A New Skills Agenda for Europe. European Union. Available at: https://cor.europa.eu/en/engage/studies/Documents/New-Skills-Agenda-Europe.pdf.

[32] Spranger, E. (1914) Lebensformen. Halle: Niemeyer. As a translation by Pigors, P.J.W. (1928). Types of Men.

[33] Triandis, H. C. (1985). Collectivism vs. individualism: A reconceptualization of a basic concept in cross-cultural psychology. In B. Bagley & G. K. Verma (eds.), Personality, cognition, and value: Crosscultural perspectives of childhood and adolescence, p. 122–40. London, England: Macmillan.

[34] Vernon, P. E. & Allport, G. W. (1931) A test for personal values. *The Journal of Abnormal and Social Psychology*, vol .26, iss. 3 (Oct 1931), pp. 231–48.

THE STATE AND PROSPECTS OF DEVELOPMENT OF LABOUR AND POLITICS IN THE SMALL TOWNS OF RUSSIAN URAL (SVERDLOVSK REGION)

Mikhail KLEYMENOV[62]
Anastasia SARAPULTSEVA[63]
Nafisa GAGARINA[64]

Abstract: *The article shows the current state and the specifics of the socio-economic situation in the small towns of Russian Ural, as well as the specifics of employment of the population in the small-town areas of the Sverdlovsk oblast. The methods of qualitative interview and focus groups were used. The authors relied on the scientific understanding of this phenomenon, since it is associated with the problem of small towns in the Russian Federation. The authors investigated the role of a political structure in the socio-economic situation of small towns and identified the reasons for tension in the labor market. The authors touched upon the problems of employment and unemployment, which affected almost all small towns in Russia. The data obtained in the course of recent sociological research were analyzed. The authors provided the main characteristics of small towns in Russia. Russian Ural has problems in the labour market of single-industry small towns. De facto the administration of large enterprises in single-industry town has the finances to do many types of activities in the small towns (such as repair, construction, investment). Based on recent sociological studies the authors of the article defined two types of political structure in small towns of the Sverdlovsk oblast: first, state of consensus, where the authorities and large enterprises remain in peaceful cohabitation, and second, antagonistic state, where the town authorities and the administrations of enterprises are rivals, even in political sense.*

Key words: *labor, politics, sphere of employment, working resources*

JEL Classification: *J42, J48, J59*

1. INTRODUCTION

Russia is a highly urbanized country: more than 74.59% of the population live in 1,117 cities, among which 85% are towns with the population of up to 100,000 people (2020). In 2020, Russia had 794 small towns with the population of up to 50 thousand people and total population of almost 15 million (Federal State Statistic Service, 2018; Team of authors, 2020). This data clearly demonstrates the problem of spatial and territorial settlement of our country's population: there are many small towns, but their population is small. In the majority of small towns in Russia the population is decreasing by about 3% per year, and the demographic problem is very acute in 48 small towns: the rate of population decrease is more than 3% (in some towns it is about 11% per year) (Ministry of Economy of the Republic of Tatarstan, 2015).

2. PROBLEM FORMULATION AND METHODOLOGY

In 2019-2020, the Department of Applied Sociology of Ural State University of Economics conducted a series of studies using qualitative sociological methods (focus groups and semi-formalized interviews) on urban governance and urban infrastructure of small towns in the

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Sverdlovsk Oblast (the case of Irbit and Sredneuralsk). A series of focus groups (3) and a series of semi-formalized qualitative interviews (11). The respondents in the research were leaders and representatives of public organizations, representatives of authorities and business.

The research identified two important problems in today's small towns: first, difficulty of developing urban infrastructure, second, lack of a well-established governance model (vertical power structure). The first problem has remained unsolved for a long time (legacy of the past). The second problem has worsened recently as the head of the town and the local council often face each other head-on politically. Instead of making balanced decisions on economic problems, they get in conflict with each other: the mayor is trying to alienate himself from the duma, while the deputies are accusing the mayor of ignorance of the law.

Economic situation in small towns

Even today, the metallurgical cluster plays a significant role in the economy of the regional small towns. Ferrous and non-ferrous metallurgy plants dominate such towns as Bogdanovich, Verkhnyaya Salda, Kachkanar, Kushva, Severouralsk, Krasnouralsk, Nevyansk, Kirovgrad and Nizhnyaya Salda. Over time, mechanical engineering began to be introduced into the metallurgical cluster (the coal industry in the towns of Karpinsk, Artemovsky and Volchansk was gradually transformed into mechanical engineering). At the moment, most of the small towns in the region remain centers dominated by township-forming enterprises (Turgel, 2014, p. 476-483).

At present, the economy of small towns is influenced by three external factors - agglomeration processes, territorial expansion of chain business and globalization processes. As the research showed, the majority of experts assess the socio-economic life in a small town as "satisfactory", although some of them rate it as "unsatisfactory". No one rated this factor as "high level" or "excellent". The head of Sredneuralsk town district notes: "There are no large enterprises... There is no production. It is not clear who will come. Without investment from the regional and federal authorities nothing will happen". Small towns in Russia depend on the political will of the central (federal) and regional authorities, most often on large-scale financing of the production facilities and other facilities. Employment of the residents of the surveyed small towns compared to other small towns in the region and to neighboring constituent entities of the Russian Federation is rated as average, while at the same time; it is worse when compared to similar towns in Russia.

"Life here is not that bad, but everyone wants it to be better. It is good to be living a quiet life in a green blooming town, but there are not enough jobs. Therefore, people go to other places. There are no technical colleges or universities for young people, only schools, but their number is not sufficient either" (an expert from business community, Sredneuralsk). Employment conditions for able-bodied professional groups deserving decent wages was mentioned as one of the main problems that need solving. Income level of the population was rated as low. The problem of employment for the young is particularly acute.

Political sphere of small towns

It should be said that traditionally Russian scientists focus on power and management relations at the regional level, while the issue of power in small towns is studied much less frequently (Chirikova, Ledyaev, Selzer, 2014).

The municipal power of a small town is a combination of different elements: the mayor, the mayor’s team, the administration, the city council. The real power in a small town may not belong to the municipality or it may belong not only to the municipality. The power also belongs to other forces: the business, including foreign business, the public, the media. Until recently, in many small towns in the Urals the citizens elected the head of the town. Nowadays, according to the accepted practice, a special expert commission including both

representatives of the duma and the administration conducts the election of the head. Most experts claim that the model of local government where the head of the city is elected through competition is not suitable for small towns. As a rule, citizens of small towns know their active people well and would like to see a person they trust as the head of their town. A small town is like a big village where everybody knows everything about each other i.e., where people were born, whom they married, what they do. Almost all residents say today that they would like to see as the town head somebody local, who was born and lived there, who is a well-known, supported and respected person. The head should be someone who knows and understands the problems of local people, knows the specifics of local government and can speak to the people in their language.

Experts believe that people should take part in elections and vote for local authorities. "The mechanism of elections through competition held by the representative body is not effective, it does not reflect the interests of the population". «I believe that it is only harmful that the head is elected through a competition by the representative body. As an example, the competition committee can be tailored to a particular candidate. Of course, a semblance of an election is created - we had eight candidates" (opinion of the chairperson of the public organization of veteran-pensioners of Sredneuralsk). The head of the town elected by the people is more closely connected to the population, to some extent feels responsible to them (at least formally), while the one elected by the commission tends to be more isolated from the population and usually shares the values of the business. At the same time, a number of experts believe that the model of electing the mayor through a commission has its merits. Firstly, this model is already widespread throughout the region and thus is justified to some extent by practice. Second, the elected mayor is accountable to the Duma, so the Duma assumes some responsibility for him. The interaction between the Head and the Duma members is then based on more trust, which generally contributes to the effectiveness of the Duma. It must be said that in the case of popular elections of town deputies or the mayor, it is more about the socio-psychological state of the population, their emotional reactions, the formation of an atmosphere of trust in the authorities (which is undoubtedly very important) rather than about guaranteeing the rightness of the mayor choice. With the ability to actively intervene in market relations, the town authorities themselves actually turn into local businesses or facilitate businesses under their control.

Big business, represented by branches or firms with foreign shareholding, often withdraws from participation in the life of the town or helps it minimally. At the same time, there is another scenario in which big business seeks to take a leading position in the government because the latter sets the rules that are so important for the survival of the business. Big business gains the power in two ways: either by direct participation in the local government when a businessperson becomes a deputy or the mayor, or by lobbying own interests through other deputies whom they supported during the elections. In addition, big business, the case of Sredneuralsk, often employs not local people but workers from the nearby big city of Ekaterinburg.

3. PROBLEM SOLUTION

Internet technology is affecting the world of work. The trend towards introduction of robotics is more and more evident, there are more and more jobs, that can be done remotely. According to forecasts, in 2020 one fifth of Russians will work remotely (RBK, 2020). To this we can add the rapid processes in education (increasing online forms of education, which do not require the presence of a person in the classroom), online consultations in medical practice, the possibility of online voting and registration of documents in the political sphere. Huge changes have also taken place in the cultural sphere: the Internet allows people to join theatres, concerts, exhibitions, read books, and communicate without leaving their homes and

going around the city. Our conclusion is that large cities are losing their historic advantages and will gradually leave the scene, while small and medium-sized towns will get a chance for renovation. T. A. Vereshchagina, P.Y. Degtyarev, A.I. Tyunin identified four scenarios strategic development of small towns: 1) small towns as centers of adjacent agricultural areas (development of processing industries, service sector); 2) small towns as centers for locating factory workshops and branches of main enterprises of large cities; 3) small towns as centers of science and high technology; 4) small towns as centers of tourism and recreation. The scheme proposed by the authors, in our opinion, is applicable to the regions of the Urals. However, as it seems, the fifth option should be added to it - small towns as elements of agglomeration (Vereshchagina, Degtyarev, Tyunin, 2018).

4. CONCLUSION

Analyzing the prospects for small town development, the majority of respondents spoke in favor of preserving and developing small towns. "Moscow is a big city, but it can't accommodate everyone. Small and medium-sized towns are also needed as strongholds. … Take a hospital in the town, everyone from the district goes there... (expert from business, Irbit). Chairperson of the Public Chamber of Sredneuralsk said: "All small towns should be preserved on a mandatory basis. We are closer to each other and to the power authorities. True human relations are preserved in small places. We know each other closely. We preserve and share universal human values ".

There is a certain kind of nostalgia among small town residents for the times when there was a powerful company in their locality. This is why people are talking about restoring the old factory: "It would be great if they restored the motorbike factory. A small number of people work there today, about a hundred, and previously there worked ten thousand. The factory now works to order. It is a fragmented structure now. There are no motorbike factories in Russia. Irbit used to be a motorbike town, there even were competitions held. Very few people have motorbikes» (a representative of the business community of Irbit).

REFERENCES

[1] Chirikova, A. E., Ledyaev, V. G., Selzer, D.G. (2014). Power in the Small Town: Configuration and Interaction of the Main Actors. *Polis. Political research*. № 2, pp. 88-105

[2] Ministry of Economy of the Republic of Tatarstan. (2015). Conception of the Federal Target Program "Socio-economic Development of Small Towns of the Russian Federation for 2015-2020". (online). [cit. 2019-10-02]. Available at: http://mert.tatarstan.ru/file/КОНЦЕПЦИЯ%20ЦП%20МГР.pdf

[3] Federal State Statistic Service. (2018). *Russian Statistical Yearbook Statistical handbook*. p. 694. [online]. [cit.2018-10-14] Available at: https://www.gks.ru/free_doc/doc_2018/year/year18.pdf

[4] RBK. (2020). Technology and Media. [online]. [cit.2020-03-02]. Available at: https://www.rbc.ru/technology_and_ media/17/06/2015/

[5] Turgel, I.D. (2014). *Monofunctional cities of Russia: from Survival to Sustainable Development*. Moscow: Direct Media. p. 764.

[6] Team of authors. (2020). *Urban Sociology. Designing of Social Change in the Urban Environment: a tutorial*. Moscow: YURAYT Publishing House. p. 125.

[7] Vereshchagina, T.A., Degtyarev, P. Ya., Tyunin, A. I. (2018). The crisis of the traditional model of small towns' development. *Vestnik of Chelyabinsk State University. Economic Sciences*. Vol. 60. № 3. pp. 53-60. [online]. [cit.2021-10-14] Available at: https://cyberleninka.ru/article/n/krizis-traditsionnoy-modeli-razvitiya-malyh-gorodov/viewer

DIGITISATION CONCEPT IN HEALTHCARE SYSTEM WITHIN THE COVID-19 ISSUE

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Abstract: *Digitization is one of the main drivers of society's transformation, and this fact affects all sectors, including the health sector. Digital health generates multiple benefits for all agents, patients, health professionals, managers, insurers and the pharmaceutical industry, among others. 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 development coming out of Industry 4.0 aspects being implemented. This fact shows that the potential for improvement in digitization is still very high and that there is still a long way to go to reach the leading countries in this field. Digitization is key in our healthcare system to improve the care and quality of citizens thanks to the collection and analysis of patient data through Big Data. But compared to other sectors, the degree of implementation is still incipient.*

Key words: *New Technologies Implementation, World Economy Development, Industry 4.0, Global Pandemic Outbreak*

JEL Classification: *F63, O31, O51*

1. INTRODUCTION

The fourth industrial revolution, also known as Industry 4.0, has been a huge and impactful change that has marked a before and after in our society. This revolution is changing the way businesses operate and, therefore, the environments in which they are forced to compete. Industry 4.0 is not just about investing in new technology and tools to improve manufacturing efficiency; it is about revolutionising the way your entire business operates and grows. Thanks to it, we now have great advances that have had a positive influence on our Spanish healthcare system. In the following, we will explain in more detail this new industrial development and how it has affected our healthcare system today. Industry 4.0 represents a new phase in industrial development, aiming at the digitalisation of production processes, increasing their efficiency, quality and safety. The introduction of digital technologies in industrial plants renews the way of operating and producing by transforming products, supply chain and customer expectations.

2. PROBLEM FORMULATION AND METHODOLOGY

The research task is focused on the analysis of the problematic aspects of Spanish health care sector development in terms of digitalization issue affected by Industry 4.0 elements implementation and 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 development coming out of Industry 4.0 aspects being implemented. The issue is to figure out whether and to what measure the digitization, new technologies might affect the new job creation along with the labor force adaptability to it.

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 Industry 4.0 elements implementation on services in

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hospitala. 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.

3. INDUSTRY 4.0 CONCEPT IMPLEMENTATION IN ECONOMY AND HEALTH

Industry 4.0 emphasises the digital technology of recent decades and takes it to a whole new level with the help of interconnectivity through the Internet of Things (IoT), access to real-time data and the introduction of cyber-physical systems. The fourth industrial revolution offers a more integrated, interlinked and holistic approach to manufacturing; it connects the physical with the digital and enables better collaboration and access for all departments, partners, suppliers, products and people. Industry 4.0 empowers business owners to better control and understand every aspect of their operation and enables them to leverage instant data to increase productivity, improve processes and drive growth. If we focus on how it affects our society, there are advantages and disadvantages to take into account in this new industrial development (Master in Industry 4.0: University of Alcalá - Madrid). On the one hand, we have several advantages that have had a significant and very positive impact on our daily lives (Betakova, et al. 2020; Uclg.org., 2021):

- Shorter production time – We achieve more refined, repetitive processes without errors or alterations. This results in uninterrupted production and available 24 hours a day.
- Optimisation of quality levels – Process automation allows for greater precision in weights, measures and mixtures. This avoids downtime and interruptions.
- Increased cost savings – Automated processes require fewer personnel, fewer errors and greater energy and/or raw material efficiency.
- Increased process safety – This point is especially important for work at high temperatures, with heavy weights or in hazardous environments.
- More flexible production – The product is adaptable to the requirements of each individual company.
- More efficient data flow – This is all thanks to communication networks. Reaction times and decision-making are reduced.
- Increased business competitiveness – It responds better to market needs, offers high quality products and reacts faster and more flexibly to changes.

However, it is not all advantages and there are certain disadvantages of Industry 4.0 to be considered (Krajnakova, Vyhnicka, 2020; Secretaría Técnica, 2020):

- Lack of adaptation of new methods – Not all organisations are adequately adapting to Industry 4.0. In fact, with the constant changes it entails, many industries run the risk of becoming outdated in a short period of time.
- Social inequality – Rapid industrial developments may allow inequalities and social fragmentation to grow.
- Complex and more costly staff – The employees needed in the new processes are more specialised, and it is not always easy to access these profiles. In addition, due to their knowledge, they require higher remuneration.

- Higher investment cost– The investment cost is high at the beginning. However, in the medium and long term, it is more than recovered. But not everyone may be able to afford the costs in the beginning.
- Technological dependence – Industry 4.0 lives under an enormous technological dependence due to its machinery. Therefore, specific new needs develop that must be identified and solved as soon as possible.
- Technology obsolescence – Risk is very high and must be taken into account in any start-up project to calculate ROI and return on investment, among other factors.

This revolution is marked by the emergence of new technologies such as robotics, analytics, artificial intelligence, cognitive technologies, nanotechnology and the Internet of Things (IoT), among others. Organisations must identify the technologies that best meet their needs in order to invest in them. If companies do not understand the changes and opportunities that Industry 4.0 brings, they risk losing market share. It is important to understand the potential of this fourth industrial revolution because it will not only affect manufacturing processes. Its reach is much broader, affecting all industries and sectors and even society. Industry 4.0 can improve business operations and revenue growth, transforming products, the supply chain and customer expectations. Such a revolution is likely to change the way we do things, but it could also affect how customers interact with them and the experiences they expect to have while interacting with companies. Beyond that, it could lead to changes in the workforce, requiring new skills and roles (Mura, 2019).

In addition, Industry 4.0-related technologies can also lead to entirely new products and services. The use of sensors and wearable devices, analytics and robotics, among others, will enable product improvements in a variety of ways, from prototyping and testing to adding connectivity to previously disconnected products. These product changes in turn translate into changes in the supply chain and, consequently, customers.

The impacts of Industry 4.0 can be felt at multiple levels: in large ecosystems, at the organisational level and at the individual level (on employees and customers) (Deloitte Spain. 2021. What is Industry 4.0?):

- ✓ Ecosystems. In addition to the change in which companies operate and in the production of goods, Industry 4.0 affects all players in the ecosystem (suppliers, customers, regulatory considerations, investors, third parties...). These technologies enable interactions between each point of a network.
- ✓ Organisations. The ability to adjust to and learn from data in real time can make organisations more responsive, proactive and predictive. It also enables the organisation to reduce its productivity risks.
- ✓ Individuals. Industry 4.0 can mean different things to different people. For example, for employees it may mean a change in the work they will do, while for customers it would mean more customisation in products and services that better meet their needs.

Once we have understood the concept of Industry 4.0, its objectives and goals, advantages and disadvantages and the most triggering impacts and advances, we will focus on how it has affected our Spanish healthcare system. The current Spanish healthcare system, that is, the National Health System (SNS), is the result of a long historical evolution that began in documents with Alfonso X, "The Wise", and the promulgation of the Royal Charter in the mid-13th century. The SNS in Spain is the body that encompasses the health benefits and services in Spain which, in accordance with the law, are the responsibility of the public authorities. Created in 1908, it gradually extended its coverage, subject to payment for health care services, to the entire Spanish population. This process was completed in 1989; since

then, health care in Spain has been universal and supported through different types of taxation.

On the other hand, it may be interesting to highlight that there are four developments that are the driving force behind the momentum of digital transformation – Table 1.

Table 1. Driving force behind the momentum of digital transformation

Digital information	Data collected in the physical world are processed, analysed and stored in a digital record. This allows for improved forecasting and decision making.
Process automation	Manual and repetitive work is replaced by systems that can work autonomously, eliminating errors and making processes cheaper.
Intelligent manufacturing	A fully integrated workflow that synchronises the pre-production, production and post-production phases, achieving greater productivity, sustainability and economic performance.
Connected customer	The customer is informed and is increasingly demanding a more active role in the product, presenting challenges to the supplier and generating new business opportunities.

Source: Deloitte Spain. 2021; Secretaría Técnica, 2020

Spain is a country, with 2007 data, with a population of 43.6 million inhabitants; a life expectancy of 77.6 years for men and 84.1 years for women; an annual population growth (2010-2015) of 0.82%; population under 15 years 14.8%; population over 60 years 22.2%; fertility rate per woman of 1.6; crude birth rate of 11; crude death rate of 8.7; with a GDP (in billions of euros) of 1. 1,050; with an average annual GDP growth (2002-2007) of 3.8%; and a GDP per capita of $32,020; it has a health expenditure (% of GDP) of 8.4; 3.1 doctors per 1,000 inhabitants and 3.5 hospital beds per 1,000 inhabitants (El País economy, 2021; Eurostat, 2021).

4. DIGITALIZACION ASPECTS WITHIN THE HEALTHCARE SECTOR

Since the advent of the Internet and new technologies, the business and socio-economic environment has taken a 360º turn. This gives us the opportunity to generate new business models, improve analytical and predictive capacity both internally and externally and improve the company's processes in terms of effectiveness and efficiency. The digitisation of processes involves adapting to the new technological environment and represents an added advantage for all companies, no matter what sector they work in or what projects they carry out. In this context, a new business model emerges that promotes self-service. With the widespread use of the Internet, the user has the facility to: buy airline tickets, book hotels, obtain products from different online shops, purchase cinema tickets, etc. Little by little, this trend has also spread to the restaurant sector. In business, digitisation is associated with the digital transformation of businesses, understood as enabling, improving, or evolving business functions, business operations, customer management models, and/or communication processes by leveraging digital technologies.

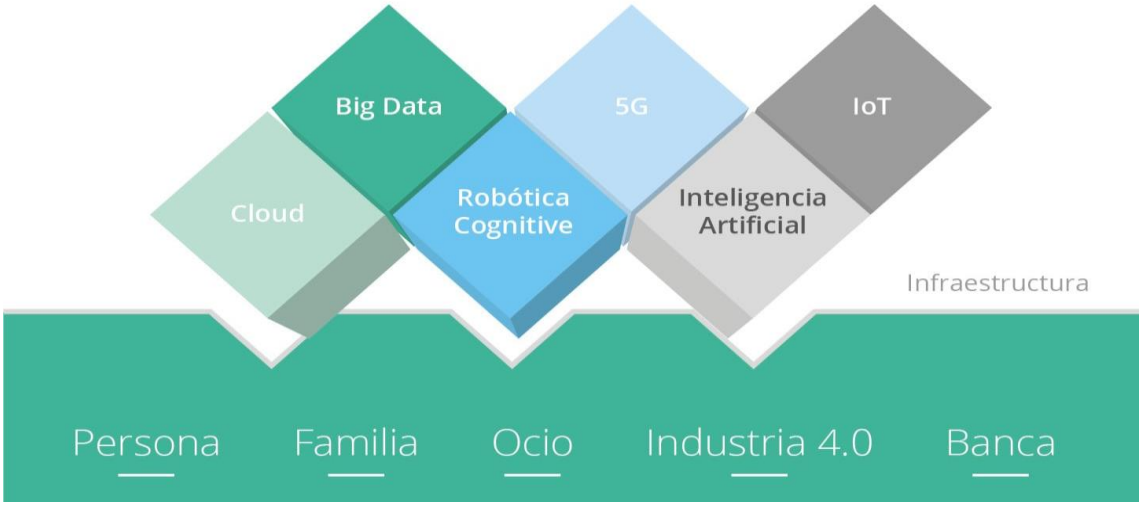
More colloquially speaking, digitisation is seen as the scanning of paper documents or the use of cloud storage to store all important files to eliminate the need for outdated filing cabinets. Everything we used to do offline and on paper now becomes completely digital thanks to digitisation and much more efficient digital technologies. There are many reasons why we should all go digital, and the first one is that most people have already made the change. We can see several examples in our daily life, like maybe your own bank offering you the option to receive paperless statements by e-mail, or the energy company opting to use digital bills, or

the clothing shops receiving the ticket online... You can decide to continue using the traditional option; but since society, in general, is opting for a more digitalised future, wouldn't it be a good idea to adapt to it? In Spain and all over the world, we have complete business models that are based on the digital structure, and for a very good reason. Below, I will name some of the benefits or advantages that this new development can offer us (Fabus, et al. 2019; Paniagua, 2021):

- *Access to your documents from any device* **–** For example with Dropbox, you upload it to the cloud and that's it, you can access your document anytime, anywhere and from any device. Even offline, once downloaded, you can access them too.
- *Simplifies document exchange* – You can pass on to any friend/family/acquaintance a photo or document you wanted to share with them without the need to print it out and slow down the process.
- *Much more environmentally friendly and cost-effective* – You don't need to waste paper unnecessarily for a document that is not so important, a short text, etc., and you avoid the printing of a document coming out blurred or badly done. Plus, you save money by not printing or buying toner for the printer!
- *Safer* – When it comes to your house burning down with important documents, your coffee spilling on a university final paper or your dog eating your homework. With digitisation you have a back-up copy in case you have any of the mentioned problems and can retrieve it.
- *Easier to organise* – Have you ever seen your parents' filing cabinets in the office or at work that take up an entire shelf? Well, thanks to it, we no longer have this problem. Everything is much more organised with folders and is much easier to find thanks to the device's or the app's search engine. No more spending hours looking for a file that you saved 5 years ago on a shelf higher than your house.
- *More efficient ordering* – Want to order takeaway? You know when your food has been picked up, when it's ready and when the delivery driver is waiting at your door. Or if you want to skip the queues and wait, you can buy your cinema tickets online, or your clothes in a clothes shop and pick them up...
- *Always available* – An important business meeting that needs to be done immediately to solve any problem, thanks to digitalisation it is possible not to wait, as it is always available and easily accessible. In addition, important documents can also be signed online.
- *Protects documents from wear and tear* – Over the years, pictures and documents get older and can become damaged. With this solution, you avoid wear and tear and the loss of some of them.

Today, digitalisation has advanced to stratospheric levels, and it is rarer to find someone who has not modernised than someone who has not. The countless benefits they bring to society make everything so much more convenient and flexible. And that is why we are all on the lookout to adapt to change. It is true that different countries evolve differently, some are further ahead than others. With the NRI (Networked Readiness Index), which evaluates the degree of digitalisation from 1 to 7 at a global level, we can compare and evaluate them; 1 being the lowest level and 7 the highest. The countries with the highest results in the NRI are Singapore, Finland and Sweden. Spain ranks 35th out of 139 countries analysed.

Figure 1. Digitalisation from advanced to stratospheric levels



Source: Deloitte Spain, 2021

If we focus on the case of *Spain*, the impact of rapid technological development and its evolution places companies in a situation of constant change. All productive areas and industries are immersed in this rapid dynamic of technologies and communication; it is in this context that digital transformation becomes a fundamental key to success. The digitisation process is not only an evolution at company level, it is a new era in which digitisation will be the driving force of the economy, the main support for innovation and the driving force for investment. This process is not driven locally; on the contrary, it is a global reality in which large nations, markets and multinationals are looking for the best solutions and technologies. In Spain, the deployment of 5G, with the associated investments and impact on the digitalisation of the market and economy, will require a stable framework that encourages investment and legal certainty in order to facilitate the task of new deployments for telecommunications companies. Spain is a leader in network deployment and coverage in Europe, with 4G networks reaching 97% of the population. In this sense, the country is in the best position to lead the future of digitisation. In Spain, there are 37.7 million Internet users, with 80% of the population using the Internet with more than 6 connected devices per household. It is the country with the second highest number of smartphones in Europe. Otherwise, 58% of the Spanish population buys over the internet, 44% use mobile banking and over 60% use the internet to consult health information. Therefore, Spain is making steady progress at high levels, although it still has a long way to go to catch up with the larger countries. Even so, in global terms, it is four points above the European average (Gajda, Mikalauskas, Navickas, 2020; La Fundación Cotec para la innovación, 2020).

As highlighted in a report by El País (2019), "The results are good in connectivity thanks to the widespread availability of fast and ultrafast fixed and mobile broadband networks and the increase in their deployment. Most Spanish people make good use of a variety of online services. Businesses have taken full advantage of advances in digital technologies and are increasingly using social networks, e-billing, cloud services and e-commerce. And it is in the top positions in e-government". Networked supply chain companies make it possible to optimise individual production steps and the entire value chain. For example, comprehensive real-time information enables companies to react during production to the availability of certain raw materials based on price, quality and other factors for optimal efficiency. External connections allow production processes to be controlled beyond company boundaries to save resources and energy.

5. DIGITALISATION IN SPANISH HEALTHCARE SYSTEM ALONG WITH THE COVID-19 SITUATION

Case isolation and contact tracing can contribute to the control of COVID-19 outbreaks. However, it remains unclear how real-world social networks might influence the effectiveness and efficiency of such approaches. To address this question, they simulated SARS-CoV-2 transmission control strategies in a real-world social network generated from high-resolution GPS data collected during a citizen science experiment. They found that tracking contacts of contacts reduced the size of simulated outbreaks more than tracking only contacts, but this strategy also resulted in nearly half of the local population being quarantined at one point in time. Testing and releasing non-infectious individuals from quarantine led to an increase in outbreak size, suggesting that contact tracing and quarantine may be more effective as a "local closure" strategy when contact rates are high. Finally, they estimated that combining physical distancing with contact tracing could allow epidemic control while reducing the number of individuals in quarantine. Their results suggest that tracing and selective quarantine strategies would be more efficient when combined with other control measures, such as physical distancing. Non-pharmaceutical interventions are essential to reduce transmission of SARS-CoV-2 in the absence of an effective vaccine. These measures include case isolation, contact tracing and quarantine, use of personal protective equipment and hygiene measures, and policies designed to encourage physical distancing (including school and workplace closures, bans on large public events, and travel restrictions). Given the various economic and social costs of these interventions, there is a clear need for sustainable strategies that limit SARS-CoV-2 transmission and minimise disruption.

Isolation of symptomatic individuals and quarantine of their contacts (e.g., family members) is a common public health strategy to reduce the spread of infectious diseases. This approach has been used as part of SARS-CoV-2 control strategies worldwide. However, the relatively high number of SARS-CoV-2 virus replication in the early stages of an outbreak, coupled with the likely high contribution to transmission from pre-symptomatic and asymptomatic individuals, means that manual contact tracing by itself may not be a sufficient containment strategy in a few outbreak scenarios. As countries relax closures and other stricter physical distancing measures, the combination of isolation of symptomatic individuals and quarantine of contacts identified through fine-scale tracing is likely to play an important role in many national SARS-CoV-2 selective control strategies. It is possible to assess the potential effectiveness of contact tracing by simultaneously modelling disease spread and contact tracing strategies through social systems of individuals. These systems are often simulated by parameterisation with simple social behaviours (e.g., the distribution of the number of physical contacts per individual). Examining contagion dynamics and control strategies using a real-world network allows for a more realistic simulation of SARS-CoV-2 outbreak and contact tracing dynamics (Centers for Disease Control and Prevention, 2021).

A sensitivity analysis of the effectiveness of contact tracing under the epidemic model is presented. As expected, the size of the outbreak decreased as the percentage of contacts traced increased in all scenarios and increased with increasing values for the number of replicates, the proportion of asymptomatic cases, the proportion of pre-initial transmission, the delay between initiation/tracing and isolation/quarantine, and the number of initial cases. Outbreak dynamics were strongly affected by the external infection rate in all intervention scenarios, as were the number of individuals isolated and quarantined. These results suggest that, probably due to the high levels of SARS-CoV-2 transmission from asymptomatic and presymptomatic individuals, contact tracing would be most effective when the proportion of traced contacts is high, when the delay from notification to quarantine is short, and when the number of initial cases and the rate of movement in the network are low. However, it is important to note that outbreak control was only achieved when there were large numbers of quarantined individuals, and this was consistent across the parameter space. Furthermore, increasing the

network density by increasing the distance threshold for defining contacts led to very similar results in all intervention scenarios, although with a higher number of quarantined individuals required for outbreak control through contact tracing. Therefore, while more real-world networks are needed to demonstrate the extent to which these results apply to other locations and settings, their results are robust to a range of epidemiological and network parameters (Doblyte, et al. 2020; Kotaskova, et al. 2020; Euro.who.int, 2021).

Several studies develop an epidemic model that simulates COVID-19 outbreaks through a real-world network and assess the impact of a range of testing and contact tracing strategies to control these outbreaks. They then simulate physical distancing strategies and quantify how the interaction between physical distancing, contact tracing and testing affect outbreak dynamics (Redaccio Mmedica, 2020; Vojtovic, Stundziene, Kontautiene, 2018). They summarise the main findings, limitations and policy implications of their study.

- *Background:* Understanding how isolation, contact tracing and other non-pharmaceutical interventions can be combined effectively and efficiently is crucial to keeping COVID-19 under control. They develop an epidemic model that simulates COVID-19 outbreaks in a real-world network and evaluate the impact of a range of testing, isolation, quarantine and contact tracing strategies to control new local outbreaks.

- *Main results and limitations:* They find that contact tracing and quarantine was the most effective simulated measure to control local COVID-19 outbreaks, but it required quarantining many individuals. This strategy is similar to the introduction of a local lockdown. Testing and releasing quarantined individuals reduced the number of quarantined individuals, but also reduced the effectiveness of control measures. The combination of physical distancing with contact tracing resulted in a reduction in the size of the outbreak, with fewer individuals required for quarantine. One of the main limitations of this study is that it is based on pre-COVID-19 social network data from a sample of individuals from a single small city, so more data are needed to fully understand the potential dynamics of outbreaks in other settings.

- *Policy implications:* Their findings suggest that effective contact tracing measures may require quarantining large numbers of people in a community, with individual-level tracing resulting in outcomes equivalent to extensive local closures. Targeted tracing and quarantine strategies may be less disruptive overall if combined with other control measures, such as moderate physical distancing.

This is what we would generally do in the event of a global pandemic/disease, a logical course of action that all countries would and do take. The case of Spain is not far from reality and acts in line with other countries. In the case of COVID in Spain, it has acted in a very similar way to other countries, thus obtaining the results expected by the studies, both positively and negatively.

E-government is the use of technological communication devices such as computers and the Internet to provide public services to citizens and others in a country or region. E-government offers new opportunities for more direct and convenient citizen access to government, and for the provision of government services directly to citizens. The term consists of digital interactions between a citizen and his or her government (C2G), between governments and other government agencies (G2G), between government and citizens (G2C), between government and employees (G2E), between government and business (G2B). This interaction is about citizens communicating with all levels of government (city, state/province, national and international), facilitating citizen participation in governance using information and communication technologies (ICT) and business process re-engineering (BPR). The ideals of citizen interaction that these technologies embody include progressive values, ubiquitous participation, geolocation and public education. Este gobierno ha ido progresando a la par que la sociedad con la tecnología y se ha modernizado y se sigue modernizando cada vez más.

Este ha sido muy útil y eficiente para su introducción en el sistema sanitario, gracias a todos los recursos obtenidos (Feldman, Martin, Skotnes, 2012; Sindicato Médico Andaluz, 2020).

Due to the drastic situation we had in 2020 when Covid-19 entered our lives, the government had to take a tough decision, the quarantine, with its respective strict measures. In Spain it had a serious impact, as the government did not act quickly and effectively in the face of the situation that was coming upon us and waited for everything to get much worse; instead of stopping it in time. The coronavirus then officially became a global pandemic due to the speed at which it spread in most countries (HC Marbella, 2021; Jaskova, Haviernikova, 2020). As for quarantine, we had to consider the quarantine process:

1. If you have been in close contact with a person with COVID and you are NOT vaccinated, you must do a mandatory quarantine of at least 10 days in isolation. However, people with the full vaccination schedule would not need to do so, unless they have symptoms.
2. Close contacts who are not vaccinated should have a PCR test. Those who are vaccinated should be tested 5-7 days after exposure, even if they have no symptoms.
3. When you no longer have symptoms of Covid-19, it is advisable to have another test to check your load or to find out if you are no longer contagious.
4. If there is still a high load or you still have Covid-19, continue to isolate and repeat the same process. Otherwise, you should be aware of subsequent symptoms and always wear a mask.

The growing number of people infected with this disease causes the problem of inability to provide full care in hospitals and afflicts many doctors and nurses within hospitals. An intelligent healthcare system that monitors patients with Coronavirus remotely is proposed. It aims to protect the lives of health service members (such as doctors and nurses) from infection. An intelligent system that observes people with this disease by placing numerous sensors to record characteristics of its patients every second would be interesting. These parameters include measuring the patient's temperature, respiratory rate, pulse, blood pressure and time. This system can save lives and improve decision-making in dangerous cases; it proposes to use artificial intelligence and the Internet of Things to remotely make quarantine and development decisions in various situations; it provides remote monitoring of patients and ensures that patients are given medication and complete healthcare without anyone falling ill with the disease.

6. CONCLUSION

Despite this development of Industry 4.0 that positively affects most aspects of our lives, we must continue to strive to overcome some of the challenges or drawbacks that remain and will continue to exist in the future. Many of the steps already taken are solid proof of the chosen path towards improvement. The NHS has also become one of the main drivers of the design, implementation and monitoring of quality standards across the NHS, developing national health strategies to address both the most prevalent chronic diseases (cancer, cardiovascular diseases, diabetes, etc.) and rare diseases, as well as the National Patient Safety Strategy. However, it affects the economy notably by increasing public spending due to all the equipment needed in hospitals, among others.

The document signed by national and regional ministries anticipates the impact of the economic crisis on tax revenues and its consequences for the NHS, and therefore includes a set of measures that respond to two stated objectives: maintaining the pace in improving cohesion and quality throughout the system and promoting cost containment measures in line with rational use policies aimed at both professionals and users, and improving economies of

scale by pooling resources at the NHS level. Short-term measures to improve cohesion and quality include, for example, the extensive use of e-health resources to facilitate citizens' interaction with health services. In terms of costs, the measures agreed in the short term implement the second Strategic Pharmaceutical Policy Plan, which includes the modification of the current reference price system, the reduction of prices for generic medicines and the setting of maximum prices for medicines indicated for minor symptoms.

It should be noted that digitalisation and its incorporation into our daily lives has transformed the way we relate, communicate and inform ourselves. However, the level of development is not the same in all countries but depends on their resources. This digitalisation is key in our healthcare system to improve the care and quality of citizens thanks to the collection and analysis of patient data through Big Data. But compared to other sectors, the degree of implementation is still incipient. Despite the potential of digitalisation in healthcare, there are other sectors that are showing a greater interest in digitalisation, such as the banking, financial and insurance sector, as well as the telecommunications sector. Furthermore, these sectors invest more than 15% in digital transformation, a figure that is a far cry from what is invested in the healthcare sector. In recent years, Spain has only increased investment in ICTs in healthcare by 3%, allocating only 1.2% of public health spending, a figure that has remained constant in recent years. In contrast, European countries leading the digital transformation invest between 2% and 3% of public health spending in ICT. This shows that the potential for improvement in digitisation is still very high and that there is still a long way to go to catch up with the leading countries in this field.

Despite the low investment, it should be noted that various actions are being carried out in isolation, which means that the benefits of digitisation are not being fully exploited at national level. The definition of a national strategic plan as a starting point for improving the digitisation of the healthcare system with the aim of making care more efficient and thus increasing the quality of life of citizens has been identified as a priority action. The main action to achieve the comprehensive and transversal implementation of HCD at national level and thus boost digitisation in healthcare is the development of a strategic plan that places HCD as a fundamental pillar, as it is the backbone for the implementation of all the elements that make up the strategy. Digitalisation is necessary to make the healthcare system more efficient, thus guaranteeing the sustainability of the sector and increasing the quality of care. Therefore, to achieve its implementation, a national strategic plan is needed, led by a responsible body and with the participation of all the agents involved and, of course, the citizens. Thus, we can see that although Industry 4.0 entails a high cost for both companies and the public sector, it is an extremely important and essential advance at a global level to continue improving and advancing in most aspects of our lives. It is a great effort for all of us to adapt to this change, but at the end of the day, it will be worth it in the long run.

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REFERENCES

[1] Betakova, J., Haviernikova, K., Okreglicka, M., Mynarzova, M., & Magda, R. (2020). The Role of Universities in Supporting Entrepreneurial Intentions of Students Toward Sustainable Entrepreneurship. *Entrepreneurship and Sustainability Issues*, vol. 8, iss. 1, pp. 573-589. DOI: 10.9770/jesi.2020.8.1(40).

[2] Centers for Disease Control and Prevention. (2021). El COVID-19 y su salud. [online] Available at: https://espanol.cdc.gov/coronavirus/2019-ncov/your-health/quarantine-isolation.html.

[3] Deloitte Spain. (2021). El impacto de la digitalización en España. [online]. [cit.2021-09-22]. Available at: https://www2.deloitte.com/es/es/pages/technology-media-and-telecommunications/articles/impacto-digitalizacion.html.

[4] Doblyte, S., Guillen, & Ana M. (2020). Access Compromised? The Impact of Healthcare Reforms under Austerity in Lithuania and Spain. *Social Policy and Society*, vol. 9 , iss. 4, pp. 521-53.

[5] El País economy, (2021). [online]. [cit.2021-09-22]. Available at: https://elpais.com/economia/2019/04/23/actualidad/1556019543_586222.html

[6] Euro.who.int. (2021). [online]. [cit.2021-09-22]. Available at: https://www.euro.who.int/__data/assets/pdf_file/0004/128830/e94549.pdf.

[7] Eurostat (2021). Statistics [online]. [cit.2021-09-22]. Available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes.

[8] Fabus, M., Dubrovina, N., Guryanova, L., Chernova, N., & Zyma, O. (2019). Strengthening Financial Decentralization: Driver or Risk Factor for Sustainable Socio-Economic Development of Territories? *Entrepreneurship and Sustainability Issues*, vol. 7, iss. 2, pp. 875-890. DOI: 10.9770/jesi.2019.7.2(6).

[9] Feldman, B., Martin, E., & Skotnes, T. (2012). Big data in healthcare: Hype and hope. [online]. [cit.2020-09-22]. Available at: http://www.west-info.eu/files/big-data-in-healthcare. pdf.

[10] Gajda, W., Mikalauskas, R. & Navickas, V. (2020). Employees Assessment of Strategic Management Opportunities in Sport Federation. *AD Alta-Journal of Interdisciplinary Research*, Volume: 10, Issue: 1. pp. 188-194.

[11] HC Marbella. (2021). ¿Cómo, cuándo y por qué se debe usar mascarilla? [online]. [cit.2021-09-22]. Available at: https://www.hcmarbella.com/en/how-when-and-why-should-a-mask-be-used/

[12] Jaskova, D., & Haviernikova, K. (2020). The Human Resources as An Important Factor of Regional Development. *International Journal of Business and Society*, vol. 21, iss. 3, pp. 1464-1478.

[13] Kotaskova, A., Belas, J., Bilan, Y., & Khan, KA. (2020). Significant Aspects of Managing Personnel Risk in the SME Sector. *Management & Marketing-Challenges for the Knowledge Society*, Volume: 15, Issue: 2. pp. 203-218. DOI: 10.2478/mmcks-2020-0013.

[14] Krajnakova, E., & Vyhnicka, J. (2020). Impact of Industry 4.0 On Changes in the Structure and Number of Jobs. In: *Vplyv Industry 4.0 Na Tvorbu Pracovnych Miest 2019*, pp. 247-253.

[15] La Fundación Cotec para la innovación. (2020). [online]. [cit.2021-09-22]. Available at: [online]. [cit.2020-09-22]. Available at: https://cotec.es/media/InformeCotecDigitalizacionenSalud_vf.pdf.

[16] Mura, L. (2019). Entrepreneurship Internationalization - Case of Slovak Family Businesses. *AD Alta-Journal of Interdisciplinary Research*, Volume: 9, Issue: 1, pp. 222-226.

[17] Paniagua, J. (2021). Infraestructura y digitalización de pymes son las principales barreras para el crecimiento de la economía digital. Revista IT NOW. [online]. [cit.2021-09-22]. Available at: https://revistaitnow.com/infraestructura-y-digitalizacion-de-pymes-son-las-principales-barreras-para-el-crecimiento-de-la-economia-digital/.

[18] Redaccio Mmedica. (2020). [online]. [cit.2021-09-22]. Available at: https://www.redaccionmedica.com/secciones/tecnologia/el-70-de-la-sanidad-espanola-suspende-en-digitalizacion-2473.

[19] Secretaría Técnica. (2020). [online]. [cit.2020-09-22]. Available at: https://seis.es/wp-content/uploads/2018/02/LA-TRANSFORMACION-DIGITAL-DEL-SECTOR-SALUD-EN-ESPA%C3%91A.pdf

[20] Sindicato Médico Andaluz. (2020). [online]. [cit.2021-09-22]. Available at: https://www.smandaluz.com/noticia-print/1515/opes-de-estabilizacin-por-autonomas-ms-de-71000-plazas-sanitarias.

[21] Uclg.org. (2021). [online]. [cit.2021-09-22]. Available at: https://www.uclg.org/sites/default/files/eng_briefing_technology_final_x.pdf.

[22] Vojtovic, S., Stundziene, A., & Kontautiene, R. (2018). The Impact of Socio-Economic Indicators on Sustainable Consumption of Domestic Electricity in Lithuania. *Sustainability*, Volume: 10, Issue: 2, Article Number: 162. DOI: 10.3390/su10020162.

QUALITATIVE STRUCTURE CHANGES OF WORKERS WITHIN THE INDUSTRY 4.0 CONCEPT

Marcel KORDOŠ[66]

Abstract: *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. The goal of the paper is to explore the wirld economy 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: *Macroeconomics, Industrial Revolution, New Technologies Implementation, World Economy Development, Automation and Robotics*

JEL Classification: *F63, O31, O51*

1. INTRODUCTION

Covid-19 pandemic has brought a lot of horrendous and awful issues to the world population. Many people, myself included, have lost relatives, friends or acquaintances. Everyone can agree this terrible situation would be one of the saddest moments of their lives. Nevertheless, it is vital to see the good things during the bad moments. For that reason, despite the severe damage that the virus has done in our lives, it has accelerated some positive changes in the labour market. The first one is the implementation of digitization. Digitalization was until March 2020 a strategic issue, but since the pandemic, it is simply a matter of survival. In this sense, joining the digital transformation is betting on an inevitable process that will positively influence the efficiency, competitiveness and, therefore, profitability.

New ways of working. Even though not all the population can telework, new working ways are emerging, driving to digitalization. And although the implementation of teleworking will be less than expected, the truth is that it has meant a structural change and a valuable option for many people. It is well known that changes tend to occur in difficult times, in times of change or crisis, and pandemic was not an exception of this. Robots has been using for many years, but since Covid-19 more than ever. As a surprising fact, it is expected that in 2030 humans and machines will be splitting work 50/50 (Bilan et al. 2019; Mura, Marchevska, Dubravska, 2018).

Emerging professions. The most sought-after positions in the present and immediate future are relate to analysts, artificial intelligence, and automation (machines). There is a paradox about the labour market and is that, while it is suffering very high levels of unemployment, companies cannot find staff to fill certain vacancies and are increasingly looking for specialized HR companies. The adoption of New Technologies by companies is transforming the tasks, jobs and skills that companies will need, so it will be essential for workers to maintain a clear predisposition to keep themselves permanently trained. In many cases, it is this the workers themselves who decide to change their professional path in order to train

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themselves to be able to perform these jobs, which are completely new to them. Health, hygiene and work safety (with new standards). Education (need for continuous re-qualification of professionals). Mobility (new consumer habits). Increased presence of new technologies in companies, such as automation, robotic and so on (Ahmad, Seman, 2019; Belas, et al. 2020).

Industry 4.0 is the new Industrial Revolution whose aim looks for a digital innovation of companies and manufacturers. The concept was coined in 2011 by this German initiative by the Federal government in association with some of the universities and private firms to increase productivity and efficiency in the manufacturing sector. People, machines, and products are directly connected with each other: the fourth industrial revolution has begun. These are the words used by the German Federal Ministry of Economic, Education and Research on their Platform Industry 4.0 to describe this phenomenon (Ślusarczyk, 2018).

2. PROBLEM FORMULATION AND METHODOLOGY

The research task deals with the analysis of the problematic aspects qualitative structure changes of workers in terms of Industry 4.0 elements implementation and find out its consequences. The research will be focused on exploring the world and 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, 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. NEW JOBS VS OLD JOBS DUE TO IMPLEMENTATION OF ROBOTICS AND AUTOMATION

The pandemic has had a major impact on the economy and, as a result, industry is now facing an uncertain and changing scenario that has nothing to do with that of the beginning of last year. At our borders, this situation has highlighted the vulnerability of Spanish industry and the need to strengthen it in order to protect productive activity in crisis situations. In this context, automation and robotics are emerging as the companies' big bet to alleviate the impact of this economic crisis that is now affecting the whole world.

Spain now has a great opportunity to invest in automation and robotics, which will make us more competitive. In this regard, research by the Organisation for Economic Co-operation and Development (OECD) shows that companies that use technology effectively are ten times more productive than those that do not. Every crisis is an opportunity. Investment in difficult times like the one we are experiencing right now will pay off in the future.

The pandemic highlighted Spain's shortcomings in terms of self-sufficiency: masks, tests, PPE and other medical equipment had to be bought from other countries, especially China, which is the world's largest exporter and the country chosen by most Spanish companies to manufacture their products. Indeed, the Asian giant has increased its exports at a time when the rest of the world's countries are suffering major economic consequences.

Faced with this situation, companies have been forced to reflect on their global production chains in order to overcome their vulnerability to future crises. Being a resilient company in the face of adversity is a major challenge, the solution to which is local production. The relocation to Spain of production that currently takes place in third countries would allow companies to reach China's level of competitiveness. Of course, this will require more digitalisation, automation and robotisation.

Automation is a necessity for Spanish industry

As we have seen, companies with automated processes are better prepared to cope with the side effects of the pandemic and any future crisis. On the other hand, the stability and reliability of robotics can optimise production even under the current circumstances. In short, Spain now needs to strengthen its industry and make it more competitive with government plans that encourage automation and robotics in companies, as is being done in other European countries such as France and Germany. Along the same lines, the The European Union has promoted European funds (Recovery and Resilience Facility: The Council's position) that allocate a large part of the financing to companies that are committed to digitalisation and automation. These funds are undoubtedly the Ministry of Industry's opportunity to promote a plan to make Spanish industry more competitive and resilient (Botlík, Botlíková, 2019).

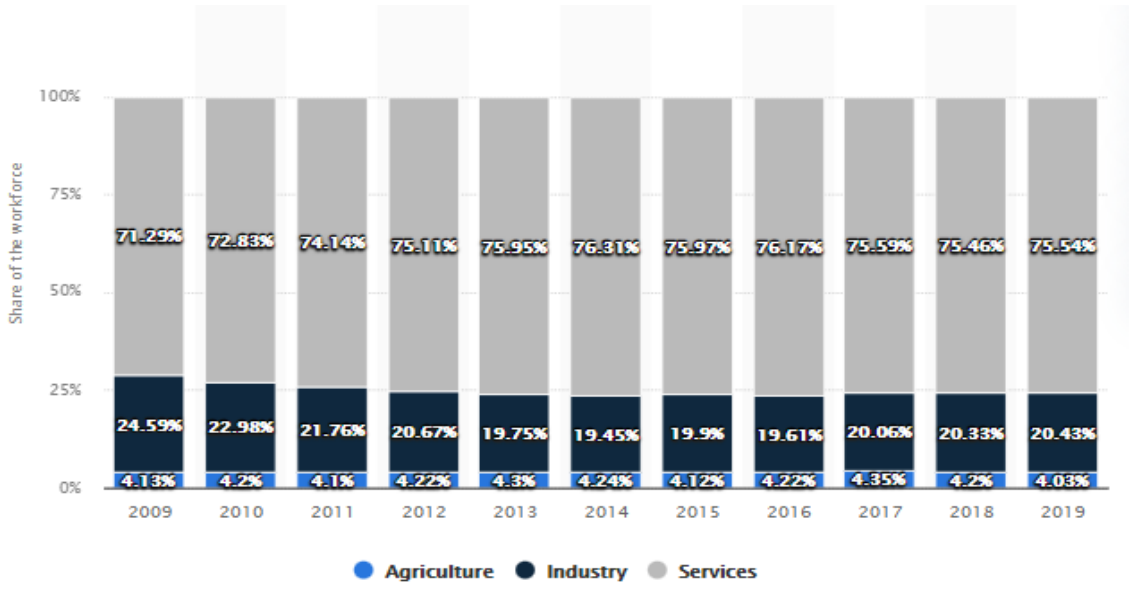
Automation has accelerated its presence in business as a result of the coronavirus, according to the latest World Economic Forum study. It has already claimed its first victims, mainly in the most repetitive and routine professions whose work can be taken over by machines and imply a great reduction in costs, improved productivity or faster production, while some, such as watchmakers, shoemakers or metal workers, seem doomed to extinction, others, such as construction, transport and customer service, are reinventing themselves and new job opportunities are emerging (Barata, Cunha, Coyle, 2019).

Robotics, the paradigm of technological development and the result of industrial progress, will from now on be much more present in companies, resulting in an equalisation in the workforce between men and machines. This is what the latest study by the World Economic Forum (WEF) points out, where it warns that as a consequence of the abrupt irruption of the covid-19 and the consequent general recession in countries, by 2025 -in barely five years-, the distribution of tasks will be 50% between humans and robots, which could result in an increase in inequality. The jobs that will most resist the robotic revolution will be those most focused on knowledge, subjectivity and human value, such as teachers, social workers, health professionals, politicians or artists, as well as all those professions linked to big data, machine learning or digital transformation. Emerging professions. The most sought-after positions in the present and immediate future are data analysts, specialists in artificial intelligence and machine learning, on the Internet of Things, specialists in marketing and digital strategies, in automation processes, in digital transformation, professionals dedicated to business development, digital security analysts, etc. At the same time, the professions of the near future - well paid - linked to the use of ICTs or the handling of large volumes of data are beginning to appear: SEO experts, data scientists or web analytics professionals (Ispizua, 2018; Rajiani, Ismail, 2019).

For instance: a SEO expert is a professional with extensive experience in the optimisation of web pages, whose daily work focuses on the application of techniques that favour the improvement of a website, with the aim of placing it in the top positions of the most important search engines on the Internet. The Data Scientist is a professional profile that translates the large volumes of available information known as Big Data. They come from all kinds of massive information sources and turn them into answers. They work in any type of business and industry with the aim of obtaining reliable answers to everyday problems. For example, to know when the high time is to buy a plane ticket, to predict users' tastes and show them the best option or to discover whether a person may be at risk of suffering from a disease. The web analytics expert is in charge of collecting and analysing in detail all the data generated by a company's online tools (website, blog, online marketing campaigns, etc.), to help better understand the traffic, behaviour and profile of users, their degree of satisfaction, the level of service offered, the life cycle of the clientele, the competitive framework or the degree of achievement of the organisation's objectives on the Internet (Epicor, 2021; Santos, Muñoz, Poveda, 2017).

According to forecasts, by 2025 the rate of automation in the workforce will be 47 per cent, up from the current 33 per cent, while human jobs will account for 53 per cent, well below the current 67 per cent. Automation and a new division of labour between humans and machines will displace 85 million jobs worldwide in medium and large companies in 15 industries and 26 economies, the analysis notes, which, by contrast, also warns that the increased presence of machines may enable the emergence of another 97 million jobs, mainly in sectors such as care, the technological industries of the Fourth Industrial Revolution, such as artificial intelligence, and in the fields of content creation (Guide to business in Spain, 2021; Sanchez-Urán, Grau Ruiz, 2015).

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



Source: Statista, 2021

Tourism, which represents 15% of GDP, where a drop of about € 124 billion is expected, that is, a decrease in GDP of around 12%. With this regard, it should be noted that in the third quarter, after the partial reopening of the tourism sector, a rebound was recorded, whereby almost 60% of the activity lost during the first half of the year was recovered. The automotive

sector, which represents 10% of GDP and employs 15% of the active population in our country. This sector is expected to drop by around 30%, representing a drop in GDP of another 300 basis points. Trade is the third most important sector for the economy, and it is expected that around 20% of businesses will close, which would mean a further 2% drop in GDP. The construction sector is next in importance and a 35% drop is expected, motivated by a decrease in prices for housing and other real estate assets of between 30-40%. Exports, where a drop of 8% is expected. In relation to these sharp falls that have been taking place since the beginning of the pandemic, the third quarter of the year has shown some recovery from the strong recession experienced. According to data from the National Statistical Institute (INE), commerce, transport and hospitality grew by 42.5% compared to the falls of the previous first quarter (Businessinsider, 2021; Gruzauskas, Baskutis, Navickas, 2018; Statista, 2021; Eurostat, 2021).

Lockdowns, sanitary measures and so on, was put a large number of businesses in danger, especially, hostelry. The world spread of the virus have damaged more Service Sector than any other. As it can see on this graphic, services are the biggest one by far, that is might also why this special situation have affected more to Spain than to other countries. Perhaps owing to its nature, the particularity that this sector is mainly performed by human beings than Industry or Agriculture, where automation and robotic are frequently used to make huge mass productions.

4. QUALITATIVE STRUCTURE CHANGES OF WORKERS

Concern is being ignited by the fact that new information and communication technologies, robotisation and artificial intelligence are making it possible to automate tasks that were unthinkable until recently. In particular, repetitive tasks that could not be automated are becoming so, and even tasks performed by skilled workers could be automated in the future thanks to advances in artificial intelligence. Medium-skilled routine jobs are more easily automated, as opposed to non-routine abstract and manual jobs that tend to be high-skilled and low-skilled, respectively. This may lead to an increase in demand for high- and low-skilled jobs and a decrease in medium-skilled jobs, thus polarising the labour market.

The jobs performed by professionals, highly skilled technicians and managers rely precisely on abstract tasks that are difficult to codify and automate. On the other hand, jobs with a high burden of manual tasks performed by low-skilled people, such as cleaning, serving food, caring for dependents, personal security services, etc., are equally unlikely to be coded and automated. In contrast, routine administrative jobs, factory jobs and many office jobs are largely made up of tasks that can be encoded into their routines, and with advances in computing, artificial intelligence and robotics can or will be automated to a large extent. Therefore, if the tasks of middle-skilled jobs are automated to a large extent, what can happen is that the demand for them is drastically reduced and the demand for both very high-skilled, high-wage jobs and low-skilled, low-wage jobs increases (Jašková, 2019; Stock, Seliger, 2016). This essentially leads to a polarisation of the labour market, the "hollowing out" of middle-skilled jobs mentioned above.

In the long term, automation can be expected to generate profound changes that affect workers. Therefore, the state can be a very important actor, through education policies, training and social security systems, to protect workers who have to adapt to new ways of doing their jobs or who have to look for work in completely new sectors because of the disappearance of the types of jobs they do. The pandemic has shown that in a changing time, the competence most in demand is constant learning. This is a change that all professions must embrace. The new labour market requires a joint effort by companies and workers to readapt as soon as possible to the new situation, which the global pandemic has left us with (Botha, 2019; Krajnakova, Vojtovic, S2020).

In fact, the number of people seeking self-directed learning opportunities has doubled, and the number of employers offering learning opportunities to their employees has doubled. Thus, opening a new horizon associated with the work habits of citizens in this context, once again, digital competence becomes essential in the present and in the future. As far as training of workers is concerned, two general cases can be distinguished for people already in the labour market. Firstly, policies to retrain or upgrade skills in sectors where the way jobs are performed changes substantially. Secondly, reskilling and complete outplacement for workers in jobs that may disappear entirely due to automation, as new jobs may require both new skills and be located in different geographical areas than the jobs being destroyed (CCOO Industria, 2017; Haviernikova, Klucka, 2019).

5. CONCLUSION

However, there are even bigger questions, questions that were with us before this current crisis" "Do we have the right kind of growth, one that doesn't harm the planet or leave most people in the world out in the cold? What do good jobs mean when technology can automate so much work? Do we have the right kind of education and training that will prepare the workforce for the jobs of tomorrow?" History suggests that technological advancements have raised labour productivity lowered prices for consumers, increased demand, raised incomes, and underpinned economic growth and job creation. This time should be no different.

It is essential to understand than the Covid-19 has been an accelerating engine of social change, putting aside all the bad things it has brought on itself. Just with its existence, has contributed to many changes in all levels of life. One of them is the spreading implementation of Industry 4.0 on a broad scale. Automation and robotic have gone from being a possibility to a necessity, which is why the economic recovery after the coronavirus will lead to an increase in demand for robots. For this to happen, new policies for industry and the private sector that are committed to automation are indispensable. Only in this way we will 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. Otherwise, they might lose a portion of its market.

In short, Spain now needs to strengthen its industry and make it more competitive with government plans that encourage automation and robotics in companies, as is being done in other European countries such as France and Germany. Along the same lines, the European Union has promoted European funds (Recovery and Resilience Facility: The Council's position) that allocate a large part of the funding to companies that are committed to digitalisation and automation. These funds are undoubtedly the Ministry of Industry's opportunity to promote a plan to make Spanish industry more competitive and resilient. This is indeed the way of the future.

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REFERENCES

[1] Ahmad, N., & Seman, N. A. A. (2019). Industry 4.0 implications on human capital: A review. *Journal for Studies in Management and Planning*, vol. 4, iss. 3, pp. 221-235.

[2] Barata, J., Cunha, P. R. & Coyle, S. (2019). Evolving manufacturing mobility in Industry 4.0: the case of process industries. *Journal of Manufacturing Technology Management*, vol. 31, iss. 1, pp. 52-71.

[3] Belas, J., Gavurov, B., Cepel, M., & Kubak, M. (2020). Evaluation of economic potential of business environment development by comparing sector differences: perspective of SMEs in the Czech Republic and Slovakia. *Oeconomia Copernicana*, vol. 11, iss. 1, pp. 135-159. DOI: 10.24136/oc.2020.006.

[4] Bilan, Y., Rubanov, P., Vasylieva, T. & Lyeonov, S. (2019). The influence of Industry 4.0 on financial services: determinants of alternative finance development. *Polish Journal of Management Studies*, vol. 19, iss. 1, pp. 70-93.

[5] Botha, A.P. (2019). Innovating for market adoption in the fourth industrial revolution. *South African Journal of Industrial Engineering*, vol. 30, iss. 3, pp. 187-198.

[6] Botlík, J. & Botlíková, M. (2019). Positive and negative factors of the Fourth Industrial Revolution in the European Area. In: *Zborník vedeckých prác z 20. medzinárodnej vedeckej konferencie Medzinárodné vzťahy 2019: Aktuálne otázky svetovej ekonomiky a politiky*. Bratislava: Ekonóm, s. 86–106.

[7] Businessinsider. (2021). [online]. [cit.2021-10-22]. Available at: https://www.businessinsider.es/cuanto-dinero-deja-recaudar-espana-economia-sumergida-769087.

[8] CCOO Industria. (2017). La digitalización y la industria 4.0, Impacto industrial y laboral. Madrid. [online]. [cit.2020-10-22]. Available at:: http://www.industria.ccoo.es/4290fc51a3697f785ba14fce86528e10000060.pdf.

[9] Epicor. (2021). [online]. [cit.2021-10-22]. Available at: https://www.epicor.com/es-mx/resource-center/articles/what-is-industry-4-0/.

[10] Eurostat (2021). Statistics [online]. [cit.2020-10-22]. Available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes.

[11] Gruzauskas, V., Baskutis, S., & Navickas, V. (2018). Minimizing the trade-off between sustainability and cost effective performance by using autonomous vehicles. *Journal of Cleaner Production*, vol. 184, pp. 709-717. DOI: 10.1016/j.jclepro.2018.02.302.

[12] Guide to business in Spain. (2021). [online]. [cit.2021-10-22]. Available at: https://www.guidetobusinessinspain.com/espana-un-pais-atractivo-para-la-inversion/1-5-estructura-economica/.

[13] Haviernikova, K., & Klucka, J. (2019). The Risks in the Case of Cluster Cooperation and Ways of their Prevention: As Seen by SMEs Entrepreneurs. *AD Alta-Journal of Interdisciplinary Research*, Volume: 9, Issue: 1. pp. 114-119.

[14] Ispizua, E. (2018). Industria 4.0: ¿Cómo afecta la digitalización al sistema de protección social? *Lan Harremanak*, Nº 40, edición In Pres

[15] Jašková, D. (2019). Assessment of social development in Slovakia in the context of human resources. In: *European Journal of Labour Law and Personnel Management*, vol. 2, iss.2. pp. 21-32.

[16] Krajnakova, E., & Vojtovic, S. (2020). Global Trends in the Labor Market and Balance of Losses and Benefits from Labor Migration. In: *19th International Scientific Conference Globalization and Its Socio-Economic Consequences 2019 - Sustainability in the Global-Knowledge Economy*. Book Series: SHS Web of Conferences Volume: 74, Article Number: 05012. DOI: 10.1051/shsconf/20207405012.

[17] Mura, L., Marchevska, M., & Dubravska, M. (2018). Slovak Retail Business Across Panel Regression Model. *Marketing and Management of Innovations*, iss. 4, pp. 203-211. DOI: 10.21272/mmi.2018.4-18.

[18] Rajiani, I. & Ismail, N. (2019). Management Innovation in Balancing Technology Innovation to Harness Universities Performance in the Era of Community 4.0. *Polish Journal of Management Studies*, vol. 19, iss. 1, pp. 309-321.

[19] Sanchez-Urán, Y., & Grau Ruiz, A, (2015). El impacto de la robótica, en especial la robótica inclusiva, en el trabajo: aspectos jurídico-laborales y fiscales. *Inclusive Robotics for a better Society*. [online]. [cit.2020-10-22]. Available at: http://inbots.eu/wp-content/uploads/2018/08/publications/robotica-derecho-deltrabajo-derecho-fiscal-final-mayo2018.pdf.

[20] Santos, O., A., Muñoz, R., D., & Poveda, R., M. (2017). *Trabajo y empleo: tendencias sociales recientes*. Valencia. Tirant to Blanch..

[21] Ślusarczyk, B. (2018). Industry 4.0 – are we ready? *Polish Journal of Management Studies*, vol. 17, iss 1, pp. 232-248.

[22] Statista. (2021). [online]. [cit.2021-09-22]. Available at: https://www.statista.com/statistics/271063/distribution-of-the-workforce-across-economic-sectors-in-spain/.

[23] Stock, T. & Seliger, G. (2016). Opportunities of sustainable manufacturing in Industry 4.0 *Procedia Cirp*. vol. 40, pp. 536-541.

THE LABOR MARKET IN THE NATIONALLY MIXED SETTLEMENTS OF THE TYUMEN NORTH

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Abstract: *the article provides an overview of the types of activities in the nationally mixed settlements of the Tyumen North, shows the specifics of the socio-economic situation in the Khanty-Mansi Autonomous Area, as well as the specifics of employment of the population depending on belonging to a certain ethnic group. The methods of questionnaire survey, interview, statistics analysis were used. The authors relied on the scientific understanding of this phenomenon, since it is associated with the increased role of the ethnic factor, investigated its role in the social structure of society, identified the causes of tension in the labor market. The authors touched upon the problems of employment and unemployment, which affected almost all social strata. The data obtained in the course of recent sociological studies were analyzed. The ratio of workers from among the indigenous peoples of the North and Russians in the production and non-production sectors of the economy is compared. The results of the study led to the conclusion that the aboriginal peoples of the Ob North have a higher percentage of employment in the fishing and agricultural sectors. Russians, on the other hand, prefer working in industry and management structures.*

Key words: *indigenous peoples of the North, sphere of employment, working resources*

JEL Classification : *J21, J38, J61, R23*

1. INTRODUCTION

For decades, sociology has helped to identify socially significant problems, many of which are related to the labor market, inequality and poverty. The topical problems of applied research also include employment and unemployment. Both terms indicate the participation or non-participation of the able-bodied population in public production. Russian society seriously faced the lack of vacancies in the labor market during the transition to market relations. In this phenomenon, one can find intertwined social, economic and ethnic tendencies: unemployment is characterised negatively from the position of human impact, while from the position of competition and labour stimulation it is considered acceptable. According to Western and Russian scientists, work is not only a source of financial stability, but also a sphere of communication, the foundation of personal development, providing social status of the individual (Korableva, Vershinin, Antonova, et al. 2018). All this disappears with the loss of work. The orientation towards market relations has led to an increase in the degree of dissatisfaction of the population with their situation. Many people, including those living in the North, were not prepared for the consequences of the reforms, which manifested itself in the loss of customary standards, reduction of living standards ((Kordos, Berkovic, 2020; Kordos, 2020).

The topic related to the study of the employment structure in the northern regions received detailed coverage in the works of V. V. Markhinin, I. V. Udalova, V. M. Kurikov, T. G.

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Kharamzin, N. G. Khairullina and others. The problems of employment and unemployment among the population residing in the North can be classified as the most serious not only on the scale of the Khanty-Mansiysk Autonomous Okrug but also on the scale of the country as a whole. The past tradition of subordination to the center has been replaced by a new one, which, as expected, should be based on a systematic approach to the development of the North, as well as taking into account regional and societal priorities. The relevance of this topic is due to the growing interest in ethnic issues, both locally and internationally, as well as competition in the labor market between representatives of different ethnic groups.

2. PROBLEM FORMULATION AND METHODOLOGY

To study the socio-economic situation in the North of the Tyumen Oblast, sociologists of Surgut State University and members of the ethno-cultural research sector of the Institute of Philosophy and Law of the Siberian Branch of the Russian Academy of Sciences conducted sociological surveys in different districts of the Khanty-Mansiysk Autonomous Okrug– Yugra throughout the 2000s. The authors were directly involved in some of them. The range of topics considered is quite wide. The object of the research presented in this article is the indigenous peoples of the North and the Russians living in the ethnically mixed settlements of the Tyumen North. The purpose of the research was to study the situation on the labor market in the ethnically mixed settlements of the Tyumen North. The tasks arising from this objective relate to the analysis of statistical data obtained during the surveys; establishing a correlation between preferences in labor activity and ethnicity of respondents. Methods used: sociological survey, interviews, analysis of statistics.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

During the formation of a market economy, employment is one of the most difficult issues. Social problems in such a situation do not disappear, but even become more acute, which is confirmed by the results of conducted research. The following picture was revealed: the share of Russians (31.4%) working in the industrial sphere is much larger than that of the people of the North (17.2%), which can be explained by the predominance of Russian certified specialists and the low educational level of aboriginal peoples. In addition, the nomadic lifestyle of some families makes permanent employment almost impossible. For obvious reasons, the share of the Russian population in the commercial industry) is less than that of the Khanty and Mansi (8.3 and 12.4, respectively). Of the Russian respondents interviewed, none was involved in reindeer herding, souvenir making, fur farming and fur processing. Only 5% of them were engaged in hunting and fishing. The number of Russians employed in the transport and communication system is slightly higher than that of persons belonging to the indigenous peoples of the North (6.3 and 4.4%). The employment of the latter in trade and consumer services is almost the same as that of the Russian population. However, among the persons of indigenous nationalities, the share of workers in the field of health care, social welfare, education and culture (43.2 and 32%) is higher (Markhinin, Udalova, 2016).

There are 1.5 times more Russians than Khanty and Mansi in the in the governing bodies, which, in turn, is associated with the level of education. The representatives of the northern ethnic groups have almost 3 times higher orientation towards agricultural work compared to the Russian respondents Thus, the aboriginal peoples of the Ob North have a higher percentage of employment in the fishing and agricultural sectors, as non-productive specialists prevail among them. Russians, on the other hand, prefer working in industry and managerial structures. It is possible to analyze the orientation of professional activity among the indigenous population of the North and the Russian population by comparing the employment structure of the respondents and their parents. Traditional occupations such as

reindeer herding, hunting, fishing and fur farming were employed by 61.6% of the parents of the respondents. When comparing the indicators, it is found that in recent decades, the number of people involved in traditional industries for the North has decreased by almost 3 times (in three districts of the Okrug). The share of Russians working in these industries has slightly increased. While in the parents' generation it was 6.6%, at the time of the surveys there was an increase to 8.3%. The differences between the aboriginal and Russian population engaged in fishing and hunting are quite clearly traced. In the group of parents of khanty and mansi their number was 7 times higher compared to the Russians (43.9 and 6.1%, respectively). Currently, this gap has narrowed and amounted to 12.4% against 8.3% (Markhinin, Udalova, 2016).

It should be noted that in conditions of economic and financial instability, the fishing economy has the same degree of importance for the northern ethnic groups and Russians, since it is much easier for them to feed themselves and their families, in this way, as the respondents note. As for the level of education, 50% of the parents of the aborigines of the North had primary education or were illiterate at all, while the position of the parents of the Russian respondents looked better. The inclusion of the northern region in the market relations, privatization of enterprises and disintegration of economic ties led to dramatic changes in the structure of employment. The drop in labor productivity, downsizing, and production of non-competitive goods caused the growth of unemployment In industry, the proportion of unemployed Russians is twice as high as that of the native population (23.6% against 11.3%) A similar situation is observed in transport and communication, as well as management. This is not surprising, since, as noted earlier, more Russians are employed in the sphere of production and management. 22.7% of respondents from the northern ethnic groups worked in the fishery sector,7.2% worked in health care and social welfare, and 12.4% in education and culture. Now they were left out of the picture, so to speak. Accordingly, 16.4; 3.6 and 7.3% of the Russian population were employed in the above spheres, which is significantly lower Respondents' answers showed a particularly strong gap in the field of agriculture, where 13.4% of Khanty and Mansi and only 1.8% of Russians lost their jobs (Korniltseva, Kuznetsov, 2017).

As a rule, people of working age lose their jobs. However, they can find jobs related to unskilled work. Attempts to avoid a decrease in status lead to an increase in unemployment and a prevailing depressive mood. Some of those dismissed started the shuttle business, but their share in the total mass is small. The respondents noted that mostly they are helped to survive by their private subsidiary farm, which almost everyone has in the villages. In the current conditions, the need for regulating the demand for labor and professional retraining is not always realized in practice. It is known that the number of unemployed depends on gender, age, nationality. For example, in Western countries the level of unemployment is higher among women, young people and ethnic minorities. A similar trend is observed in the Khanty-Mansiysk Autonomous Okrug - Yugra, where the share of unemployed among aboriginal peoples is higher than among Russians. The results of the study led to the conclusion that the aboriginal peoples of the Ob North have a higher rates of employment in the fishing and agricultural sectors. Russians, on the other hand, stop their professional choice on other spheres of activity, giving preference to working in industry and managerial structures (Kuznetsov, Ermakov, 2019). With the increasing importance of the ethnic factor, it is necessary to rely on the scientific understanding of this phenomenon, which, in turn, is associated with analyzing its role in the structure of society, identifying the causes of tension in the labor market and predicting the consequences.

In settlements with a low level of economic development, the people are more pessimistic than the urban population. For Khanty and Mansi the opportunity to engage in traditional crafts is of great importance. They exist mainly due to fishing and hunting industries. On the contrary, Russian respondents see their main source of income in wages and benefits from

social funds. However, the trouble is that the level of forced unemployment is high. Small businesses have replaced collective farms and state farms, but they cannot provide jobs for everyone. The unemployed and indigenous people showed less motivation to succeed than entrepreneurs and intellectuals. To the question: "Are you afraid of losing your job?" - 57.6% of aboriginal respondents of the North and 55.1% of Russians answered, "Yes, I am afraid". They associate the danger with inability to live and feed the family having no permanent income. 9.5% of respondents in each group see work as the meaning of life. Thus, more than half of the surveyed residents, regardless of nationality, experience anxiety about losing their job. A similar picture is revealed by the results of other all-Russian polls. With the aggravation of the employment problem comes another question: how do you manage to survive without a job? Let us highlight typical answers from the aboriginal peoples of the Ob North and the Russian population: thanks to private subsidiary farm (19.7% and 29.2%); fishing and hunting (40.7% and 37.5%); unemployment benefit (26.3% and 15.3%); relatives (28% and 20.8%); odd jobs (30.5% and 41.7%). Financial assistance, of course, helps the Khanty and Mansi, supporting their fishing and hunting economy, but it should be taken into account that, naturally, unemployment changes a person's entire life style, free time and behavior. It is believed that the loss of regular earnings leads to stress, which can be compared to imprisonment. The number of unemployed depends on gender, age, nationality. For example, in Western countries the rate is higher among women, youth and ethnic minorities. A similar trend is present in the Khanty-Mansiysk Autonomous Okrug - Yugra, where the share of unemployed among the aboriginal peoples is higher than among the Russians. But, according to sociological studies in the surveyed area the number of previously employed, and now unemployed Russians exceeds the number of unemployed people of indigenous ethnicities in industry, transport and communication. Apparently, this is due to the active participation of the latter in the traditional northern crafts. Russians, on the contrary, more often choose industrial professions.

The desire to maintain a customary social status leads to an extended period of unemployment and the formation of pessimism. Some of the people who were out of work became traders or shuttle traders, but their number in the total mass is insignificant. Respondents emphasized that they are provided with food by a subsidiary farm, which is available to almost everyone. Sociologists have long identified the relationship between the number of unemployed and gender, age, ethnicity. For example, in Western Europe the number of unemployed is higher among women, young people, and national minorities. A similar trend can be found in the Khanty-Mansiysk Autonomous Okrug - Yugra, where the percentage of unemployed among the indigenous ethnic groups is higher than among Russians. Survey results show that aboriginal peoples are more employed in the commercial field and agriculture. Russians choose other spheres of professional activity, in particular, management and industry.

4. CONCLUSION

With the increasing importance of the ethnic factor, it is necessary to rely on a scientific understanding of this phenomenon, analyze its role in the social structure of the community when identifying the causes of tension in the labor market and predicting the consequences [6]. It can be assumed that over time, the proportion of people in need of social support will increase even more. People with high qualifications, who are economically active and can provide for themselves, will be in a more favorable situation. Unemployment has become commonplace in market economies. The situation is similar in the Russian regions. In a market economy, the state is not able to provide jobs to all citizens, so the government must propose measures to maintain a balance between supply and demand in the labor market. The behavior of the population in the labor market is determined by the specific features of the region, the demographic composition of the population, working conditions, and socio-cultural factors.

REFERENCES

[1] Federal State Statistics Service (2020). Khanty-Mansi Autonomous Okrug - Yugra. / Labor market and employment. [online]. [cit.2020-10-14] Available at: http://tumstat.gks.ru/wps/wcm/connect/rosstat_ts/tumstat/ru/statistics/hmaStat/employment/.

[2] Korableva, G.B., Vershinin, S.E., Antonova, N.L. et al. (2018). Urban Sociology. Designing of Social Change in the Urban Environment: a tutorial. (Ser. 11 Universities of Russia), Moscow: "YURAYT Publishing House". P. 125.

[3] Korniltseva, E. & Kuznetsov, A. (2017). Russian-Yugurs' Interethnic Communities: Specificity of Formation. *Modern research of social problems*. vol. 8, № 6-2, pp. 376-381 [online]. [cit.2020-10-14]. Available at: https://cyberleninka.ru/article/n/russko-yugorskie-mezhetnicheskie-soobschestva-spetsifika-stanovleniya/viewer

[4] Kordos, M. & Berkovic, V. (2020). Applying Automation in Slovak Tourism Industry - Benefits and Issues. AD ALTA-Journal of Interdisciplinary Research, vol. 10, iss. 1, pp. 132-138.

[5] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[6] Kuznetsov, A. & Ermakov, Y. (2019). Industry 4.0 and Problems of Labor Migration. In: *International Conference The Impact of Industry 4.0 on Job Creation*. Trenčín: TnUAD pp. 254-259. [online]. [cit.2020-10-14]. Available at: https://fsev.tnuni.sk/konferencia2019/Zbornik.pdf.

[7] Markhinin, V. & Udalova, I. (2016). Dominant values and possible risks in the development of the peoples of the North: based on the materials of a sociological survey in Ugra. *Proceedings of higher educational institutions: Sociology. Economy. Politics.* 2016. № 3. pp. 83–90.

[8] Markhinin, V. & Udalova, I. (2016). Interethnic community of Yugra: status, dynamics and prospects (based on opinion polls of 1991-200; 2004-2014) *Siberian journal of philosophy* 2016. vol. 14, № 2. P.12[ ] Markhinin, V. & Udalova, I. (2016) Dominant values and possible risks in the development of the peoples of the North: based on the materials of a sociological survey in Ugra. *Proceedings of higher educational institutions: Sociology. Economy. Politics.* 2016. № 3. pp. 83–90.

PROSPECTS FOR THE INTRODUCTION OF A FOUR-DAY WORKING WEEK IN REGIONALLY ORIENTED PRODUCTION SYSTEMS IN THE CONDITIONS OF THE FORMATION OF THE VI TECHNOLOGICAL STRUCTURE

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Abstracy: *This article is devoted to the forecasting of the situation about the introduction of a four-day working week in Russia. Immediately after the announcement of this initiative by the Prime Minister of the country D. A. Medvedev in 2019, in scientific areas has started a discussion about the reasonability of its introduction. Two camps were formed: supporters for the introduction and opponents of such an initiative. Each group expressed its own very convincing arguments. Currently there is no clear understanding of what such an initiative will bring to the country's economy, since there are serious arguments in its inexpediency as well as for its implementation. The authors analyzed the situation in various sectors of the economy from the public sector to business structures and paid special attention to the possible consequences in regionally oriented industrial complexes.*

Key words: *four-day working week, four-day working week in the service sector, labor regime, the consequences of four-day working week for regionally oriented production systems.*

JELClassification: *M51, J38, J61*

1. INTRODUCTION

After the idea of introducing a 4-day working week was announced in the summer of 2019 by the acting Prime Minister of the Russian Federation Dmitry Medvedev at the 108th session of the ILO in Geneva, a rather lively discussion about the feasibility of this initiative took place. Moreover, there were both supporters of this innovation, especially among young people, and opponents. Each side had its own very strong arguments " for " or "against". Over time, this topic has almost disappeared, but due to the situation with the pandemic, D. A. Medvedev again discussed the topic of introducing a 4-day working week at a round table in April 2021 with representatives of trade union organizations. "We are currently automating, robotizing processes, and there still will be available certain positions. A reduced working week will help to avoid unemployment in some cases, this is actually very important. So, it seems to me that this idea is promising, " Medvedev said, speaking about the possibility of switching to the "four-day" (RIA Novosti, 2021). The same opinion is shared by scientists and people who are more optimistic about the realities of scientific and technological progress and maybe not in the very near, but in the foreseeable future, such a need will come (Srnichek, 2019).

2. LITERATURE REVIEW

According to the SuperJobweb-portal, 44% of respondents voted for the introduction in Russia, more than a third voted against it, and there is an amazing unanimity among

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employers-almost 80% have never considered such an innovation (Forbes, 2021). As for employers, their position and decision are dictated by primitive economic logic – they will work less, paid the same. At the same time, there can be a very expected effect: in less time, a rested employee will be able to do even more work than before, besides, he will have a more joyful attitude to work, which will certainly affect the productivity and efficiency of his work. Our research shows that without a complete motivation system that provides moral and material incentives, production efficiency and labor productivity do not change significantly (Ilina, Ovchinnikova, 2020).

Thus, the conclusion suggests itself that the idea of introducing a four-day working week is increasingly winning the minds of workers, besides, the Chairman of the ruling United Russia party has the most serious intentions to introduce it. Therefore, we need to assess the threats and opportunities of introducing this labor norm in individual industries and in regionally oriented production systems.

3. RESULTS AND DISCISSION

The position of employers. The HeadHunter research service, which conducted a research among employers, came to the conclusion that the heads of organizations are not ready to let employees go for another day a week. So, only 12% of employers are ready to consider this possibility in the next two years, and in five years, or even later – about 8% of respondents. And the overwhelming majority of 76% of respondents do not take the idea of reducing the working week seriously at all (Gazeta, 2019).

As arguments, top managers state the following: the need of reducing the salary of employees and, consequently, a new hire of personnel that needs additional training – and these are unforeseen expenses. In addition, they predict a decrease in labor productivity and an unbalanced labor rhythm, which will eventually lead to a decrease in labor discipline.

It is clear that there are also those who do not see any disadvantages in the reduced week (about 10% of them). Their argument boils down to stopping the burnout of employees and improving their well-being. To this can be added an increase in time for self-education and more attention to family and relatives. Nevertheless, everything is very ambiguous in various industries and spheres of services, in which the rates of automation and labor productivity growth are very different.

The service sector. Let's start with the education system, which can be considered as a regionally oriented non-production complex, where the topic of reducing the burden on teachers and students does not cease to be relevant. Let's start with the elementary school: D. Mark Anderson from the University of Montana and Mary Beth Walker from the University of Georgia conducted research on this issue in 2015 in the United States and here is what they conclude: "... for the first time, a research in the United States showed that giving elementary school children a three-day weekend does not have a negative impact on academic performance - in fact, the results show that it can even increase some test results" (Macdonald, 2015). Analyzing the articles of domestic experts on the workload on teachers, it is easy to make sure that there is a consensus that Russian teachers in schools and teachers in universities are overloaded. This overload is primarily associated with low wages per rate, so many teachers go to work for 1.5 or more rates. The second problem, especially in higher education, is a catastrophic shortage of teachers, and in some cases (especially in humanitarian subjects) a lack of workload in a specialized subject. So the administration of educational institutions is trying to solve these problems by loading those who are already working without attracting new employees from the outside, while often a non-core subject acts as an additional load, which inevitably leads to a decrease in the quality of teaching. So what will the introduction of a 4-day working week in educational institutions lead to? In our

opinion, this is a way out, but we also need to review the workload standards. At school, the 36-hour working week should be reduced to 30 hours, while the classroom load should not exceed 16 hours. At the university, with an average load of teachers of 900 hours, the rule should be fulfilled that half of this time is the so-called extracurricular load. And, of course, the wages of this category of employees should be increased so that working for one rate, the teacher feels in demand and respected, then he will do everything to improve the quality of training and self-development, and will not solve the problem of how to live on one rate. Of course, the decision about a 4-day working week should be made simultaneously in educational and industrial organizations, so that children and parents can communicate more time to strengthen family traditions and self-improvement, otherwise the opposite effect may arise. I do not see any particular difficulties in implementing a reduced working schedule in the field of medicine. Here it is possible to rearrange the work schedulepainlessly,on conditions that new doctors will be hires, but the problem is that there are just not enough of them, especially narrow specialists. Therefore, for the introduction of a reduced work schedule of up to four days, the most acute problem in the service sector will be the lack of qualified specialists who need to be trained in advance and increase the prestige of these professions.

*The production sphere***.** So, the first condition for the transition to a new work schedule for regionally oriented production systems is synchronization with the service sector of the region. The second is to maintain the level of wages for employees who will work one day less per week. And the third condition is the recruitment and training (retraining) of additional labor. The authors have previously considered the last condition in details in their works (Kuznetsov, 2020; Zakharov, Kuznetsov, 2020; Zakharov, Kuznetsov, Perfileva, 2020), so we will limit ourselves to a general conclusion: young specialists are very reluctant to go to modern industrial enterprises that are experiencing a real hunger for key professions (metalworking, welding, electroplating, etc.). There are several reasons: 1. low wages; 2. uninteresting, monotonous, not creative work; 3. restrictions on certain freedoms, in particular, the use of gadgets, etc. Therefore, it is possible to attract young people to modern production only by creating high-tech jobs using robotics, artificial intelligence and digital technologies. They no longer agree to work in the old-fashioned way. Time will tell whether modern enterprises are ready for serious re - equipment and for allowing yesterday's graduates to work on expensive equipment, but this is the main problem of personnel management. The way out is seen in closer cooperation of regionally oriented production systems and vocational education institutions (universities, technical schools, colleges). The basic departments in production and the target set can partially solve this problem, but the change in legislation (Kuznetsov, 2019) has significantly slowed down these processes. Namely, they allowed yesterday's students to "get used" to the employer, and the employer had the opportunity to look closely at the young specialist. After such cooperation, it is very important that the young specialist immediately feels his need and interest. To do this, you need to provide him with an interesting and highly paid job, in this case there is a good chance that young people will stay in such a company.

4. CONCLUSION

In general, our observations suggest that there is convincing data both for the introduction of the four-day period and against its implementation. It should be added also, that successful employees in organizations, regardless of their forms of ownership, work much more than is provided for by labor legislation, so there will be no significant changes in the working regime for them even after the transition to a four-day working week. They both worked for"wear and tear" and will continue to work, regardless of time. The most surprising thing is that such employees will lose their salaries, since they will still receive not for the time worked, but for the result. Consequently, the degree of exploitation will increase for them and

they will be much more exposed to moral burnout at work. Hence, the main conclusion follows: not the most responsible and efficient employees are interested in switching to a four-day period, so such changes will negatively affect the overall performance of almost all commercial structures. The winners will be "state employees" and unscrupulous employees of business structures, which means that the introduction of a four-day working week must be delayed until the appropriate conditions are created.

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REFERENCES:

[1] Forbes. (2021). Bol'she treti rossiyan vystupili protiv chetyrekhdnevnoy rabochey nedeli. [online]. [cit.2021-07-29]. Available at: .https://www.forbes.ru/newsroom/obshchestvo/435205-bolshe-treti-rossiyan-vystupili-protiv-chetyrehdnevnoy-rabochey-nedeli.

[2] Gazeta. (2019). Sokrashchennaya nedelya: chego boyatsya rabotodateli. [online]. [cit.2021-04-29]. Available at: https://www.gazeta.ru/business/2019/09/12/12644707.shtml?updated.

[3] Ilina, S. V., Ovchinnikova, A.V. (2020). The influence of structural factors of the local environment on the dynamics, effectiveness and stability of regionally oriented production systems. *Izhevsk: Bulletin of the Udmurt University*, iss. 6. pp. 799-806.

[4] Kuznetsov, A. L. (2019). On the tasks of the university for training personnel in the conditions of diversification. In: International scientific and practical conference *"New personnel of the military-industrial complex: diversification of the defense industry and implementation of national projects"*, Izhevsk, October 16-19,. pp. 5-8.

[5] Kuznetsov, A. L. (2020). Management of personnel issues in regionally oriented production systems. *Intelligent systems in production*, iss. 3, pp. 103-106.

[6] Macdonald, F. (2015). Four-Day School Week Linked to Better Academic Performance, Study Finds. ScienceAlert. [online]. [cit.2021-07-29]. Available at: https://www.sciencealert.com/four-day-school-week-linked-to-better-academic-performance-study-finds).

[7] RIA Novosti. (2021). Medvedev nazval plyusy chetyrekhdnevnoy rabochey nedeli. [online]. [cit.2021-04-29]. Available at: https://ria.ru/20210429/rabota-1730467597.html

[8] Srnichek, N. (2019). *Inventing the future: post-capitalism and the world without labor*. Moscow: StrelkaPress, 336 p.

[9] Zakharov, N. L. Kuznetsov, A. L. (2020). Management of social development of the organization. Moscow: Infra-M. p. 208.

[10] Zakharov, N., Kuznetsov, A., Perfileva, M. (2020). The Impact Of Industry 4.0 On The Labour Market In Russia. In: Proceedings of scientific papers from the international scientific conference *The Impact Of Industry 4.0 On Job Creation 2019*. Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations, pp. 454-456.

POTREBA VZDELANIA MANAŽMENTU RIZÍK AKO SÚČASŤ MANAŽMENTU PLYNULOSTI PODNIKANIA V SLOVENSKÝCH PODNIKOCH

THE NEED FOR EDUCATION OF MANAGERS IN THE FIELD OF RISK MANAGEMENT AS A PART OF BUSINESS FLOW MANAGEMENT IN SLOVAK ENTERPRISES

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Abstrakt: *Podniky sú ovplyvňované faktormi z externého a interného prostredia podniku. Na to, aby podnik fungoval a vedel reagovať na rôzne zmeny prostredia, je potrebné mať správny tím ľudí, ktorí sa aktívne budú podieľať na dosahovaní stanovených cieľov podniku. Vzhľadom na manažment podniku, každá jedna činnosť v rámci podniku môže ovplyvniť jeho ďalšie smerovanie, pôsobenie na trhu práce a celkovo aj jeho prevádzkyschopnosť. Podstatou príspevku je predstaviť výsledky štatistického prieskumu v oblasti manažmentu rizík v Slovenských výrobných podnikoch, ktorý bol realizovaný Fakultou bezpečnostného inžinierstva Žilinskej univerzity na Slovensku. S problematikou manažmentu rizík a manažmentom plynulosti podnikania (kontinuity) súvisí aj poznanie posudzovania a riadenia rizík, ktoré sú potrebné pri zvládaní kríz a narušení stability podniku. Cieľom článku je preto poukázať na potrebu vzdelávania podnikateľov, manažérov a vedúcich pracovníkov slovenských podnikov v oblasti manažmentu rizík a tiež poukázať na potenciálne benefity, ktoré správne implementovaný manažment rizík môže podniku priniesť.*

Kľúčové slová: *manažér, manažment, podnik, manažment rizík, manažment plynulosti podnikania*

Abstract: *Enterprises are influenced by factors from the external and internal environment. In order for the enteprise to function and be able to respond to various changes in the environment, it is necessary to have the right team of people who will actively participate in achieving the entrepreneurship's goals. With regard to the enterprise management, every single activity within the enterprise can affect its further direction, its operation on the labor market and, in general, it's operability. Enterprises are influenced by factors from the external and internal environment. In order for the enteprise to function and be able to respond to various changes in the environment, it is necessary to have the right team of people who will actively participate in achieving the entrepreneurship's goals. With regard to the enterprise management, every single activity within the enterprise can affect its further direction, its operation on the labor market and, in general, it's operability. The essence of the article is to present the results of a statistical survey in the field of risk management in Slovak manufacturing enterprises, which was carried out by the Faculty of Security Engineering of the University of Zilina in Slovakia. The issue of risk management and business continuity management is also related to knowledge of risk assessment and management, which are needed to manage crises and disrupt the stability of the enterprise risks and also to point out the potential benefits that properly implemented risk management can bring to the enterprise.*

Key words: *manager, management, enterprise, risk management, business continuity management*

JEL Classification: *L21, L26, M51*

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1. ÚVOD

Je v záujme každej univerzity posilniť spoluprácu s praxou a inými univerzitami, aby lepšie porozumeli skúmaným problémom. Táto forma spolupráce zvyšuje nielen význam univerzít pre ich študijné programy a vzdelávacie programy, ale zvyšuje aj uplatniteľnosť absolventov v praxi. Takáto spolupráca prebiehala aj v rámci projektu - IGP (International Grand Project) projektu V13852 - Model integrovaného manažmentu rizík v podnikoch, v ktorom autori príspevku spracovávali medzinárodné údaje v oblasti integrovaného manažmentu rizík.

V súčasnej dobe je trendom prepojenie jednotlivých systémov riadenia a vytvorenie spoločného zakładu. Niektoré podniky majú komplikovanú štruktúru a systém, či už ide o technológie, výrobné procesy, informačné toky alebo personál (Algheriani 2019). Snažia sa zjednodušiť prevádzku, najmä udržať nízke režijné náklady, alebo eliminovať plytvanie v jednotlivých procesoch pri neustálom zvyšovaní výkonu. V iných spoločnostiach rastie tlak rôznych zainteresovaných strán na splnenie požiadaviek systémov manažérstva (ISO 2019). Preto sa do popredia stále viac dostávajú integrované systémy riadenia. Tieto prinášajú viac výhod ako samostatné paralelné systémy riadenia, ktoré nedosahujú takú produktivitu alebo konkurencieschopnosť, ako systémy, ktoré majú spoločný základ. Základom podnikov je zabezpečiť plynulosť ich prevádzkových schopností, prostredníctvom integrácie viacerých oblastí, či už sa jedná o manamžnet rizík alebo maanžment plynulosti podnikania. Integrovateľnosť a samotné prepojenie oboch oblastí je založená na prelínaní sa jednotlivých procesov a dopĺňaní sa navzájom. Kontinuitu podnikania je možné zabezpečovať pomocou manažmentu plynulosti podnikania, ktorý integruje viacero disciplín (manažment rizík, manažment kvality, bezpečnosť a ochranu zdravia pri práci atď.), s cieľom zabrániť vzniku negatívnych javov. Prepojenie manažmentu rizík s manažmentom plynulosti podnikania spočíva v lepšom porozumení podniku a jeho jednotlivých činností, ktorými sa zabezpečuje chod podniku, ako aj prevencia voči negatívnym javom, ktoré môžu podnik ovplyvniť (Heng 2015; Tammineedi 2010). Na to, aby bol úspešné implementovaný integrovaný manažment rizík v podniku, je potrebné vzdelať zamestnancov v oblasti manažmentu rizík (Hudaková 2017 a 2019).

Slovensko je jednou z popredných krajín v Európe, ktorá úspešne implementovala jednotlivé ISO štandardy do manažérskych systémov ako napr. systémy manažérstva kvality (QMS), systémy manažérstva bezpečnosti a ochrany zdravia pri práci (OHSMS) a systémy environmentálneho manažérstva (EMS) v podnikoch (Hudáková 2019; Masar 2019). Tieto systémy oddelene kladú požiadavky na manažment rizík v podnikoch, čo spôsobuje nezrovnalosti a duplikáciu spracovaných rizík. Manažérom chýbajú potrebné znalosti a zručnosti na efektívne riadenie rizík z hľadiska integrácie QMS, OHSMS a EMS (Agarwal 2016; Rebelo 2016). Podniky v západnej Európe sú pokročilejšie v integrácii manažmentu rizík a jednotlivých systémov.

Cieľom príspevku je poukázať na potrebu vzdelávania manažérov a majiteľov podnikov v oblasti integrovaného manažmentu rizík v podnikoch v súčasnosti. Prezentácia výsledkov empirických prieskumov, ktoré poukazujú na bariéry integrácie manažmentu rizík s jednotlivými systémami riadenia a na potenciálne prínosy, ktoré IMR (integrovaný manažment rizík) alebo v západnej Európe nazývané W-ERM (Wide-Enterprise risk management), prináša do podnikov. Pre zvýšovanie efektívnnosti procesov v podnikoch je integrácia manažmentu rizík a ostatných manažérskych oblastí nevyhnutná.

2. METODIKA

K hlavnému cieľu článku bolo použitých niekoľko metód ako analýzu teoretických poznatkov z domácich a zahraničných vedeckých a odborných zdrojov v oblasti integrácie manažérskych systémov a integrovaného manažmentu rizík. Realizoval sa aj empirický výskum zameraný na

integrovaný manažment rizík vo výrobných podnikoch. Cieľom empirického prieskumu, ktorý bol realizovaný formou online dotazníka, bolo zozbierať dôležité informácie pre ďalšie fázy modelovania návrhu integrovaného manažmentu rizík a porovnať výsledky prieskumu, ktorý uskutočnila AICPA Business and Industry Group.

Empirický prieskum autorov tohto článku bol odoslaný do výrobného podniku pôsobiaceho na Slovensku formou nástroja Google questionare. Dotazník bol implementovaný za pomoci manažéra programu stáží pre stredné Slovensko v organizácii NPC (National Business Center), ktorú zastrešuje Ministerstvo hospodárstva SR. Výskum je súčasťou projektu IGP (International Grand Project) V13852 - Model integrovaného manažmentu rizík v podnikoch implementovaného v rokoch 2020 - 2021.

Podľa Štatistického úradu SR oblasť priemyslu tvorí 2686 podnikov, tieto údaje boli získané z ročných štatistík, konkrétne z databázy - Výsledky ročných prieskumov v priemysle v SR, výroby a predaja výrobkov v roku 2020. Je možné skontaktovať, že sú buď v konkurznom konaní, alebo je spoločnosť zrušená. To tvorí 9,05% všetkých výrobných podnikov nachádzajúcich sa v Slovenskej republike v roku 2020. Ďalších 196 podnikov nebolo možné kontaktovať kvôli absencii kontaktných údajov, čo je ďalších 7,33% podnikov zaoberajúcich sa výrobou na Slovensku. Online dotazník bol preto odoslaný 2246 podnikom, ktorých hlavným predmetom činnosti je výroba. Celkovo bolo vrátených 317 vyplnených dotazníkov.

Dotazník pozostával z 15 otázok, pričom otázky boli rozdelené do 3 častí:

- Všeobecné otázky - ktoré sa zameriavali na sektor podnikov a veľkosť podniku podľa počtu zamestnancov.
- Otázky zamerané na systémy riadenia (kvalita, životné prostredie a zdravie a bezpečnosť) a ich integráciu.
- Otázky zamerané na manažment rizík v podniku.

Väčšina otázok bola konštruovaná ako uzavreté otázky s jednou alebo viacerými možnosťami, ďalšia skupina výskumných otázok tvorila otvorené otázky s funkciou rozdelenia jednotlivých možností tak, aby konečná hodnota bola 100%.

Druhý analyzovaný prieskum uskutočnila skupina AICPA Business and Industry Group. Údaje boli zozbierané na jeseň roku 2020 prostredníctvom online prieskumu. Celkovo sme dostali 420 kompletne vyplnených prieskumov od jednotlivcov zastupujúcich rôzne veľkosti a typy organizácií. Táto správa sumarizuje naše zistenia a poskytuje zdroj na porovnanie prístupu organizácie k dohľadu nad rizikami v porovnaní so súčasnými postupmi. Okrem zdôraznenia kľúča zistení pre kompletnú vzorku 420 respondentov uvádzame aj mnoho kľúčových zistení pre nasledujúce podskupiny respondentov oddelene (AICPA 2020):

- 130 veľkých podnikov (tie, ktorých tržby presahujú 1 miliardu dolárov),
- 113 verejne obchodovaných spoločností,
- 108 subjektov finančných služieb,
- 116 neziskových organizácií.

3. VÝSLEDKY

Integrovaný manažment rizík je založený na prepojení spoločných požiadaviek (normatívnych, legislatívnych a špecifických požiadaviek zainteresovaných strán), spoločných prvkov jednotlivých systémov manažérstva v podniku (napr. ISO 9001, ISO 14001, IO 45001) so základnými požiadavkami na manažment rizík systém ISO 31 000 - Manažérstvo rizík. Integrovaný manažment rizík kombinuje a zjednocuje požiadavky na manažment rizík stanovené v jednotlivých systémoch riadenia, najmä pokiaľ ide o terminológiu a proces manažmentu rizík, čím eliminuje nejednotnosť a duplicitu hodnotených rizík (Rebelo 2016). V rámci manažmentu plynulosti podnikania, nosnou medzinárodnou

normou je ISO 22301 Societal security – Business continuity management systems – Requirements, ktorá zabezpečuje konzistenciu s ďalšími normami, ktoré sú zamerané na riziká a príležitosti tak, aby boli dosiahnuté plánované výstupy v rámci systému manažmentu, aby sa zabránilo vzniku negatívnych javov a ich negatívnych vplyvov a aby bolo zabezpečené neustále zlepšovanie v organizácií (ISO 22301 2019).

Základným pilierom integrácie jednotlivých systémov riadenia je britský štandard PAS 99 (verejne dostupná špecifikácia). Tento štandard je navrhnutý tak, aby ho mohli používať podniky, ktoré v spoločnosti buď implementovali alebo implementujú rôzne systémy riadenia. Je primárne určený na použitie v kombinácii s inými normami ISO a pomáha integrovať spoločné požiadavky jednotlivých systémov (PAS 99 2011).

Spracovanie výsledkov je rozdelené do troch častí:

1. Porovnanie zavedenia integrovaného manažmentu rizík v slovenských podnikoch a podnikoch v západnej Európe.

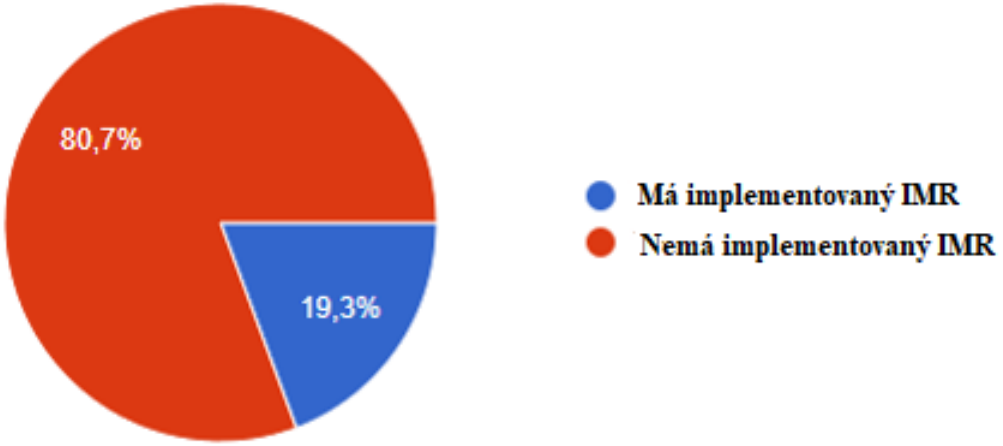
2. Porovnanie prekážok implementácie integrovaného manažmentu rizík.

2. Dôvody vzdelávania manažmentu rizík v podnikoch.

3.1 Porovnanie implementácie IMR v podnikoch na Slovensku a v západnej Európe

Táto podkapitola ukazuje rozdiely v slovenských podnikoch a podnikoch v rámci západnej Európy pri implementácii IMR do ich vnútorných procesov.

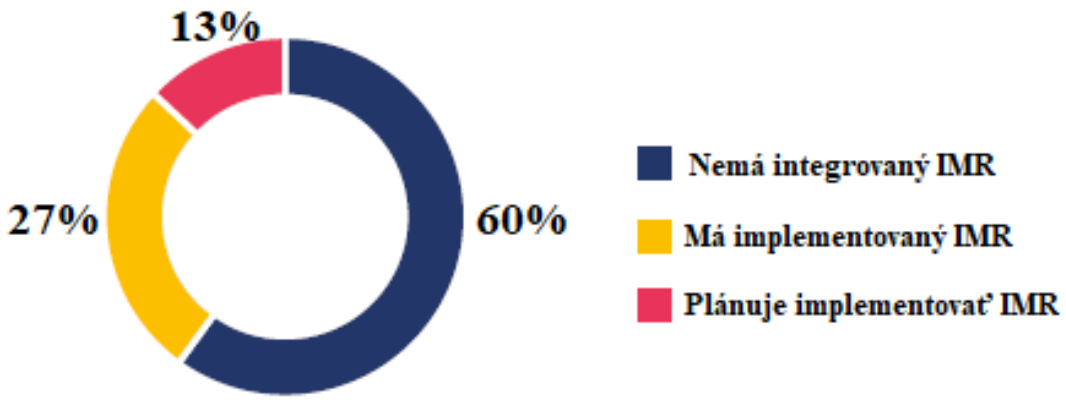
Obrázok 1. Počet podnikov na Slovensku s implementovaným IMR



Zdroj: vlastné spracovanie (2021)

Obrázok číslo 1 poukazuje na percento podnikov v Slovenskej republike, ktoré majú zavedený integrovaný systém manažmentu rizík, alebo inými slovami majú spoločné metodiky a nástroje na riadenie rizík v oblastiach kvality výrobkov, ochrany životného prostredia a bezpečnosti a ochrany zdravia pri práci. Zo štatistík vidíme, že iba 19,3% respondentov má zavedený integrovaný manažment rizík a zvyšných 80,7% nie.

Obrázok 2. Počet podnikov v západnej Európe s implementovaným IMR



Zdroj: AICPA (2020)

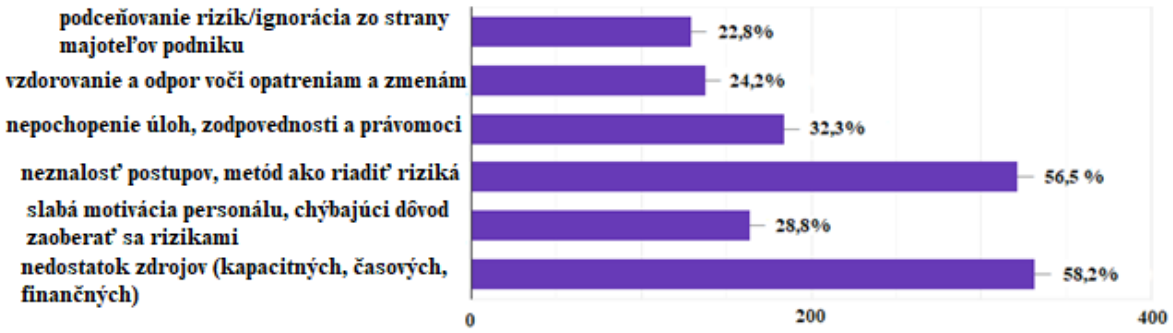
Prieskum, ktorý uskutočnila spoločnosť AICPA (zobrazený na obrázku 2), zistil, že počet podnikov, ktoré už majú integrovaný systém manažmentu rizík, je 27% všetkých opýtaných respondentov. Ďalších 13% skúmaných podnikov plánuje v blízkej budúcnosti implementovať integrovaný manažment rizík do svojich procesov, pričom až 60% respondentov na túto otázku odpovedalo, že nemá alebo neplánuje implementovať IMR (AICPA 2020).

Porovnanie - podľa týchto najnovších prieskumov až 2/5 spoločností v západnej Európe buď má alebo plánuje implementovať IMR do svojich procesov, pričom na Slovensku je to len 19,2% podnikov, čo nie je ani 1/5 respondenti. Zo záverov týchto prieskumov môžeme západnej Európe povedať, že až o 8% viac podnikov implementovalo IMR ako v podnikoch v Slovenskej republike.

3.2 Porovnanie bariér implementácie IMR v podnikoch na Slovensku a v Západnej Európe

V tejto časti článku sa autori zameriavajú na poukázanie výsledkov prieskumov, ktoré skumali hlavné dôvody, ktoré brania implementácií IMR v podnikoch na Slovensku a v Západnej Európe.

Obrázok 3. Bariéry implementácie IMR v slovenských podnikoch



Zdroj: vlastné spracovanie (2021)

Prieskum sa zameral na najbežnejšie prekážky implementácie integrovaného manažmentu rizík v podnikoch. Z obrázku číslo 3 vidíme, že medzi najčastejšie prekážky implementácie IMR v podnikoch na Slovensku patrí nedostatok (kapacitných, časových, finančných) zdrojov a to až v 58,2% prípadoch. Ďalšími hlavnými nedostatkami sú neznalosť postupov, metód riadenia rizík (56,5%) a slabá motivácia, nedostatok dôvodu na riešenie rizík (32,3%).

Tabuľka 1. Bariéry implementácie IMR v slovenských podnikoch

Prekážky implementácie IMR v podnikoch Západnej Európy					
Prekážky angažovania manažéra rizík	**Celkovo**	**Najväčšie organizácie výnosy > 1 miliarda dol.**	**Verejné spoločnosti**	**Finančné služby**	**Neziskové organizácie**
Podnik iba monitoruje riziká	27%	22%	21%	34%	24%
Veľa súvisiacich potrieb	20%	16%	25%	12%	19%
Nie sú kladené žiadne požiadavky na zmenu prístupu k riadeniu rizík	18%	18%	12%	30%	22%
Náklady na IMR prevyšujú výhody	12%	12%	4%	6%	10%
Nevídanie úsilia zo strany strategického manažmentu	12%	16%	21%	3%	16%
Komplikácia nastavených procesov	11%	16%	17%	15%	9%

Zdroj: Mark, Beasleybruce, Bransonbonnie, Hancock (2020)

Existuje niekoľko prekážok, prečo podniky nemajú zavedený integrovaný manažment rizík, pričom najčastejšie uvádzaná prekážka odráža sentiment, že organizácie monitorujú riziko inými spôsobmi (celkovo až 27%). O niečo viac ako 12% prípadoch strategické riadenie nevidí výhody, ktoré prevyšujú náklady manažéra rizík. Medzi hlavné prekážky identifikované skupinou AICPA Business and Industry Group patrí mnoho súvisiacich potrieb pre manažéra rizík (20% respondentov), ako aj skutočnosť, že nikto nevyžaduje, aby podnik zmenil prístup k rizikám až do 18% všetci respondenti (Mark, Beasleybruce, Bransonbonnie, Hancock, 2020).

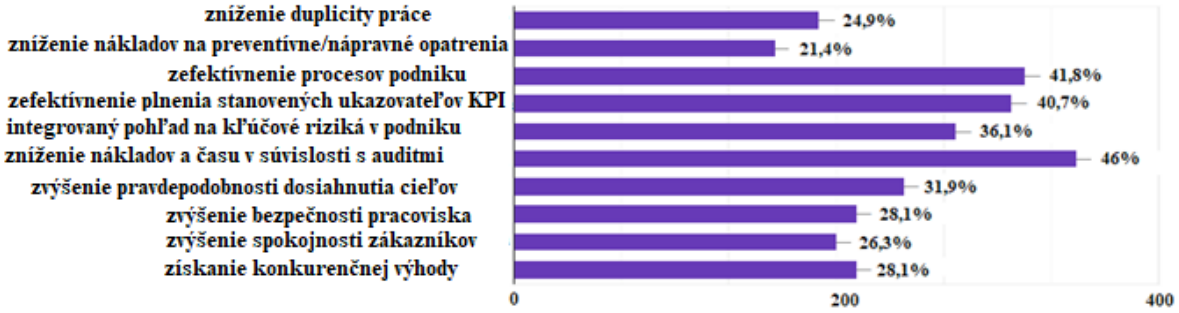
Porovnanie: z výsledkov prieskumov môžeme usúdiť, že najčastejšou prekážkou implementácie IMR v podnikoch v západnej Európe je riadenie rizík inými spôsobmi, ktoré identifikovali takmer 1/3 respondentov, druhou najčastejšou je, že neexistujú žiadne požiadavky na spoločnosti zmeniť prístup k rizikám (18%), pričom na Slovensku je odpor a odpor voči opatreniam a zmenám v 24,2% prípadoch. Najvýraznejšími prekážkami pre slovenské podniky sú však nedostatok zdrojov 58,2% a neznalosť postupov 56,5% (Mark, Beasleybruce, Bransonbonnie, Hancock, 2020).

3.3 Dôvody vzdelávania manžérov v oblasti integrovaného manažmentu rizík

Integrovaný manažment rizík môže priniesť podniku množstvo potenciálnych výhod. Nižšie sú prezentované výsledky empirického prieskumu. Prieskum realizovaný v rámci projektu IGP (International Grand Project) V13852 - Model integrovaného manažmentu rizík v

podnikoch, prieskum sa zaoberal aj otázkou, aké výhody môže priniesť vzdelávanie manažérov a majiteľov podnikov v oblasti integrovaného manažmentu rizík a následne, aké výhody IMR môže podniku priniesť.

Obrázok 4. Hlavné výhody vzdelávania v oblasti IMR



Zdroj: vlastné spracovanie (2021)

Podľa obrázka č. 4, medzi najvýznamnejšie výhody implementácie integrovaného manažmentu rizík, ktoré podniky pociťujú, patrí zníženie nákladov a času v súvislosti s auditmi (46%), zefektívnenie procesov v spoločnosti v 41,8% prípadov a nárast efektívnosť plnenia stanovených ukazovateľov KPI (40,7%). Naopak, najmenej respondentov má pocit, že výhodou implementácie integrovaného manažmentu rizík je zníženie nákladov na implementáciu preventívnych a nápravných opatrení (21,4%).

4. DISKUSIA

Proces budovania a implementácie systému manažmentu rizík v podnikoch zahŕňa možnosť riešenia zistených problémov v oblasti riadenia rizík a zároveň zabezpečuje pripravenosť manažérov na tieto problémy. Potreba vzdelávania manažérov a majiteľov podnikov v oblasti integrovaného manažmentu rizík v prepojení s manažmentom plynulosti podnikania sa odráža vo výsledkoch podnikov, pričom nevyhnutnosť samotenej implementácie oblastí je priamo žiadaná súčasnou situáciou spojenou s COVID-19.

Zavedením manažmentu rizík a manažmentu plynulosti podnikania je možné zosúladiť riadenie podniku, ako aj prispieť k vytvoreniu jeho odolnosti a prevádzkyschopnosti počas nežiaducich a negatívnych situácií. Úlohou a účelom manažmentu rizík a manažmentu plynulosti podnikania je zabezpečiť kontinuitu všetkých prevádzkových procesov podniku. Ich realizáciou by sa dosiahla flexibilita podniku reagovať na rôzne zmeny prostredia a kontinuita činností podniku. Výhody implementácie manažmentu rizík a manažmentu plynulosti podnikania v riadení podniku by priniesli:

- zlepšenie koordinácie činností podniku z hľadiska komunikácie medzi jednotlivými zainteresovanými stranami a zákazníkmi,
- priebežné sledovanie činností - vyhodnocovanie správnosti, včasnosti, a vykonávania ich činností, ako je sledovanie vývoja tržieb,
- dôraz na prevenciu, plánovanie a pripravenosť,
- zlepšenie reakcie na krízy,

- celkové zlepšenie organizačnej štruktúry podniku, ktorá ho efektívne pripraví na akýkoľvek typ krízy a v prípade potreby bude schopná rýchlejšie a efektívnejšie prebudovať svoje systémy.

5. ZÁVER

V súčasnej dobe sú podniky vystavené vyľkému tlaku spôsobenému pandémiou COVID-19, množstvo podnikov je existenčne ohrozených a práve pre to by sa podniky mali snažiť vzdelávať svojich manažérov a zamestnancov v oblasti manažmentu rizík. Integrovaný manažment rizík je preto vhodným nástrojom na zvýšenie efektívnosti procesov v podnikoch. Ako autori sponínajú vyššie v príspevku, vzdelávanie v oblati integrovaného manažmentu rizík môže priniesť množstvo výhod pre Slovesnké podniky. V západných štátoch Európy a v Severnej Amerike je integrovaný manažment rizík dlhotrvajúcim trendom. Podniky na území Slovenskej republiky v posledných rokoch začínujú čoraz viac dávať dôraz na vzdelávanie v oblasti manažmentu rizík.

Neustále vzdelávanie v oblasti manažmentu rizík môže podnikom priniesť napr. väčšia prosperita v podniku, zníženie nákladov a času spojeného s uplatňovaním riadenia rizík v podniku, zníženie nákladov spojených so sankciami a pokutami za nedodržanie požiadaviek na bezpečnosť a ochranu zdravia, zvýšená spokojnosť zákazníkov, zvýšená ochrana životného prostredia, zvýšená konkurencieschopnosť, atď.

Spracované výsledky článku sú určené hlavne pre vlastníkov a manažérov podnikov, ktorí kladú väčší dôraz na prevenciu. Autori článku kladú veľký dôraz na potrebu rozšíriť vzdelávanie manažérov o súhrn znalostí a zručností integrovaného manažmentu rizík v podniku nielen na Slovensku, ale aj v ďalších európskych krajinách.

Dodatok

Článok bol spracovaný podporou Vedeckej grantovej agentúry Ministerstva školstva, vedy, výskumu a športu Slovenskej republiky v rámci projektu VEGA č. 1/0243/20. Integrovaný systém manažmentu rizika v podmienkach súčasných zmien prostredia podnikov na Slovensku.

LITERATÚRA

[1] ACCA. (2021). [online]. *Risk And The Strategic Role Of Leadership*. [online]. [cit.2021-10-20]. K dispozícii na: https://www.accaglobal.com/sg/en/professional-insights/risk/risk-and-the-strategic-role-of-leadership.html

[2] Agarwal, R. & Ansell, J. (2016). Strategic Change In Enterprise Risk Management. *Strategic Change Briefings In Entrepreneurial Finance*, vol. 25, iss. 4, pp. 427-439.

[3] Algheriani, N. M. S., Majstrovic, V. D., Kirin, S. & Spasojevic-Brkic, V. (2019). Risk Model for Integrated Management System. *Technical Gazzette*, vol. 26., pp. 1833-1840.

[4] Baginski, J. (2000). Doświadczenia we wdrażaniu zintegrowanych systemów zarządzania. In: *Zintegrowane systemy zarządzania*, edit.: Sikora T., Kraków.

[5] Buganová, K. et al (2012). *Manažment rizika v podniku*. Žilina: EDIS – vydavateľstvo ŽU, p. 226.

[6] Domingues, J., Sampaio, P. & Arezes, P. (2011). Management systems integration: Should quality be redefined? In: *EOQ congress*, World Quality Congress 55., pp. 1-16.

[7] Ferma. (2020). *European Risk Manager Report*. [online]. [cit.2021-10-20]. K dispozícii na: https://www.ferma.eu/publication/the-european-risk-manager-report-2020-key-findings/

[8] Heng, G. M. (2015). Business Continuity Management Planning Methodology. *International journal of disaster recovery and business continuity*, vol. 6, pp. 9-16.

[9] Hudáková, M. et al (2019). *Manažment rizík malých a stredných podnikoch*. Žilina: EDIS, p. 202.

[10] Hudakova, M., Buganova, K. & Dvorsky, J. (2017). Increasing Integration Of Practical Activities To The Higher Education In The Risk Management In Slovakia. In: *10th International Conference Of Education, Research And Innovation (ICERI2017)*, pp. 996-1003.

[11] ISO 14001:2016. (2016). *Environmental Management systems. Requirement with guidance for use*, Geneva: International Organization for Standardization.

[12] ISO 22301:2019. (2019). Societal security – Business continuity management systems – Requirements.

[13] ISO 31000:2019. (2019). Risk Management. Principle and guidelines, Geneva: International Organization for Standardization.

[14] ISO 45001:2019. (2019). Occupational health and safety Management systems. Requirement with guidance for use, Geneva: International Organization for Standardization.

[15] ISO 9001:2015. (2015). Quality Management systems. Requirements, Geneva: International Organization for Standardization.

[16] Mark S., Beasleybruce C., Bransonbonnie V. & Hancock. (2020). 2019 The State Of Risk Oversight An Overview Of Enterprise Risk Management Practices, Erm Professional Insights. [online]. [cit.2021-10-20]. K dispozícii na: https://www.cgma.org/content/dam/cgma/resources/reports/downloadabledocuments/erm-research-study-2019.pdf

[17] Masar, M. & Hudakova, M. (2019). Project Risk Management In The Context Of Industry 4.0 In Condition Of Manufacturing Enterprises In Slovakia. In: *Impact On Industry 4.0 In Job Creation*, Trenčín: Alexander Dubček University in trenčín, pp 145-154.

[18] Pas 99 Specification Of Common Management Systems Requrements As A Framework For Integration. (2011). British Standard Institute, Great Britain.

[19] Rebelo, M. F., Santos, G. & Silva, R. (2016a). *Integration of management systems: towards a sustained succes and development of organizations*. J. Clean. Prod. 127, pp. 96-111.

[20] Rebelo, M. F., Silva, R., Santos, G. & Mendes, P. (2016b). Model based integration of management systems (MSs)-care study. *TQMJ*, vol. 28., pp. 907-932.

[21] Tammineedi, R. L. (2010). Business Continuity Management: A Standards-Based Approach. *Information security journal*, vol. 19, iss. 1, pp. 36-50.

MANAGEMENT OF PROCESS CONTROL FOR PLACING TECHNICAL EQUIPMENT ON THE MARKET AND IN SERVICE

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Abstract: *The article deals with the conditions and process of commissioning of machinery. It highlights the reasons for the need to assess the safety of machinery prior to its first use, which equipment must be assessed and who can carry out the assessment in question. It defines the authorised persons and the legislative conditions at the different stages of the process. For the successful implementation of the process, internal relationships and contexts are defined, starting from the setup of internal duties, competences, management roles and their responsibilities, which are significant with external influences and legislative obligations. Within the identification of the risks in each step, the relationships between the management principles, the process and their risks are described, which should result in the effective implementation of each step in the assessment process and, in the end, the successful application of the legislative conditions in relation to the technical installations.*

Key words: *safety control, management, process management, conformity assessment, machinery, placing on the market and putting into service.*

JEL Classification: *M11, L60, A10*

1. INTRODUCTION - THEORETICAL INTRODUCTION TO THE ISSUE

Effective organisation, management and execution of tasks is the basis for the successful functioning of any organisation. This topic has been on the research agenda since the early 1950s and continues to attract the attention of the scientific community. Continuous advances and the penetration of technology into organizations are expected to increase the variety and complexity of tasks. Entrepreneurship and competitiveness are conditioned not only by the ability to offer a product, but also by the ability to innovate the product, where process management plays an important role. Businesses have therefore started to shift their focus from product quality to efficiency, performance management and internal business processes.

Each sector has its own specificities, which need to be constantly examined. In recent years, there has been a sharp increase in concepts designed to measure, manage and improve business performance. The authors Ha et al. (2021) empirically tested the relationship

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between knowledge management processes (knowledge acquisition, knowledge conversion, knowledge application and knowledge protection), business orientation and firm performance. The results of their research showed that three of the four dimensions of knowledge management: knowledge acquisition, knowledge conversion and knowledge protection are positively related to performance. In addition, entrepreneurial orientation was found to positively moderate the relationship between knowledge application and performance.

Risk-aware Business Process Management (R-BPM) has been addressed in research for more than a decade. However, the integration of two independent research streams is still ongoing with a lack of research focusing on the conceptual modeling perspective. Such integration results in increased complexity of meta-models and a higher barrier to entry for modelers in creating conceptual models and for model addressees in understanding them. Multi-view modeling can reduce this complexity by providing multiple interdependent perspectives that together constitute a complex system. Each viewpoint covers only those concepts that are necessary to separate the various stakeholder interests (Thabet 2021).

Process Mining is a new kind of business analytics and has evolved as an effective process science technique for analyzing and improving business processes (Zerbino 2021). Some Brazilian public institutions are looking for improvements in the way the organization as a whole operates. In this context, a suitable method to determine the right organizational structure is capable of providing the organization with aspects such as process optimization, organization of roles and responsibilities, compatibility between performance measures and objectives, information simplicity, and cost reduction.

The author Castellanelli (2016) outlines a systemic alternative to change management and presents a model of organizational design analysis supported by business process management with applications to restructuring or creating new structures through a holistic view. It presents a new model developed from multiple case studies. Favorable results point to indicators such as optimized processes and positive monetary impact on the institution (Castellanelli 2016).

Another area that needs to be addressed is energy management. Energy management that optimizes energy use is usually developed according to a model-based routine that is costly and time-consuming, and it is difficult to meet the increasing competition in the digital market.

Authors Zhou et al. propose a novel portable control model that incorporates two AI technologies, adaptive neural fuzzy inference system and Gaussian process regression, where the former uses k-fold cross-validation to build a neural fuzzy system to implement the offline optimization result in real time, and the later combines the neural fuzzy system with a "deeper" architecture to transfer the offline optimization knowledge extracted from the source domain into new target domains within the energy management framework. The proposed control method can achieve competitive ultilative control values in real time (Zhou et al. 2022).

Another interesting area to be addressed is manufacturing. In the manufacturing process, the elimination of waste from the production plant is an essential task to increase the production level. Various approaches such as kaizen, total quality management, six sigma and lean six sigma are used for this purpose; however, lean management emerges as a prominent approach to achieve high levels of productivity. In the published article "Development of a Systematic Framework for Optimization of Shop Floor Management", the authors have attempted to develop a framework for optimizing manufacturing processes by identifying waste in shop floor management. The results of the study showed that the developed framework can reduce the processing time, production time and production cost as well as improve the quality level. The implementation of the developed framework led to optimization and improvement of production in the manufacturing facility (Tripathi et al. 2020).

Information quality has been the subject of research by the authors Solana-González et al. (2021). In their study, they also address the issue of organizational transparency as a relevant issue of corporate governance and corporate sustainability, which contribute to reducing information asymmetry, reducing risk and improving the behavior of decision makers, and ensuring an ethical standard of organizational control. In doing so, they use the COBIT framework in the areas of IT governance, knowledge management and machine learning techniques on evaluating the transparency of the organization. The authors used four learning techniques for knowledge discovery to build the computational model. The results demonstrate the importance of monitoring and evaluating IT performance and internal control processes to enable an organization to achieve a level of transparency. These processes are directly dependent on the creation of IT strategic plans and quality management, as well as IT risk and project management, and therefore, as a result of the maturity of these processes, there is a higher level of organizational transparency and reputation, finance, and accountability (Solana-González et al. 2021).

2. OBJECTIVE AND METHODOLOGY

The aim of this paper is to highlight the optimal management of marketing of machinery based on theoretical knowledge and practical skills. The paper applies the methods of analysis, synthesis, deduction and comparison within the theoretical definition of the problem. The solution to the problem is in a self-proposed flowchart, through which we present an eventual procedure that can be applied under certain fulfilled conditions and conclude whether it is a substantial change/modification or not. We also present process control management through a best practice method, as best practices in the context of business procedures related to the commissioning of machines.

3. MARKETING OF MACHINERY

Assessing the safety of machinery before it is placed on the market and put into service is a necessary step towards meeting legislative requirements and practice also shows the need to ensure that the system is properly set up in the field of occupational safety and health on technical equipment, for the entire lifetime of the technical equipment in the operational process, including maintenance, repair or making modifications and integrations to the equipment. In addition to the legislation in force and other occupational safety and health regulations stipulating the need for safety assessments of machinery, good practice also shows how essential it is to carry out the checks in question. Unsafe machinery poses a risk not only to the employees who come into direct or indirect contact with it, but also to society in the form of compensation for work-related accidents or material damage. In order to explain the process, it is useful to define 3 basic concepts such as machinery, placing on the market and who is the manufacturer or when do we become the manufacturer.

3.1 Best practice in the operation of machinery

Practice is a good mirror of the way machinery is operated. It is often the operation of unsafe equipment and a lack of interest in ensuring that inspections are carried out at regular intervals that is behind the increased costs to the company/operator. The process of detailed safety assessment of machinery is often a complex process for safety engineers who do not have the experience in the activity in question, let alone the necessary technical and material equipment. In many cases, the operators of the equipment in question mistakenly believe that their employees will ensure that occupational health and safety at work is checked and that they will also fully ensure the safety assessment of the technical equipment in question. In

practice, the idea that everything is 'safe' is often different from reality. Staff often do not have sufficient technical and material equipment, experience or the necessary qualifications. The present situation is even better, because operators at least know that they are required to carry out safety assessments as a condition of the legislative requirements, which we will discuss in the following chapters. The worse case is when operators are not even aware of these conditions. This ignorance can lead to material and technical losses, to penalties from the state inspection authorities or, in the worst cases, to damage to the health of the employees, which can result in increased costs for the company/operator in the form of remediation of the negative consequences, which can reach up to thousands of euros.

3.2 First model situation

The placing on the market and putting into service process for machinery not listed in Annex IV of Directive 2006/42/ES (hereinafter referred to as "the Directive"), the manufacturer or his authorised representative shall apply the conformity assessment procedure with internal production checks for machinery set out in Annex VIII of Directive 2006/42/EC by ensuring that:

The machinery complies with the relevant essential health and safety requirements set out in Annex I to the Directive;

1. Ensuring that the technical documentation referred to in Annex VII, Section A is available;
2. Ensure that the necessary information, such as instructions for use as referred to in Article 1.7.4 of Annex I, is provided;
3. Carry out the relevant conformity assessment procedures in accordance with Article 12 of the Directive;
    a. The manufacturer or his authorised representative shall draw up the set of technical documentation referred to in Annex VII, Part A for each representative type of the series concerned.
    b. The manufacturer must take all measures necessary in order that the manufacturing process ensures conformity of the machinery manufactured with the set of technical documentation referred to in Annex VII, Part A and with the requirements of this Directive.
4. Draw up an ES declaration of conformity in accordance with Annex II, Part 1, Section A and ensure that it accompanies the machinery;
5. Affix the CE marking in accordance with Article 16 of the Directive.3.3

3.3 Second model situation.

Where machinery is listed in Annex IV and is manufactured in accordance with the harmonised standards referred to in Article 7(2) of the Directive and provided those standards cover all the relevant essential health and safety requirements, the manufacturer or his authorised representative shall apply one of the following 3 procedures:

1. The conformity assessment procedure for internal production checks of machinery set out in Annex VIII of the Directive (see first model situation);
2. The ES type-examination procedure set out in Annex IX of the Directive and the internal checks on the manufacture of machinery set out in Annex VIII, point 3; (NB Annex VIII - Identical procedure as for machinery not listed in Annex IV)

3.3 Validity of the ES type-examination certificate:

The notified body has a continuing responsibility to ensure that the ES type-examination certificate remains valid and to inform the manufacturer of any substantial change which might affect the validity of the certificate. In the event of loss of validity of the certificate, the notified body shall withdraw them. The manufacturer of the machinery concerned has a continuing responsibility to ensure that the machinery in question conforms to the state of the art. Every five years, the manufacturer shall ask the notified body to review the validity of the ES type-examination certificate. If the notified body decides that the certificate remains valid after taking account of the state of the art, it shall renew the certificate for a further five years. The manufacturer and the notified person shall keep a copy of the certificate, the technical file and all the relevant documents for a period of 15 years from the date of issue of this certificate. If the ES type-examination certificate is not renewed, the manufacturer shall cease to place the machinery in question on the market. Comprehensive quality assurance procedure referred to in Annex X of the Directive.

a. The manufacturer must operate an approved quality system for design, manufacture, final inspection and testing and be subject to surveillance.

b. he manufacturer or his authorised representative shall lodge an application for assessment of his quality system with a notified person of his choice.

3.4 Third model situation

Where machinery is listed in Annex IV of the Directive and is not manufactured in accordance with harmonised standards or is only partially manufactured in accordance with those standards, or where the harmonised standards do not cover all the relevant essential health and safety requirements, or where there are no harmonised standards for the machinery in question, the manufacturer or his authorised representative shall apply one of the following procedures:

1. the ES type-examination procedure referred to in Annex IX to the Directive and the internal checks on the manufacture of machinery referred to in Annex VIII, point 3, to the Directive.

2. the comprehensive quality assurance procedure referred to in Annex X to the Directive.

4. PLACING OF MACHINERY EQUIPMENT INTO OPERATION

In order to release the operator from liability and fulfil the conditions of the insurance company, it is necessary, among other things, to commission the machinery with the help of an authorised legal person who will only give a positive professional opinion on the machinery if it is safe and complies with the applicable legal and other regulations. In order to ensure health and safety at work, the employer is obliged to ensure that work equipment does not endanger the health and safety of employees, which follows from Section 6(1)(d) of Act No 124/2006 Coll., No 124/2006 Coll., No 124/2006 Coll., No 392/2006 Coll., Coll., No 392/2006 Coll., Coll., No 392/2006 Coll., Coll., No 392/2006 Coll. Pursuant to the aforementioned Government Regulation, the employer is obliged to take the necessary measures to ensure that the equipment provided to the employee for use is suitable for the work concerned or adapted so as to ensure the safety and health protection of the employee when using it. Risk assessment and control are the basic preventive measures to ensure the safety of the equipment. The obligation to carry out risk assessments results from Section 6(1)(c) of Act No 124/2006 Coll. of the National Assembly of the Slovak Republic, according to which an established team of experts analyses and subsequently assesses hazards, threats and risks and draws up a written document on this. Inspection of the equipment shall be

ensured whenever the safety of the work equipment depends on the conditions of its installation. The employer shall then ensure that an inspection of the work equipment is carried out after it has been installed and before it is used for the first time and an inspection after it has been installed elsewhere to ensure that the equipment has been installed correctly and is functioning properly. The inspection shall be carried out by persons authorised under the legislation and other regulations to ensure health and safety at work (in this sense, an Authorised Legal Authority). The present obligation is based on §5(1) of Government Regulation No 392/2006 Coll. In the event that the equipment also contains reserved technical equipment pursuant to Decree No 508/2009 Coll. of the Ministry of Labour and Social Affairs of the Slovak Republic, it is necessary to carry out inspections pursuant to §9(2) of this Decree as well. It states that the safety inspection of technical equipment is carried out in accordance with Annexes 5 to 10, the safety-technical requirements and the accompanying technical documentation**:** during and after manufacture or assembly,

- after installation at the place of future operation prior to the first entry into service and after installation elsewhere, with the exception of technical equipment which is portable, transportable or intended to be transported,
- before being put back into service:
- after a shut-down period of more than one year,
- after dismantling and reassembly which may affect the safety status,
- after reconstruction and repair; after repair of technical electrical equipment, if a change in the fusing has been necessary,
- if its use has been prohibited by a labour inspector,
- during operation under operating conditions, on the basis of a risk assessment, at least within the time limits laid down.

Authorised legal entity within the meaning of §14 of the Act of the National Assembly of the Slovak Republic No.124/2006 Coll. is, on the basis of the authorisation issued by the National Labour Inspectorate, authorised to assess whether technical equipment, documentation of technical equipment and technologies meet the requirements of occupational safety and health to issue an expert opinion. On the basis of the working procedures drawn up and approved by the national authority, the authorised legal person shall carry out an inspection on the given work equipment, identify deficiencies, draw up an inspection record including a list of deficiencies, for the elimination of which the client has a set time limit. After the expiry of the time limit, the authorised legal entity shall check the elimination of the deficiencies and issue the output documents (expert opinion and, where appropriate, safety certificate). A national authority, the National Labour Inspectorate, has also given its opinion on the issue, which has stated the following, and I quote: *"Inspection of work equipment must be carried out in relation to its installation, which may affect its safety, but also the safety of other work equipment in the workplace and the OHS of people operating, maintaining and repairing it.*

- The installation of work equipment means its assembly into a functional unit, its location on the employer's premises (in particular the establishment) and its connection to:
- the electrical wiring of the establishment (fixed connection of the equipment to the electrical wiring - it is considered to be part of the electrical wiring, this does not mean connection of the equipment via a movable lead with a plug),
- the unit's pressure distribution system (compressed air, nitrogen, etc.),

- the hydraulic lines of the plant (lines within the oil management, etc.),
- the plant's air distribution systems (air exchange - ventilation and extraction),

Waste water discharge piping. This applies to permanently installed appliances and other means of work as referred to in the above paragraph (including wiring, pressure distribution...) which are located in the establishment so that:

- a distance of at least 600 mm between the machinery and fixed objects (walls, etc.) and at least 1 000 mm between the machinery and other machinery is maintained,
- sufficient space is provided for the operation of the equipment and for the supply and removal of material,
- they are suitably positioned in relation to the plant's roads (the employee must not stand with his back to the road).
- do not affect the safety of other work equipment (waste production, handling area, danger area, etc.).

The range of persons authorised to carry out inspections pursuant to Article 5(1) of Slovak Republic Regulation (EC) No 392/2006 Coll:

- a person authorised to verify compliance with the safety requirements of technical equipment - an authorised legal person within the meaning of Section 14(1)(d) of Act No 124/2006 Coll. on OSH and on amendment and supplementation of certain acts, as amended (hereinafter referred to as the OSH Act), who carries out inspections of all permanently installed work equipment,
- an accredited person - an independent inspection body of type A according to STN EN ISO/IEC 17 020 in the field of machinery, which carries out inspection of all permanently installed machinery,
- another person designated by the manufacturer of the work equipment, as defined in the technical documentation accompanying the equipment, who carries out only the inspection of the work equipment specified by its manufacturer.'.

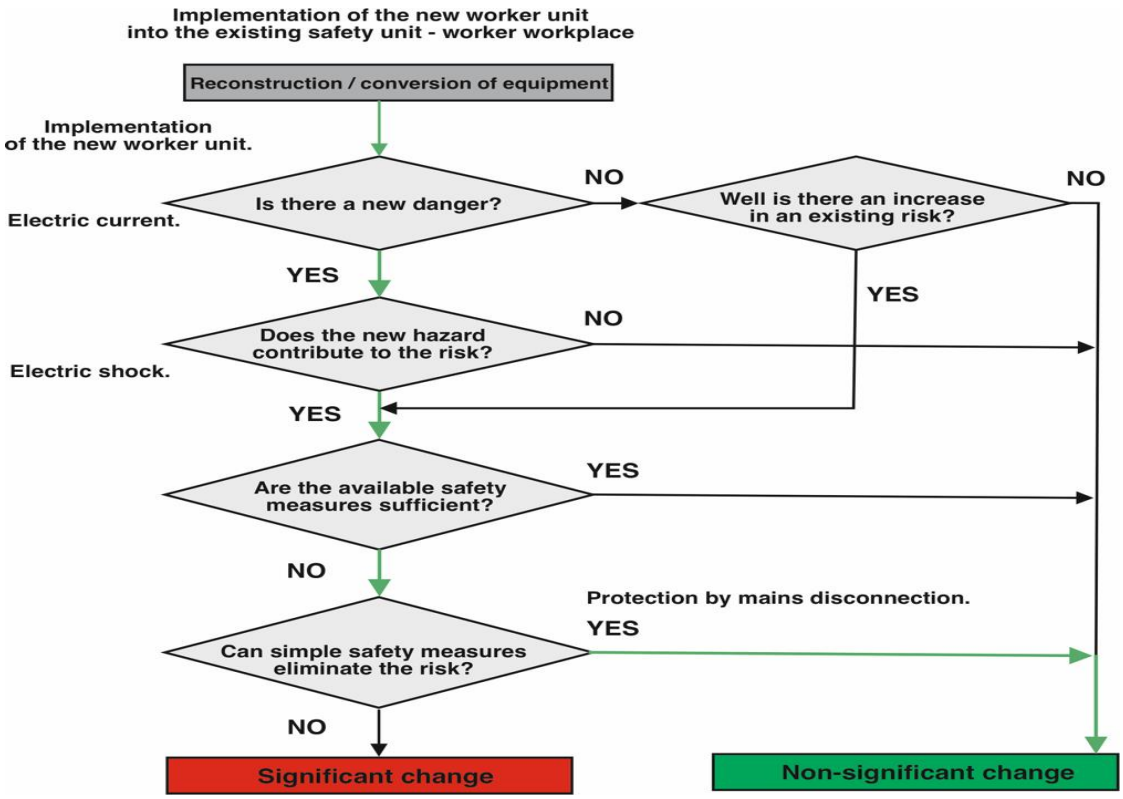
5. SOLVING THE PROBLEM - RECONSTRUCTION / INTEGRATION - SUBSTANTIAL CHANGE / MODIFICATION

During the use of technical installations, operators often carry out interventions on operating installations that have already undergone the process of marketing and commissioning, adapting these installations to new scientific and technical knowledge, taking into account changing real and foreseeable circumstances and scientific and technical knowledge, e.g. by modernising their production processes or expanding production or adapting processes to different outputs and products. The product in this case is a manufactured, extracted or otherwise obtained thing, regardless of the degree of its processing or after substantial modification, which is made available on the market or is made available on the market within the meaning of Section 2(a) of Act 56/2018 Coll. The question is what constitutes a substantial change/modification and when it is necessary to re-market or put into operation the equipment. It is important to mention that there is not only one solution that is correct or universal and will apply to all equipment, for every type of modification. On the contrary, each situation needs to be approached individually and it is never about one person's decision, but rather a team of experts. Pursuant to Section 2(b) of Act 56/2018 Coll. a substantial modification of a product is a repair of the product or a modification of the product which affects the conformity of the product with the essential requirement to which the product is subject or which changes its performance, type or its intended purpose. In addition to the

above determination of whether or not it is a substantial change/modification, the following self-designed flowchart provides another contingency that can be applied to conclude whether or not it is a substantial change/modification under certain satisfied conditions.

In the diagram (Fig.1) it is possible to identify whether a change is substantial or not. The green path in the figure indicates that despite the identification of a new hazard that created a new risk and new safety measures needed to be applied, it may not be a substantial change in every circumstance. In this case, the team of experts in the residual risk assessment evaluated that simple precautions were sufficient for elimination. There is an unanswered question as to which precautions are simple and which are not. Very simplistically, it could be said that basic safety measures are e.g. guards or the addition of a safety circuit to ensure automatic disconnection from the power supply, and 'non-simple' safety measures are e.g. optical safety devices. It is not easy to establish precise criteria for answering these questions in each individual case, but in the first instance it is the responsibility of the person placing the machinery so converted on the market or in the operation. In case of doubt, it is advisable for the person assembling the machinery to consult the competent national authorities. Pursuant to paragraph (1) of ch. 6.1.2 §7a of Act No. 125/2006 Coll. it is the labour inspectorates that supervise the designated products placed on the market and put into operation. Last but not least, it is the responsibility of the employer/operator to ensure that the aforementioned assessment is carried out, in particular, by technically proficient and professionally knowledgeable individuals.

Figure 1. Flowchart for the assessment of substantial change



Source: own elaboration

According to the Guide to the application of the Machinery Directive 2006/42/EC, where the replacement or addition of units forming a machinery set in an existing machinery set does not significantly affect the operation or safety of the remaining part of the set, the new unit

may be considered to be machinery governed by the Machinery Directive, in which case no action is required under the Machinery Directive for the parts of the set that are not affected by the change. The employer remains responsible for the safety of the whole assembly. Where the replacement or addition of units forming a set of machinery in an existing set of machinery has a substantial effect on the operation or safety of the whole set or, if it constitutes a significant change to the set, the change may be deemed to constitute the creation of a new set of machinery to which the Machinery Directive must apply. In such a case, the whole assembly, including all the units constituting the machinery set, must comply with the provisions of the Machinery Directive. This may also be required where the new set of machinery consists of new and second-hand units.

6. CONCLUSION

Safety assessment of machinery is an integral part of the proper and safe management of the operation of machinery. It must be taken into account that the safety of people who come into contact with machinery is paramount and therefore this area cannot be neglected. The safety of machinery also has a direct or indirect impact on the company's profits, which with safe machinery, will not require a reduction. Thus, from an economic point of view, a safety assessment and the elimination of the deficiencies identified can also contribute to the company's growth. It is important to approach the matter responsibly and not to take the issue lightly. We hope that with this paper we have also been able to shed some additional insight on the issue and that this will encourage machine operators to think more responsibly about health and safety at work and about their own growing business.

REFERENCES:

[1] Castellanelli C.A. (2016). Organizational restructuring supported by Business Process Management: A holistic perspective in a Federal Institution of Higher. Education. *Espacios*, vol. 37, Issue 302016.

[2] Ha, S.T. et al. (2021). Knowledge management process, entrepreneurial orientation and performance in smes: Evidence from an emerging economy. *Sustainability (Switzerland)*, vol. 13, iss. 17.

[3] National Labour Inspectorate. (2020). *Inspection of permanently installed work equipment and testing of forming machines.* [online]. [cited 2020-03-23]. Available from Internet: https://www.ip.gov.sk/kontrola-pevne-instalovanych-pracovnych-prostriedkov-skusky-tvarniacich-strojov/.

[4] Solana-González, P. et. al. (2021). Data mining to assess organizational transparency across technology processes: An approach from it governance and knowledge management. *Sustainability (Switzerland)*, vol. 13, iss. 18.

[5] Thabet, R. et. al. (2021). Risk-aware business process management using multi-view modeling: method and tool. *Requirements Engineering*, vol. 26, iss. 3, pp. 371 – 397.

[6] Tripathi, V. , Saraswat S., Gautam G.D. (2020). Development of a Systematic Framework to Optimize the Production Process in Shop Floor Management. In: *International Conference on Advances in Sustainable Technologies.* ICAST 2020, Jalandhar, 6 November 2020 - 7 November 2020, 263079.

[7] Zerbino, P. et al. (2021). Process science in action: A literature review on process mining in business management. *Technological Forecasting and Social Change*, vol. 172.

[8] Zhou, Q. et al. (2022). Transferable representation modelling for real-time energy management of the plug-in hybrid vehicle based on k-fold fuzzy learning and Gaussian process regression. *Applied Energy*, vol. 3051.

[9] Act of the National Assembly of the Slovak Republic No. 124/2006 Coll., on safety and health protection at work and on amendment and supplementation of certain acts, as amended.

[10] Act of the National Assembly of the Slovak Republic No. 56/2018 Coll., on conformity assessment of a product, making a designated product available on the market and on amendment and supplementation of certain acts, as amended.

[11] Slovak Government Regulation No. 392/2006 Coll., on minimum safety and health requirements for the use of work equipment.

[12] Government Regulation No. 436/2008 Coll., laying down details on technical requirements and conformity assessment procedures for machinery, as amended.

[13] Decree of the Ministry of Labour and Social Affairs of the Slovak Republic No. 508/2009 Coll., laying down details for ensuring safety and health protection at work with pressure, lifting, electrical and gas technical equipment and laying down technical equipment which is considered as reserved technical equipment, as amended.

[14] EPaR DIRECTIVE No 2006/42/EC on machinery and amending Directive 95/16/EC

[15] Guide to the application of the Machinery Directive 2006/42/EC,

[16] Act No. 125/2006 Coll. No. 125/2006 Coll. on Labour Inspection and amending Act No. 82/2005 Coll. on Illegal Work and Illegal Employment and amending and supplementing certain acts

[17] Act No. 294/1999 Coll. on liability for damage caused by defective products

[18] Act No. 505/2009 Coll. on accreditation of conformity assessment bodies and on amendment and supplementation of certain acts

THE CHALLENGES OF AI'S IMPLICATION IN HUMAN RESOURCES MANAGEMENT: CASE STUDY OF INTERNAL CHATBOT INTERACTION FROM USER'S PERSPECTIVE

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Živilė STANKEVIČIŪTĖ[82]

Abstract: *Chatbots, as a significant domain of Artificial Intelligence (AI), in human resources management (HRM) are not only seen as query systems, but as a transformative force and a tool for organizational shift towards the digitalization trend. This paper explores the challenges employees face while interacting with knowledge management oriented internal communication chatbot in X Lithuanian company. It aims to tackle relevant issues and develop knowledge on chatbot interaction in de facto situations within the scope of HR management. Qualitative research technique, interviews and conversation analysis, was employed to collect relevant data and gain insights: whereas chatbots in HRM are still on their initial phase, thus draw on various interaction experiences, they wider the horizons in which AI driven technology is deployed and lay grounds for further technological development. Positive chatbot interaction experience approached by this pilot study implicates that the implementation of AI in HRM shall be extrapolated not only as a challenge within the field but as a paramount inspiration for successful interaction between AI and labour market participants.*

Key words: *Chatbots, AI, employee expectations, innovations*

JEL Classification: *M540, M15, M14*

1. INTRODUCTION

Artificial intelligence (AI) is by all means recognized to become the key factor to stimulate global economy since it can double its yearly growth and influence productivity (McKinsey Global Institute, 2018). The growing interest in AI driven conversational agents and applications, even referred as a "chatbot tsunami" (Grudin & Jacques, 2019), encourage investments in this engagement channel. It was predicted that by 2022 chatbots will take over 85% of customer service interaction (Gartner, 2017). The vast majority of businesses utilize chatbots as tools to upgrade and strengthen customer relationships, however, the role of chatbots should be expanded as this AI tool can be utilized for internal communication, i. e. human resources management (HRM), within a company as well.

The success of AI's positioning in business world hinges on user experiences as it is crucial to evaluate and create required culture for these solutions to thrive within/together with a company. Regardless academical enthusiasm for chatbots, the in-depth insights on user experience, especially those based on real situations of use, are severely limited (Folstad & Skjuve, 2019). To narrow this knowledge gap, this research aims to tackle relevant issues and develop knowledge on chatbot interaction in de facto situations within the scope of HRM.

The remainder of the paper is structured as follows. A brief overview of literature on chatbot, human-computer interaction and expectations is delivered firstly. Then, the research method applied is described. The empirical results from conducted semi-structured interviews in cooperation with UAB "X" HRM specialists as chatbot users/contributors come further, followed by conclusions and discussion.

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2. THEORETICAL BACKGROUND

Amongst varied concepts defining a chatbot, in this research chatbot is mainly understood as one of the tools to ensure effective communication and specific query handlement within a company. This technology is to be a machine assistant in natural language interface for data and service provision that is designed to mimic human-like conversation and achieve robust, natural, effective knowledge transaction (Dale, 2016; Galitsky, 2019; Meyer von Wolff et al., 2019). Correspondingly with prominent notions, chatbots in HRM can be treated as query and knowledge management systems designed to productively utilize employees and to be deployed as transformative force to assimilate other AI solutions.

Given the importance of AI's success in business world, user experience comes of vital significance. Even tough there are many various definitions for user experience in academical vocabulary, when it comes to human-computer interaction, user experience is described as end result of three constituents: user, system and context (Lallemand et al., 2015). From this perspective, contrary to usability, user experience includes subjective factors that allow to characterize and categorize the experience of human-computer interaction (Lallemand et al., 2015). Regardless of substantial and still growing interest in user experience of chatbots in academical literature, the lack of researches, attempted to categorize different natures of user expectations together with contexts in which they are more expected to be activated and how are they formed, is profound (Rapp et al., 2021).

The developed expectations are crucial to how the interaction with chatbot elaborate in the future. The overall user experience is best judged by combining user experience and expectations, i. e. if perceived value exceeds expectations, user experience is positive, while when value does not match expectations, user experience is to be negative (Zhang et al., 2016). The importance of expectations is of equal importance in Expectation Violation Theory (Burgoon, 2016): when expectations are not met (violated), a positive or negative experience is gained, e. g. a positive violation of expectation is to arise when chatbot exceeds expected performance and thus, delights the user, while negative violation describes undesirable experience, e. g. chatbot fails to meet expectations (Grimes et al., 2021).

Chatbot user experience is rather tight with primary motivation to use such technology. Conducted researches on motivations to use such AI solution as chatbot confirmed that major motivational factors are efficient, consistent and quick query respond (feedback) in addition to entertainment and curiosity (Følstad & Skjuve, 2019; Brandtzaeg & Følstad, 2017). As on chatbot use for HRM, internal communication within a company, motivational factors include instant data access for end-users, curiosity and aspiration to engage with AI driven solution, development of self-support and autonomy of an employee.

3. METHODOLOGY

To comply with theoretical approach, this research is based on qualitative insights from semi-structured face-to-face interviews with 3 employees in UAB "X". For this case study UAB "X" was chosen provided that this company is keen on implementing high-end and high-tech solutions for their business operations. It is the largest electricity and gas supplier in Lithuania. Interview participants were selected based on their knowledge about chatbot used in practice and ability to provide deeper comprehension. Interviews were conducted on May 2021 in Lithuanian.

Provided that no previous researches attempted to categorize different kinds of user experiences with regard to expectations and contexts, in which they are likely to be activated, their formation and what effect it may have on interaction and overall experience (Rapp et al., 2021), this research invokes thematic analysis approach (Vaismoradi et al., 2013). With attention to the nature of this research being a pilot study, the number of interviewees might

seem moderate, however the background and context of these interviewees (overview is given below in Table 1) and real situations of chatbot interaction are very well observed and analysed. This case study shall be understood as a first step for same nature but more intense study.

Table 1. Interview participants

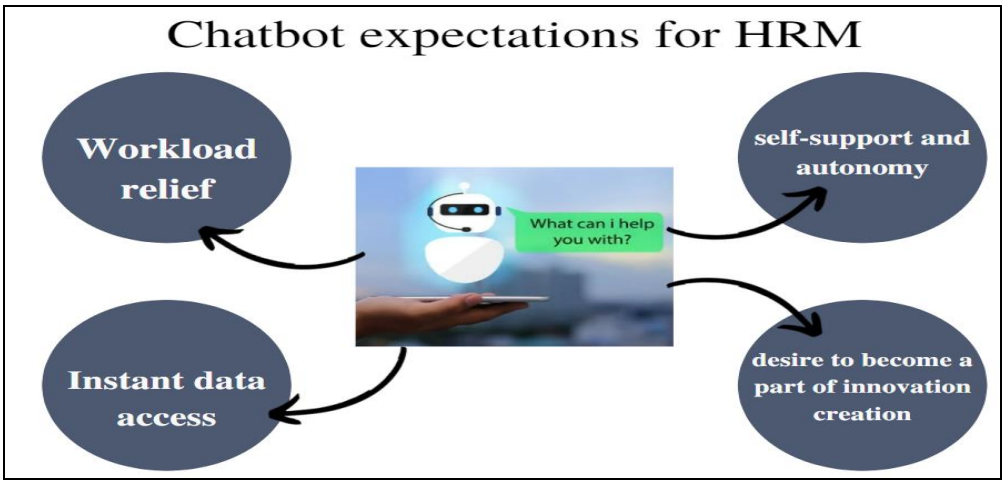
ID	Position	Seniority	Relation to Chatbot
1	HR Development Partner	5 years	Project manager from HR department's perspective for the initiation of Chatbot implementation
2	HR Manager/ Employee Relations Partner	3 years	Maintenance and training
3	Help Desk Team Leader	3 years	Maintenance, training and development

Chatbot used within UAB "X" is based on RASA Open Source Conversational AI assistant and its architecture flow. It acts as a FAQ interaction in python based on natural conversation: a text from the end user is entered, NLP (Natural Language Processing) subset processes human language data, breaks it down, then feeds to NLU (Natural Language Understanding) to interpret and understand the meaning of data to be processed accordingly (depending on policy) and followingly feeds to NLG (Natural Language Generation) which produces answers easy to understand for end user. At the beginning chatbot was launched regarding only HR questions, but was gradually updated and at the time of interviews covered 7 topics (HR, public procurement, law, etc.).

4. RESULTS AND DISCUSSION

As can be seen from interviewees' backgrounds, all of them are very well aware about this type of AI technology and have adequate knowledge and eager to try chatbot in practice. Based on this fact and on interviews data, the traits and nature of expectations are assuredly high and can be categorized into following groups: workload relief, instant data access, self-support and autonomy, desire to become a part of innovation creation (Fig. 1).

Figure 1. Chatbot expectations for HRM



4.1. Expectation: workload relief

As all interview participants come from HRM sphere and the initial intention to introduce chatbot in the company was to relieve HR specialists' workload by taking of FAQs and routine inquiries, interviewees' main expectation regarded assistance to solve simple requests. This is exemplified in the following quote:

We had a lot of repetitive inquiries by various employees and it took a considerable amount of time answering them, thus I expected chatbot to deal with them automatically. (ID1)

With consideration that all three users had preconceived positive expectations, experiences on chatbot interaction secluded:

Once I tried chatbot and saw how it operates, I was swoon of my feet. (ID1)

Chatbot answered my question, however I felt the need to double-check it whether the answer is valid or not, so I had my doubts. (ID2)

Chatbot answered my inquiry, but it left me with insecurity. If my work can be done by a robot, what is my future within this company? (ID3)

Two of these experiences are to be observed as negative and one as positive experience violation, however all three are categorized as exceeding expectation for chatbot to relieve the workload of HR specialists. Positive experience violation is from ID1. Interviewee believed in benefits of technology and first experience was the delight. On the other hand, ID2 and ID3 experienced undesirable: even though chatbot exceeded their expectations, this resulted in questioning the technology. In case of ID2, user questioned data integrity and felt insecure about it. As of ID3, there was a delight with experience but it led to conclusion that AI technology may be superior to human abilities. To sum up, the expectation of workload relief was satisfied, however user experience segregated into two unalike categories: chatbot technology is recognized as an implausible assistance on one hand, and as a threat that makes user insecure.

4.2. Expectation: instant data access

The second expectation from chatbot interaction is by no doubts the speed of operation. Due to the fact that chatbot used within UAB "X" is relatively new innovation, primary expectations on speed of operation were rather modest. Regardless unanimous expectations, user experience diverged once again.

A chatbot is another communication channel and with immediate feedback obtainment. (ID1)

Every query is being handled a lot faster and easier, because you do not have to wait for it to go though various divisions in order to have answer. (ID2)

A chatbot reminds me of a little child. You educate him on how he is supposed to operate and when you address a question, it does not respond as expected. (ID3)

In consideration of expectation for instant data access, user experience can be categorized into two groups: a violation when it met expectation and when it was not met. ID1 and ID2 had positive experience from chatbot interaction due to the fact that their moderate expectations were met. On the other hand, ID3 had higher expectations, and due to the interviewee's role in chatbot development, this user experience is of another nature. When this technology is understood from the perspective of treating it as an initial project, even though the expectations were not met, this experience, rather it might seem as negative, is positive given the context and user perception. With this in mind, even expectations were not met and were violated, user experience shall be considered as more positive than negative as this encouraged the user to dive into technology and the willing to meet the initial demands.

To complement the consideration of this expectation, ID3, being a spokesperson of all chatbot's users within UAB "X" (due to position within a company), expressed the following users' opinion:

A lot of users of chatbot expressed their concern for it to handling their queries too fast. (ID3)

Given this example, when expectation is instant information access, even when it is met, experience is arbitrary, due to the context, i. e. users do not have enough knowledge on technology and do no trust it when their query is handled that fast. Under this expectation and user experience, the insecurity about AI is more than obvious. Hence force, the expectation of instant response might result favourable to those, who have knowledge about this AI technology and questionable for those who have no background and consideration about it.

4.3. Expectation: self-support and autonomy

One of the major expectations from user's perspective on chatbot is the ability to use this technology within one's limits. This expectation enables users to handle their queries without any specific interference from another human being.

This technology is to be the only way to handle personal queries in the future. (ID1)

When chatbot was introduced, I understood this opportunity as a way to elevate my skills and handle it on my own, without any other interference. (ID2)

Chatbot gives required information not only at your convenience, e. g. users can do it on their time, when it is convenient for them and do not have to wait for someone to respond (HR specialist or helpdesk). In example of ID1, users experience correlated with primary very high expectations and resulted user believing this technology to be a dominant toll to handle various personal HRM queries. As ID2 indicated, expectation of autonomy was met and resulted in a positive experience when a person does not have to approach another human being, i. e. user himself/herself becomes able to handle the matter personally.

4.4. Expectation: becoming a part of innovation creation

The nature of this expectation shall be understood as an unexpected one and questionable due to the context of users. Granted that all interviewees are familiar with this AI solution, their expectations on this experience are high and make them able to asses actual importance and intelligence of chatbots.

For me it is a chance to become a part of technology creation, it is very new in Lithuanian companies and it makes you feel as if you are on the very top. (ID1)

When using chatbot, I feel curious and understand the whole process of its development, once I understand this, I feel as a tool for chatbot to grow and learn. (ID2)

When chatbot answers you wrong, the most interesting part for me is to learn why it did not deliver as was trained to. (ID3)

In sum, the expectations to become a part of innovation creation while interacting with chatbot, given the users and context, are here understood as not violated and the overall experience as positive. This experience delighted the users although chatbot did not exceed expected performance, i. e. because performance was not ideal, this experience pleased users by giving an opportunity to fulfil the expectation to become a developer of AI technology.

5. CONCLUSIONS

This research, being a small-scope pilot case study, first and foremost highlights a great need of empirical studies on human-chatbot interaction in terms when this technology is not commercial but designed for HRM purposes. Chatbot in HRM is not only the additional communication channel within a company, it not only handles repetitive queries for HRM staff and is expected to be an instant data provider, but shall be considered as an instrument and a habitat for employees to develop and inspire themselves.

To summarize, the internal chatbot interaction experience from user's perspective highly depends on expectations that have to considered jointly with user, system and the context. In terms of this research, users, who hold realistic expectations and are keen on technology, do value the actual help of AI and chatbot technology. Even though some expectations can be violated, experiences are still in most cases positive due to the background of users. However, notified negative experiences are related with still prominent distrust for AI to be superior to humans due to its nature of operation.

Because of academic knowledge gap on chatbot technology for HRM, this case study suggests primary explanations of fundamental aspects of chatbot interaction from the perspective of chatbot user/creator. Given the results, the importance of implementation of AI solutions for HRM processes is crucial on the grounds that positive user experience from specialists with relevant expectations can encourage businesses to implement further AI driven solutions.

REFERENCES

[1] Brandtzaeg, P. B., & Følstad, A. (2017). Why People Use Chatbots. In: Kompatsiaris I. et al. (eds) Internet Science, INSCI 2017, *Lecture Notes in Computer Science*, vol 10673, Springer, Cham, pp. 377–392.

[2] Burgoon, J. K. (2016). Expectancy violations theory. In: C.R. Berger, et al. (eds.), *International encyclopedia of interpersonal communication*, Hoboken, New Jersey: Wiley, pp. 1-9.

[3] Dale, R. (2016). The return of the chatbots. *Natural Language Engineering*, *22*(5), pp. 811–817.

[4] Folstad, A., & Skjuve, M. (2019). Chatbots for Customer Service: User Experience and Motivation. In: *Proceedings of the 1st International Conference on Conversational User Interfaces*. Dublin, Ireland, pp. 1-9.

[5] Galitsky, B. (2019). *Developing Enterprise Chatbots: Learning Linguistic Structures*. Oracle, San Jose: Springer International Publishing.

[6[Gartner. (2017). *Making Live Chat a Must-Have Engagement Channel*. [online]. [cit. 2021-10-31]. Available at: https://www.gartner.com/en/documents/3803508/making-live-chat-a-must-have-engagement-channel

[7] Grimes, G. M., Schuetzler, R. M., & Giboney, J. S. (2021). Mental models and expectation violations in conversational AI interactions. *Decision Support Systems*, vol. 144, 113515.

[8] Grudin, J., & Jacques, R. (2019). Chatbots, Humbots, and the Quest for Artificial General Intelligence. In: *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. Glasgow, Scotland, UK, pp. 1–11.

[9] Lallemand, C., Gronier, G., & Koenig, V. (2015). User experience: A concept without consensus? Exploring practitioners' perspectives through an international survey. *Computers in Human Behavior*, *43*, pp. 35–48.

[10] Meyer von Wolff, R., Masuch, K., Hobert, S., & Schumann, M. (2019). What Do You Need Today? - An Empirical Systematization of Application Areas for Chatbots at Digital Workplaces. In: *25th Americas Conference on Information Systems (AMCIS)*, Cancún, Mexico, pp.1–10.

[11] Rapp, A., Curti, L., & Boldi, A. (2021). The human side of human-chatbot interaction: A

systematic literature review of ten years of research on text-based chatbots. *International Journal of Human-Computer Studies*, vol. 151, iss. 3, 102630.

[12] Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, vo. *15*, iss. 3, pp. 398–405.

[13] Zhang, Z., Cheng, W., & Gu, Z. (2016). User Experience Studies Based on Expectation Disconfirmation Theory. In: *International Conference DUXU 2016: Design, User Experience, and Usability, Design, User Experience, and Usability: Novel User Experiences*, Toronto, Canada, pp. 670–677).

DECORPORATIZATION AND DEPROFESSIONALIZATION: MODERN CHALLENGES AND PARADOXES IN THE LABOR MARKET

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Abstract: *This article is devoted to new paradoxical trends in modern society and on the labor market: deprofessionalization and decorporatization. With the help of corpus-based content analysis, the recognition and use of these concepts was revealed. The fuzziness and ambiguity of these tendencies, the diversity of attempts to conceptualize them are shown. The elements of deprofessionalization are analyzed, such as the crisis of professional ethics and professional identity. The evolution of views on the status of a professional in society and the importance of the profession as such is presented. The authors come to the conclusion that it is necessary to reconstruct professional ethics and identity, taking into account the peculiarities of the postmodern era.*

Key words: *decorporatization, deprofessionalization, labor market, professional communities, self-employment*

JEL Classification: *J54, J51, M21*

1. INTRODUCTION

The intensive development and application of new technologies gives rise to ambiguous and paradoxical phenomena in the labor market: deprofessionalization and decorporation. Their influence has been increasing in recent decades all over the world. A high risk of developing crisis phenomena in professions that appeared in the industrial era and poorly adapted to postmodern conditions is also characteristic of the developing digital economy. This article provides a comparative analysis of these trends.

Deprofessionalization has many dimensions. This term can be both connected with the lack of prestige of the profession, and the revision of the very criteria of professional ethics. An important aspect of deprofessionalization can be the struggle for dominance between various market actors: professionals, experts and clients.

The deprofessionalization trend is closely related to decorporatization. Decorporatization is associated with a wide range of problems in the formation of modern society, from the narrowing of the sphere of responsibility of corporations to shareholders to the dilution of corporations as such.

2. METHODOLOGY AND RESULTS

The article uses the following theoretical and applied research methods: 1) comparative analysis of approaches to understanding the phenomena of "deprofessionalization" and "decorporatization"; 2) corpus-based content analysis designed to identify the recognition of these terms.

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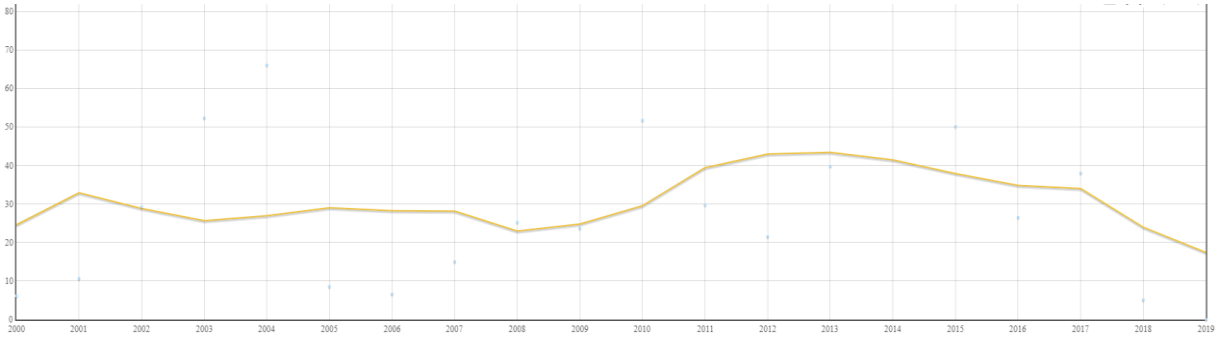
The terms “deprofessionalization” and “decorporatization” seem to be quite new in sociological science. We conducted a comparative analysis of their usage by means of corpus-based content analysis. To this end, we tracked the statistics of the use of two terms in the National Corpus of the modern Russian language (Russian National Corpus, 2021). The results are presented on the Figure 1.

Figure 1. Comparative analysis of the use of terms in 2000-2019

The term “deprofessionalization”



The term “decorporatization”

Source: Russian National Corpus (2021)

As we can see, the frequency of use of the term “deprofessionalization” increased slightly in 2001. Further growth in use occurred between 2010 and 2017 while there is a decline in the use of this term in 2018-2019. The frequency of use of the term "decorporatization" has a slightly different graph. The term was used more often in two periods - the early 2000s and starting in 2013. In general, the term “deprofessionalization” was used more often rather than the term "decorporatization". However, by 2018-2019 the frequency of use of the two terms had become almost the same.

In general, deprofessionalization can be defined as a crisis of the profession in a postmodern environment. This applies to all the attributes of the profession: formal and informal laws and norms, symbolism, ethos, identity, status-role sets, “rules of the game”, communities, and so on. These concepts are described by many researchers in the field of sociology, management and the labor market (Grencikova, Spankova, Kordos 2016; Dagiliene, Leitoniene, Grenčíková 2014; Habanik, Grencikova, Krajco 2019; Zakharov, Britvina, Kuznetsov 2020; Kordos, Berkovic, 2020). All of them inevitably undergo revision and change, which, on the one hand, can be viewed as “dynamics” and “transformation”, and, on the other hand, as a crisis.

The crisis of professional ethics is often cited as one of the most important factors in deprofessionalization. By professional ethics, we mean a set of explicit and latent, formal and informal norms, values and patterns of behavior identified with a given profession, as well as

accepted and shared by its representatives, regardless of their individual differences (Martianova 2013, p.112).

There are several stages in the development of ethically determined professional behavior. You can see their comparative analysis in Table 1.

Table 1. Comparative analysis of types of professional ethics

Type	Labor concept	Professional status	Profession value
Traditional work ethic	punishment for original sin	low professional status	a person would not work without being forced
Protestant ethics	the only worthy way to achieve divine election	very high professional status	the profession determines the whole life of a person
Ethics of the modern era	ordinary duty	professional status is ambivalent	professionals face both the greatest honor and the greatest claims from society
Postmodern work ethic	creativity or play	professional status is fluid and ambiguous	professional as a free agent

Source: own elaboration (2021)

In traditional society, labor was considered a forced necessity, a heavy burden that a person must bear in order to survive, as well as the punishment of mankind for original sin. At the same time, labor itself was not considered the embodiment of moral good, and "as soon as physical or other compulsion to work ceases, they flee from labor like the plague"(Sogomonov 2012, p. 162). Under the conditions of Protestant ethics, labor was cultivated by itself, and the idea of a person's religious service "in the profession" was consistently developed (Rubtsova, Martianova 2016, p.166). The ethics of the modern era focuses on the social statuses and roles of professionals, as well as the contradictions that arise in their status and role sets. This problem is quite fully disclosed in many sociological studies (Martianova 2013, p.103). Finally, the postmodern work ethic emphasizes the concept of labor as creativity or play, aimed primarily at the self-realization of the individual. Researchers agree that postmodern professionals are not guided by any specific code of ethics, but can freely choose ethical norms and change them. Plurality and freedom of choice become the basis of professional ethics (Bauman 1993).

This also applies to professional communities (Zakharov, Perfilyeva, Zakharov 2020). Postmodern professionals are increasingly insisting on the principle of free entry and exit from any professional associations, structures, corporations. From the point of view of today's "free agents", the so-called traditional work was a voluntary captivity, and therefore for them now the only acceptable mechanism of liberation is work for themselves, for their own interests, in accordance with their principles (Urri 2012). We can say that in the postmodern era, the professional becomes morally universal, which in itself is the first marker of deprofesisonization.

In addition, the critical state of professional ethics is reinforced by the growing dealtruization of professionals. “Simple and honest” performance of one's duties is replaced, sometimes implicitly, by positioning oneself, striving to increase one's ratings and significant indicators, the most profitable self-presentation, and competition with colleagues. In some professional

communities, those who practice true altruistic behavior may be considered “losers” who have failed to better position themselves and “achieve more” in their profession (Rubtsova, Martianova 2012).

Finally, one should not overlook from the analysis such a factor of deprofessionalization as an increase in the influence of expert associations, accompanied by a decline in the prestige of professional communities. The authority of professionals is decreasing due to the spread of the Internet and the emergence of the so-called "netocracy".

The crisis of professional ethics smoothly flows into a crisis of professional identity, which, in turn, is also an important factor in deprofessionalization. By professional identity we will mean “feeling of oneself as a professional”, self-identification of a person with his professional status and associated ethos, traditions, ideology, community, as well as his ability to think and act on behalf of a given professional group (Rubtsova, Martianova 2014).

In the industrial era professional identity was an important characteristic of how a profession is perceived in society and its prestige. The idea of adherence to professional and corporate values was postulated. The professional himself positioned himself as an expert, advocating for the cause and indifferent to profit. Corporate standards supported him in this pursuit of high professional ideals and were aimed at protecting his professional honor in the event of a conflict with a client. As a result, the myth of professionals as asexual, free from social prejudices, ageless workers, who are able to always perform work with the same high quality, has emerged. This allowed professionals to have a high status in society and have the right to make independent decisions in the event of dangerous actions (for example, providing medical care). But in postmodern society, the status of professionals is changing, which is reflected in their identity and, moreover, leads to decorporatization.

The term "decorporatization" can be understood as:

- transition to a decentralized economy (including the transition from the corporate sector to the self-employed);
- an increase in the share of people employed outside organizations (outside legal entities);
- priority of informal organization of labor processes;
- flexible, horizontal and open organizational structures.

Professionals, as one of the groups of interest, could benefit from some aspects of decorporation, creating more flexible, horizontal and open structures for entering markets (Zakharov, Kuznetsov, Perfileva 2020). However, the paradox is that these structures are also likely to face a crisis of professional identity, weakening of professional norms and ethical standards. The processes of decorporation and deprofessionalization, occurring simultaneously, can generate social insecurity of new (self) employed, activate the process of the formation of new institutional structures that perform expert and regulatory functions.

3. DISCUSSION

What are the prospects for the development of both trends? At this stage of the study, the following options can be identified:

1. *Reconstruction of professional associations*. This option assumes the internal cohesion of the professional community: the creation and strengthening of professional networks as a result of effective communication between professionals. The professionals themselves must realize themselves as a force that will have to not only keep themselves in unity, but also resist the destructive effects of “plurality” and “fluidity”. Modern professional communities cannot set the goal of returning to workshops and guilds with their rigid credentials that have

helped to "cement" the profession over the years, but they are able to construct new forms of association of "free agents" and a single whole.

2. *The revival of the professional ethos*, including the values, norms and former attributes of the profession with the help of external agents: the state, civil society. Combining efforts may in the long run lead to the reconstruction of the profession as a social institution that combines clear principles of professional work with adaptability to modern realities.

Finally, as an alternative for representatives of various professions, one can offer to come to terms with the presence of the "*dilemma of professional*", that is, the need to balance between the traditionally recognized model of a traditional expert and meeting new challenges and requirements on the part of employers and society.

4. CONCLUSION

The phenomena studied in this article require further research by the combined forces of specialists in various disciplines. The greatest research interest is caused by the fact that the dynamically changing labor market, together with new technologies, also brings many challenges and paradoxes that make the position of professionals in the labor market unstable and vulnerable to a much greater extent than before. To neutralize these destructive tendencies, it is necessary to reconstruct professional ethics and identity, taking into account the peculiarities of the postmodern era. This will also make it possible to reconstruct the profession as a social institution, which faced a crisis in the post-modern era.

REFERENCE

[1] Bauman Z. (1993). *Postmodern Ethics*. Oxford: Basil Blackwell. 237 p.

[2] Grencikova, A., Spankova, J. & Kordos, M. (2016). Entry of a New Generation "Millenians" on The Labor Market. In SGEM 2016, BK 2: Political Sciences, Law, Finance, Economics and Tourism Conference Proceedings, Vol III Book Series: *International Multidisciplinary Scientific Conferences on Social Sciences and Arts*. pp. 861-868.

[3] Dagiliene, L., Leitoniene, S. & Grenčíková, A. (2014). Increasing business transparency by corporate social reporting: development and problems in Lithuania. *Engineering economics.* (25) 1, pp. 54-61.

[4] Habanik, J., Grencikova, A. & Krajco, K. (2019). The impact of new technology on sustainable development. *Engineering Economics*, vol. 30, iss. 1, pp. 41-49.

[5] Kordos, M. & Berkovic, V. (2020). Applying Automation in Slovak Tourism Industry - Benefits and Issues. *AD ALTA-Journal of Interdisciplinary Research*, vol. 10, iss. 1, pp. 132-138.

[6] Martianova, N. (2013). Institutional dynamics of the profession in the era of mobility. *Historical, philosophical, political and legal sciences, cultural studies and art history. Questions of theory and practice*. 9 (35). - Tambov: Diploma. pp. 103-106.

[6] Martianova, N. (2013). Transformation of professional ethics in the postmodern era. *Historical, philosophical, political and legal sciences, cultural studies and art history. Questions of theory and practice*.10 (36). pp. 112-115.

[7] Rubtsova, M. & Martianova, N. (2012). Altruism in professional practice: a sociological analysis of the professions by Robert K. Merton. *Bulletin of St. Petersburg University*. Series 12: Psychology. Sociology. Pedagogy. 1. pp. 152-158.

[8] Rubtsova, M. & Martianova, N. (2014). The crisis of professional identity in the market conditions. *Bulletin of St. Petersburg University*. Series 12: Psychology. Sociology. Pedagogy.1. pp. 177-182.

[9] Rubtsova, M. & Martianova, N. (2016). Cribb A., Gewirtz SH. Professionalism. Cambridge: Polity press, 2015. *Sociological Research*. 7 (387). pp. 166-167.

[10] Russian National Corpus (2021). *The National Corpus of the modern Russian language*. Moscow: Vinogradov Institute of the Russian Language of the Russian Academy of Sciences, Department of Corpus Linguistics and Linguistic Poetics.

[11] Sogomonov, A. (2012). *Sociology of the unobvious: cultural choice and aporias of "high" modernity*. M.: LLC "Variant". 240 p.

[12] Urri, J. (2012). *Mobility*. Per. from English A.V. Lazarev, entry. Art. ON THE. Kharlamov. Moscow: Praxis Publishing and Consulting Group. 576 p.

[13] Zakharov, N., Perfilyeva, M. & Zakharov, D. (2020). Specifics of professional groups in the conditions on the Industry 4.0. In: *Proceedings of scientific papers from the international scientific conference* The Impact Of Industry 4.0 On Job Creation 2019. Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations. pp. 248-253.

[14] Zakharov, N., Kuznetsov, A. & Perfileva, M. (2020). The impact of Industry 4.0 on the labour market in Russia. In:*Proceedings of scientific papers from the international scientific conference* The Impact Of Industry 4.0 On Job Creation 2019. Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations. pp. 454-456.

[15] Zakharov, N., Britvina, I. & Kuznetsov, A. (2020). The dilemma of job creation and loss before of Industry 4.0. In: *Proceedings of scientific papers from the international scientific conference* The Impact Of Industry 4.0 On Job Creation 2019. Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations. pp. 457-462.

ROZVOJ DIGITÁLNEJ EKONOMIKY A ZMENY V ŠTRUKTÚRE PRACOVNÝCH MIEST

DIGITAL ECONOMY DEVELOPMENT AND JOB STRUCTURE CHANGES

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Abstrakt: *V súčasnosti je zrejmé, že digitalizácia transformovala spoločnosť a ekonomiky naprieč celým svetom, pričom rozvoj digitálnej ekonomiky prináša so sebou inovácie produktov, čo má vplyv na štrukturálne zmeny v ekonomike a začali sa generovať nové profesie, zatiaľ čo niektoré zanikajú. V našom príspevku skúmame zmeny v štruktúre zamestnanosti v SR na základe klasifikácie zamestnaní, pričom vychádzame zo Štatistickej klasifikácie zamestnaní SK ISCO-08. Cieľom príspevku je zistiť vplyv rozvoja digitálnej ekonomiky na štruktúru pracovných miest v Slovenskej republike v rokoch 2012-2019. Pri spracovaní príspevku sme využili metódu analýzy časového radu skúmaných ukazovateľov, pričom sme prepočítali absolútny prírastok, pomerný prírastok a percentuálny podiel. Ďalej sme využili metódu komparácie na porovnanie vývoja skúmaných ukazovateľov podľa jednotlivých tried a skupín zamestnaní.*

Kľúčové slová: *digitálna ekonomika, trh práce, zamestnanosť, nezamestnanosť, klasifikácia zamestnaní*

Abstract: *Digital skills are more and more becoming a significant condition for employment, while the requirements for higher qualitative level of digital skills are constantly growing. Sophisticated production processes, using new technologies and innovation, put higher demands on the qualification of workers being reflected in new jobs creation based on new professions, however on the other hand, an inseparable consequence is the threat to certain job positions (professions). The threat to jobs does not necessarily mean their disappearance, but their transformation into a new qualitative level. The goal of our article is to examine the changes within the employment structure in Slovak Republic based on the jobs classification by SK ISCO-08 and to indicate new development trends within the changes in the structure of jobs and education in terms of digitization.*

Key words*: digital economy, labour market, employment, unemployment, labor market, classification of jobs*

JEL Classification: *J01, J53, J21, J23*

1. ÚVOD

Prudký rozmach nových technológií, ktorý môžeme pozorovať posledné desaťročia v dôsledku rozvoja digitálnej ekonomiky prináša so sebou nové inovácie produktov, v dôsledku čoho dochádza v ekonomike k štrukturálnym zmenám. Táto skutočnosť generuje vznik nových profesií, ale aj zánik určitých profesií. Rozvoj digitálnych technológií vyžaduje pracovnú silu, ktorá je schopná tieto technológie ovládať a využívať, a preto narastá počet pracovných miest, ktoré si vyžadujú zručnosti v oblasti informačných a komunikačných technológií. Digitálne zručnosti sa čím ďalej stávajú významnou podmienkou pre uplatnenie na trhu práce, pričom požiadavky na úroveň digitálnych zručností sa zvyšujú. Podľa Štefánika

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(2008) príčinou toho je skutočnosť, že výrobné procesy, využívajúce nové technológie a inovácie, kladú vyššie požiadavky na kvalifikáciu pracujúcich.

United Nations (2019) vo svojej správe o digitálnej ekonomike predpokladajú, že nové technológie, najmä umelá inteligencia, nevyhnutne povedú k významnému posunu na trhu práce vrátane zániku pracovných miest v niektorých odvetviach a vytváranie príležitostí v iných odvetviach.

2. TEORETICKÉ VÝCHODISKÁ

Rozvoj priemyslu 4.0 a digitálnej ekonomiky a z toho vyplývajúce zmeny budú podľa Tumidalskej (2019) významne ovplyvňovať trh práce, čo sa prejaví v tvorbe nových pracovných miest na strane jednej, avšak neoddeliteľným dôsledkom bude aj ohrozenie už existujúcich pracovných pozícií. Ohrozenie pracovných miest nemusí nevyhnutne znamenať ich stratu, v širšom ponímaní ide aj o ich transformáciu na pozície zatiaľ nepomenované. V súčasnosti sa objavujú rôzne výskumy a názory expertov percentuálne odhadujúce množstvo pracovných miest, ktoré majú v dôsledku digitalizácie zaniknúť. Druhá skupina názorov zastáva pozitívnejší prístup k tejto problematike a tvrdí, že moderné technológie ľuďom prácu nevezmú, len sa zmení jej charakter a podoba.

Masárová, Kordoš a Strunz (2019) zdôrazňujú očakávané zmeny v štruktúre pracovných miest, pričom predpokladajú, že sa budú redukovať základné pozície, klesne dopyt po tradičných pozíciách. Na druhej strane sa bude zvyšovať počet pracovných pozícií, ktoré vyžadujú špecifické zručnosti, napr. kreatívne a odborné zručnosti, e-vedenie a inovatívne inžinierstvo.

V dôsledku štruktúrnych zmien v ekonomike sa predpokladá zánik niektorých pracovných miest, a to tým spôsobom, že prácu ľudí nahradia roboty alebo nová technológia. Podľa nedávnej štúdie OECD môže byť ohrozených až 12 % pracovných miest. (Leško, 2019)

Tupá (2020) predpokladá, že automatizácia ohrozuje najmä pracovné miesta ľudí s nízkou a strednou kvalifikáciou, preto nízko kvalifikované pracovné miesta a miesta vyžadujúce si strednú kvalifikovanosť budú zanikať, čím dôjde k uvoľneniu väčšieho množstva pracovnej sily. Naopak pod vplyvom týchto procesov budú vznikať nové pracovné pozície spojené s obsluhou a údržbou výrobných automatov či robotov.

Podobne Grenčíková a Berkovič (2020) uvádzajú, že v dôsledku zmien v technológiách sa zvýšil dopyt po vysokokvalifikovaných pracovníkoch a zároveň sa znížil dopyt po pracovníkoch s nižšou úrovňou vzdelania a nižšou úrovňou zručností. Výsledkom je pracovný trh so silnými požiadavkami na pracovnú silu vo vysokokvalifikovaných a nízko kvalifikovaných oblastiach, ale tento dopyt zanecháva medzeru v stredne kvalifikovanej pracovnej sile, o ktorú už nie je až taký veľký záujem. Práve zmeny súvisiace s rozvojom nových technológií spôsobujú vytláčanie nízko kvalifikovanej fyzickej a rizikovej práce a novovznikajúce pracovné úlohy budú klásť stále vyššie požiadavky na ľudský intelekt.

Stretávame sa s hrozbami ktoré sa týkajú predovšetkým menej kvalifikovaných ľudí, ktorí disponujú nízkymi digitálnymi zručnosťami, ale tiež ľudí vo veku nad 50 rokov. (Krajňáková a Vyhnička, 2020).

Technologický pokrok ovplyvní pracovné pozície naprieč všetkými odvetviami, pričom tento vplyv bude na jednotlivé pracovné povolania rozdielny. Ako predpokladajú Dubovská a Rievajová (2020), digitálna revolúcia bude mať najväčší dopad na pracovné miesta v oblasti výroby a služieb. Najväčší pokles pracovných miest sa predpokladá vo výrobných procesoch, kde budú určité pracovné miesta postupne nahradené automatizovanou výrobou. Naopak nárast pracovných miest predpokladajú odborníci v sektore služieb, kde automatizácia či digitalizácia nemá až taký rozsiahly dopad ako je to v prípade procese výroby.

Očakáva sa klesajúci dopyt po spracovateľských, výrobných, stavebných a ťažobných pracovných pozíciách, no na druhej strane sa očakáva rast zamestnanosti v oblasti IKT, v odvetviach médií, zábavy, dizajnu, umenia, športu, v oblasti architektúry a inžinierstva, dopravy a logistiky, ale aj zdravotníctva. (Grenčíková a Berkovič, 2020)

Viacerí autori sa venujú výskumu v oblasti dopadu technického a technologického pokroku a digitálnej ekonomiky na jednotlivé odvetvia a povolania vo vybraných krajinách alebo zoskupeniach.

Keister a Lewandowski (2016) skúmali posun od manuálnej ku kognitívnej práci v desiatich ekonomikách strednej a východnej Európy. Uvádzajú, že v najvyspelejších krajinách je výskyt rutinných pracovných miest (a ich možná náhrada technológiami) najvyššia vo výrobe a službách, napr. v adminstratíve a podorných činnostiach, obchode a pod. Ich výsledky ukazujú, že v roku 2013 33% pracujúcich v strednej a východnej Európe pracovalo na rutinných pracovných miestach, a z toho dôvodu boli ohrození automatizáciou.

Hardy, Keister a Lewandowski (2016) analyzovali zmeny v obsahu pracovných miest v krajinách strednej a východnej Európy v rokoch 1998 až 2013. Ich výsledky ukazujú, že v krajinách strednej a východnej Európy bolo zvyšovanie kvalifikácie pracovných síl hlavným faktorom rozvoja nerutinných kognitívnych a manuálnych pozícií, zatiaľ čo štrukturálne zmeny a posuny smerom k práci s nižším stupňom derutinizácie formovali rutinné kognitívne úlohy. Zistili, že všetky krajiny strednej a východnej Európy zaznamenali nárast nerutinných kognitívnych pracovných miest a pokles manuálnych pracovných miest.

Martinák (2020) skúmal vplyv technologického pokroku na štruktúru zamestnanosti v krajinách V4 a zistil, že zmena štruktúry zamestnanosti v krajinách Vyšehradskej skupiny je do veľkej miery výsledkom zmeny v rámci odvetví, pričom realokácia zamestnanosti medzi odvetviami prispela k zmene štruktúry iba vo veľmi malom rozsahu. Ďalej uvedený autor uvádza, že v minulých rokoch na Slovensku dochádzalo k miernej polarizácii zamestnanosti, čo znamená, že sa zvyšoval podiel vysoko a nízko kvalifikačne náročných pracovných miest na celkovej zamestnanosti za súčasného poklesu stredne kvalifikačne náročných miest.

Arntz, Gregory a Zierahn (2016) tvrdia, že je nepravdepodobné, že automatizácia a digitalizácia zničia veľké množstvo pracovných miest. Nízkokvalifikovaní pracovníci však budú pravdepodobne znášať bremeno nákladov na prispôsobenie viac, pretože automatizácia ich pracovných miest je vyššia v porovnaní s vysokokvalifikovanými pracovníkmi. Výzvou do budúcnosti bude preto pravdepodobne zvládnutie rastúcej nerovnosti a zabezpečenie opätovného vzdelávania najmä pre nízkokvalifikovaných pracovníkov v oblasti nerutinných kognitívnych úloh a zníženia manuálnych zamestnaní.

Najvýznamnejšie vplyvy súvisia skôr so zmenami v štruktúre zamestnanosti ako v počte pracovných miest. Počítačová automatizácia vytvára pracovné miesta v určitých odvetviach a profesiách a zároveň ich vylučuje z iných, tieto účinky však nie sú rovnomerne rozložené medzi regiónmi alebo krajinami. Tieto dôsledky budú pravdepodobne pozitívne pre väčšinu sektorov založených na službách, ale opačné pre priemyselné odvetvia. (Valenduc a Vendramin, 2016)

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je zistiť vplyv rozvoja digitálnej ekonomiky na štruktúru pracovných miest v Slovenskej republike v rokoch 2012-2019. Na dosiahnutie uvedeného cieľa sme zvolili nasledovný postup: Najskôr sme preskúmali vývoj počtu zamestnaných podľa hlavných tried Štatistickej klasifikácie zamestnaní SK ISCO-08. Následne sme identifikovali skupiny zamestnaní s najväčším prírastkom počtu pracujúcich a s najväčším úbytkom počtu

pracujúcich. Nakoniec sme preskúmali vývoj počtu nezamestnaných podľa posledného zamestnania.

Pri spracovaní príspevku sme využili metódu analýzy časového radu skúmaných ukazovateľov, pričom sme prepočítali absolútny prírastok, pomerný prírastok a percentuálny podiel. Ďalej sme využili metódu komparácie na porovnanie vývoja skúmaných ukazovateľov podľa jednotlivých tried a skupín zamestnaní. Na formulovanie záverov sme využili metódu syntézy.

V príspevku sme využili štatistické údaje zo Štatistického úradu SR, ktoré sú získané z Výberových zisťovaní pracovných síl v roku 2012 a 2019.

3. VÝSLEDKY A DISKUSIA

3.1 Zmeny v štruktúre zamestnanosti v SR v rokoch 2012-2019

V našom príspevku skúmame zmeny v štruktúre zamestnanosti v SR na základe klasifikácie zamestnaní, pričom vychádzame zo Štatistickej klasifikácie zamestnaní SK ISCO-08. Táto národná klasifikácia zamestnaní vychádza z medzinárodnej klasifikácie ISCO-08 a zobrazuje štruktúru zamestnaní rozdelenú na 10 hlavných tried, ktoré sa následne členia na triedy, skupiny, podskupiny a jednotky zamestnaní. Štatistická klasifikácia zamestnaní SK ISCO-08 bola vytvorená v rámci projektu Národná sústava povolaní, ktorého riešiteľom bola TREXIMA Bratislava. Od roku 2011 došlo k dvom jej aktualizáciám, a to v roku 2015 a 2020. Tieto aktualizácie spočívali najmä v dopĺňaní nových a vyraďovaní zastaraných zamestnaní, v zlučovaní a rozčleňovaní, a v niektorých prípadoch k úprave názvu jednotiek zamestnaní. (Trexima, 2021)

Po poslednej aktualizácii, platnej od roku 2021, má SK ISCO-08 spolu 2 448 zamestnaní (7-miestnych kódov), kým v roku 2011 to bolo 2147 a v roku 2015 to bolo 2312 zamestnaní. Ako uvádza Trexima (2021), trend zvyšovania počtu zamestnaní sa prejavuje najmä v hlavnej triede 2 Špecialisti. Táto hlavná trieda sa podieľala 67 % na náraste počtu zamestnaní, keď z celkového počtu 136 nových zamestnaní (v porovnaní rokov 2015 a 2020) 94 bolo v hlavnej triede 2 Špecialisti.

Ako zdôrazňuje Trexima (2021), nie sme však svedkami masívneho vznikania nových a zanikania zastaraných zamestnaní. Najviac sa mení ich obsah, pracovná náplň, resp. zručnosti, vedomosti, ktoré sú potrebné na kvalifikované zabezpečovanie pracovných úloh. Pracovníci používajú nové nástroje, zariadenia, programové vybavenie. Digitálne zručnosti sú potrebné takmer v každom zamestnaní. Školské vedomosti stačia maximálne na získanie prvého zamestnania, je nevyhnutné sa stále vzdelávať, a to nielen pri zamestnaniach s prevahou duševnej práce.

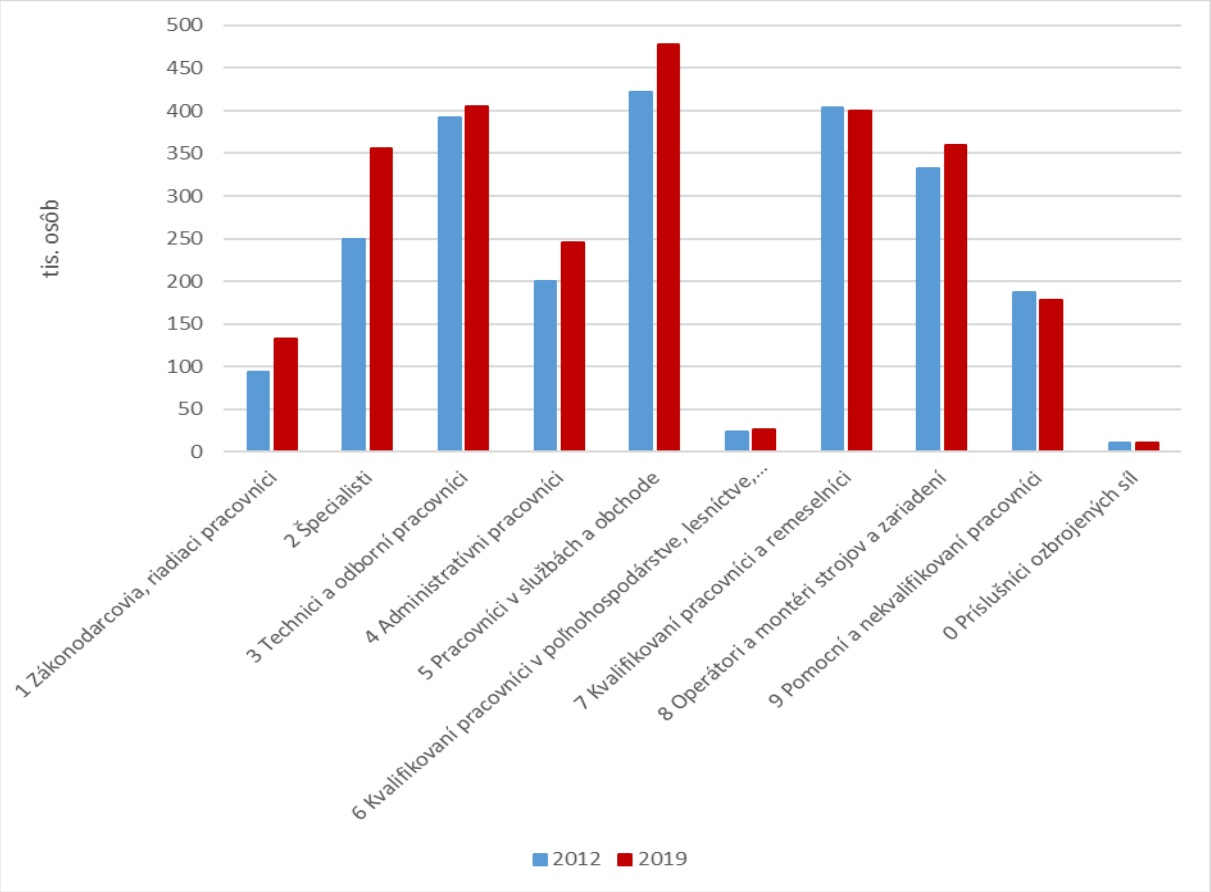
V tabuľke 1 uvádzame počty pracujúcich podľa hlavných tried SK ISCO-08, pričom porovnávame prvý a posledný rok skúmaného obdobia, teda roky 2012 a 2019, ale tiež prepočítavame percentuálny podiel jednotlivých hlavných tried na celkovom počte pracujúcich v SR. Takisto zisťujeme absolútnu a relatívnu zmenu v počte pracujúcich v sledovanom období.

Tabuľka 1. Počty pracujúcich podľa zamestnania (SK ISCO-08) – v tis. osôb

	2012	2019	absolútna zmena	pomerný prírastok %	% podiel		
					2012	2019	zmena p.b.
Pracujúci	2 313,7	2 591,2	277,5	11,99			
1 Zákonodarcovia, riadiaci pracovníci	93,3	133,1	39,8	42,66	4,03	5,14	1,10
2 Špecialisti	249,8	355,4	105,6	42,27	10,80	13,72	2,92
3 Technici a odborní pracovníci	391,9	404,8	12,9	3,29	16,94	15,62	-1,32
4 Administratívni pracovníci	199,8	245,4	45,6	22,82	8,64	9,47	0,83
5 Pracovníci v službách a obchode	421,4	477,2	55,8	13,24	18,21	18,42	0,20
6 Kvalifikovaní pracovníci v poľnohospodárstve, lesníctve, rybárstve	24,0	26,2	2,2	9,17	1,04	1,01	-0,03
7 Kvalifikovaní pracovníci a remeselníci	403,9	400,1	-3,8	-0,94	17,46	15,44	-2,02
8 Operátori a montéri strojov a zariadení	333,1	359,7	26,6	7,99	14,40	13,88	-0,52
9 Pomocní a nekvalifikovaní pracovníci	186,5	178,4	-8,1	-4,34	8,06	6,88	-1,18
0 Príslušníci ozbrojených síl	10,0	10,9	0,9	9,00	0,43	0,42	-0,01

Zdroj: Štatistický úrad SR, vlastné prepočty

Obrázok 1. Porovnanie počtu pracujúcich podľa zamestnania v rokoch 2012 a 2019



Zdroj: Štatistický úrad SR, vlastné spracovanie

Spomedzi hlavných tried zamestnaní najväčší počet pracujúcich v roku 2012 pracovalo v triede 5 – Pracovníci v službách a obchode. Nasledovala trieda 7 - Kvalifikovaní pracovníci a remeselníci a trieda 3 - Technici a odborní pracovníci. Aj v roku 2019 najväčší podiel na počte pracujúcich mala trieda 5, pričom jej percentuálny podiel sa mierne zvýšil. Na ďalších miestach boli opäť triedy 3 a 7, avšak ich podiel sa znížil najviac spomedzi všetkých tried. Na druhej strane najväčší absolútny prírastok počtu pracujúcich aj najväčší rast percentuálneho podielu zaznamenala trieda 2 – Špecialisti.

Z uvedeného je zrejmé, že rast vzdelanostnej úrovne obyvateľstva sa prejavuje v náraste počtu pracujúcich v triedach, ktoré si vyžadujú vyššie vzdelanie. Naopak klesá podiel kvalifikovaných pracovníkov, remeselníkov, operátorov montérov strojov aj pomocných a nekvalifikovaných pracovníkov.

Podrobnejšie sme preskúmali jednotlivé skupiny zamestnaní, ktoré sú najviac ovplyvnené rozvojom digitálnej ekonomiky a v tabuľke 2 sme uviedli skupiny zamestnaní, ktoré za sledované obdobie zaznamenali najväčšie prírastky počtu zamestnaných.

Tabuľka 2. Skupiny zamestnaní s najväčším prírastkom počtu pracujúcich – v tis. osôb

	2012	2019	absolútna zmena	pomerný prírastok %	% podiel na počte zamestnaných		
					2012	2019	zmena p.b.
411 Všeobecní administratívni pracovníci	27,0	71,0	44,0	162,96	1,17	2,74	1,57
754 Ostatní kvalifikovaní pracovníci	16,7	39,6	22,9	137,13	0,72	1,53	0,81
532 Pracovníci v oblasti osobnej zdravotnej starostlivosti	45,2	64,7	19,5	43,14	1,95	2,50	0,54
312 Majstri (supervízori) v baníctve, výrobe a stavebníctve	17,2	36,4	19,2	111,63	0,74	1,40	0,66
251 Vývojári a analytici softvéru a aplikácií	12,6	31,7	19,1	151,59	0,54	1,22	0,68
814 Operátori strojov na výrobu výrobkov z gumy, papiera a plastov	19,9	36,4	16,5	82,91	0,86	1,40	0,54
263 Špecialisti v spoločenských vedách a religionistike	16,4	31,4	15,0	91,46	0,71	1,21	0,50
234 Učitelia v základných školách a predškolských zariadeniach	60,3	73,2	12,9	21,39	2,61	2,82	0,22
821 Montážni pracovníci	84,5	96,7	12,2	14,44	3,65	3,73	0,08
122 Riadiaci pracovníci odbytu, marketingového výskumu, vývoja	7,3	18,3	11	150,68	0,32	0,71	0,39

Zdroj: Štatistický úrad SR, vlastné prepočty

V priebehu rokov 2012-2019 sa najviac zvýšil počet pracujúcich v skupine zamestnaní 411 – Všeobecní administratívni pracovníci, a to o 44 tis. osôb, čo predstavuje pomerný prírastok takmer 163%. O takmer 33 tisíc sa zvýšil počet ostatných kvalifikovaných pracovníkov (skupina zamestnaní 754). Počet zamestnancov v zamestnaniach 532, 312 a 251 sa zvýšil o viac ako 19 tisíc. Vysoký absolútny aj pomerný prírastok zaznamenala skupina zamestnaní 122.

Aj niektoré ďalšie povolania zaradené v hlavnej triede 2 zaznamenali vysoký pomerný prírastok napr. zamestnania 242 (Špecialisti v oblasti riadenia a správy), 243 (Špecialisti v oblasti predaja, marketingu a styku s verejnosťou), 252 (Špecialisti v oblasti databáz a počítačových sietí). Hoci ich absolútny prírastok nie je príliš vysoký, ich pomerný prírastok bol významný, v prípade zamestnania 242 dosiahol 140,74%, v ďalších dvoch skupinách zamestnaní to bolo okolo 100%. Ak by sme skúmali relatívny prírastok počtu zamestnaných

v jednotlivých skupinách zamestnaní, spomedzi desiatich zamestnaní, kde bol zaznamenaný najväčší pomerný prírastok, by bolo osem skupín povolaní z triedy 2 – Špecialisti.

Ďalej sme preskúmali skupiny zamestnaní, ktoré v rokoch 2012-2019 zaznamenali najväčší úbytok počtu pracujúcich (tabuľka 3).

Tabuľka 3. Skupiny zamestnaní s výrazným úbytkom počtu pracujúcich – v tis. osôb

	2012	2019	absolútna zmena	pomerný úbytok %	% podiel na počte zamestnaných		
					2012	2019	zmena p.b.
833 Vodiči motorových vozidiel	88,3	76,2	-12,1	-13,70	3,82	2,94	-0,88
331 Odborní pracovníci v oblasti finančníctva, poisťovníctva, ostatných finančných služieb a matematiky	49,4	37,7	-11,7	-23,68	2,14	1,45	-0,69
752 Spracovatelia dreva, výrobcovia výrobkov z dreva	26,3	17,1	-9,2	-34,98	1,14	0,66	-0,48
961 Pracovníci pri likvidácii odpadu	36,4	27,8	-8,6	-23,63	1,57	1,07	-0,50
931 Pomocní pracovníci v ťažbe a stavebníctve	33,2	25,2	-8	-24,10	1,43	0,97	-0,46
721 Zlievači, jadrári, zvárači, opravári, montéri a podobní pracovníci pracujúci s kovmi	44,1	36,1	-8,0	-18,14	1,91	1,39	-0,51
334 Odborní asistenti v administratíve	37,6	30,2	-7,4	-19,68	1,63	1,17	-0,46
335 Odborní pracovníci vo verejnej správe	23,4	16,9	-6,5	-27,78	1,01	0,65	-0,36
815 Operátori strojov na výrobu výrobkov z textilu, kože a kožušiny	18,1	12,3	-5,8	-32,04	0,78	0,47	-0,31
712 Kvalifikovaní pracovníci pri dokončovacích a podobných stavebných prácach	40,1	35,0	-5,1	-12,72	1,73	1,35	-0,38

Zdroj: Štatistický úrad SR, vlastné prepočty

Najväčší absolútny pokles počtu pracujúcich bol v rokoch 2012-2019 zaznamenaný v skupine zamestnaní 833 – vodiči motorových vozidiel, a to o viac ako 12 tisíc, čím sa ich podiel na počte zamestnaných znížil o 0,88 p.b. Prekvapivý je pokles zamestnaných v skupine zamestnaní 331 Odborní pracovníci v oblasti finančníctva, poisťovníctva, ostatných finančných služieb a matematiky o 11,7 tis. osôb. Ďalšie významné zníženie počtu zamestnaných nastalo na pozíciách vyžadujúcich nižšie vzdelanie, a to v skupinách zamestnaní 752, 961, 931 a 721. Najväčší relatívny pokles pozorujeme v prípade spracovateľov dreva a výrobcov výrobkov z dreva, ktorých počet sa znížil o viac ako tretinu. Podobne výrazný pokles nastal v prípade operátorov strojov na výrobu výrobkov z textilu, kože a kožušiny. Medzi povolania s najväčším poklesom zamestnancov sa zaradili aj povolania z radu technických a odborných pracovníkov, a to v skupinách 334 a 335.

Najväčší relatívny pokles bol zaznamenaný na pozícii veterinárni lekári (skupina povolaní 225), ale tiež v prípade ručných umývačov motorových vozidiel, okien a ručných práčov (912), pokladníkov a predavačov lístkov (523), ale tiež sekretárok (412).

Zmeny v rozvoji digitálnej ekonomiky a spoločnosti sa prejavili aj v štruktúre nezamestnaných osôb. Na jej vývoj však vplýval predovšetkým ekonomický vývoj, ktorý bol v sledovanom období priaznivý, keďže ekonomická situácia sa po recesii v roku 2009 stabilizovala a nezamestnanosť postupne klesala. V tabuľke 4 uvádzame zhodnotenie štruktúry nezamestnaných podľa posledného zamestnania.

Tabuľka 4. Nezamestnaní podľa posledného zamestnania – v tis. osôb

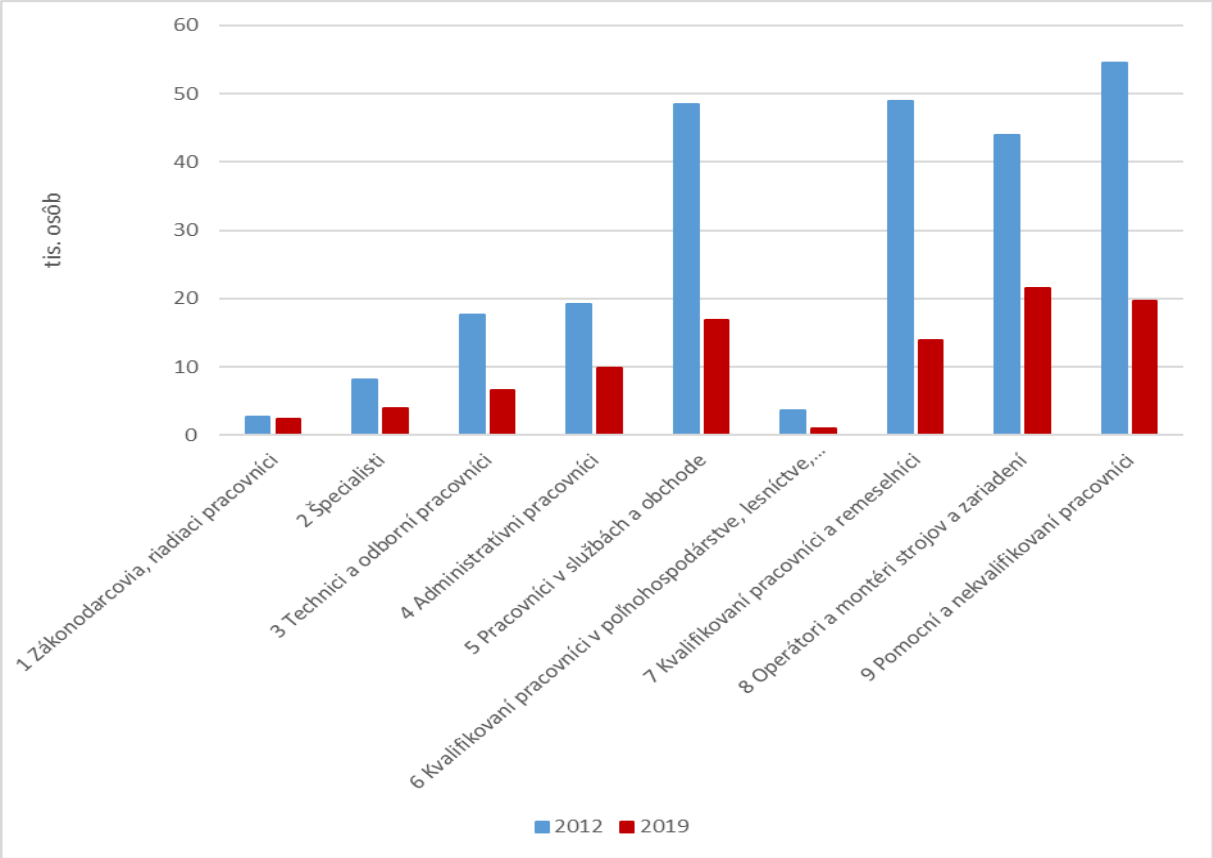
	2012	2019	absolútna zmena	pomerný úbytok %	% podiel na nezam.		
					2012	2019	zmena p.b.
Nezamestnaní	**390,4**	**154,9**	**-235,5**	**-60,32**			
nezamestnaní, ktorí mali niekedy zamestnanie	289,9	114,8	-175,1	-60,40	74,26	74,11	-0,14
1 Zákonodarcovia, riadiaci pracovníci	2,6	2,4	-0,2	-7,69	0,67	1,55	0,88
2 Špecialisti	8,1	4,0	-4,1	-50,62	2,07	2,58	0,51
3 Technici a odborní pracovníci	17,6	6,6	-11,0	-62,50	4,51	4,26	-0,25
4 Administratívni pracovníci	19,2	9,8	-9,4	-48,96	4,92	6,33	1,41
5 Pracovníci v službách a obchode	48,4	16,8	-31,6	-65,29	12,40	10,85	-1,55
6 Kvalifikovaní pracovníci v poľn., lesníctve, rybárstve	3,6	1,0	-2,6	-72,22	0,92	0,65	-0,28
7 Kvalifikovaní pracovníci a remeselníci	48,9	13,9	-35,0	-71,57	12,53	8,97	-3,55
8 Operátori a montéri strojov a zariadení	43,9	21,5	-22,4	-51,03	11,24	13,88	2,64
9 Pomocní a nekvalifikovaní pracovníci	54,6	19,7	-34,9	-63,92	13,99	12,72	-1,27
0 Príslušníci ozbrojených síl	-	-	-				
nezistené (od ukončenia posledného zamestnania prešlo viac ako 8 rokov+nezist.)	42,9	18,9	-24	-55,94	10,99	12,20	1,21
nezamestnaní, ktorí nemali ešte zamestnanie	100,5	40,2	-60,3	-60,00	25,74	25,95	0,21

Zdroj: Štatistický úrad SR, vlastné prepočty

V rokoch 2012-2019 sa nezamestnanosť výrazne znížila, počet nezamestnaných poklesol o 235,5 tis. osôb, čo predstavuje zníženie o 60,32%. Zníženie celkovej nezamestnanosti sa prejavilo aj v poklese počtu nezamestnaných vo všetkých triedach zamestnaní (obrázok 2), pričom najväčší absolútny pokles nastal v triede 7, o 35 tis. osôb, o viac ako 30 tisíc osôb sa znížil aj počet nezamestnaných s posledným zamestnaním v triede 9 a 5. Najväčší relatívny pokles nastal v triede 6 a 7, o viac ako 70%.

V roku 2012 najväčší percentuálny podiel predstavovali nezamestnaní z tried 9, 7 a 5. V roku 2019 však najväčší podiel tvorili nezamestnaní, ktorých posledné zamestnanie bolo z triedy 8. V prípade kvalifikovaných pracovníkov a remeselníkov (trieda 7), ich podiel na počte nezamestnaných klesol za sledované obdobie o 3,55%. To vyplýva z nedostatku kvalifikovaných remeselníkov, čo sa prejavilo v poklese ich nezamestnanosti. Naopak zvýšil sa podiel nezamestnaných operátorov a montérov strojov a zariadení, o 2,64%.

Obrázok 2. Porovnanie počtu nezamestnaných podľa posledného zamestnania v rokoch 2012 a 2019



Zdroj: Štatistický úrad SR, vlastné spracovanie

4. ZÁVER

Predložený článok je ďalšou parciálnou vstupnou analýzou k výskumu otázok vplyvu zmien na trhu práce pod vplyvom digitalizácie ekonomiky. Zamerali sme sa na analýzu zmien v počte zamestnaných vo vybraných povolaniach na trhu práce v SR.

Z nášho výskumu vyplynulo, že pri porovnaní počtu pracujúcich podľa zamestnania v rokoch 2012 a 2019 najväčší počet pracujúcich v roku 2012 bolo v triede 5 – Pracovníci v službách a obchode, potom v triede 7 - Kvalifikovaní pracovníci a remeselníci a v triede 3 - Technici a odborní pracovníci. Aj keď sa poradie zamestnaní v roku 2019 nezmenilo, predsa len došlo k zmenám. V triede 5 sa percentuálny podiel počtu zamestnaných mierne zvýšil, ale v triede 3 - Technici a odborní pracovníci a v triede 7 - Kvalifikovaní pracovníci a remeselníci sa ich podiel znížil najviac spomedzi všetkých tried, ale trieda 2 – Špecialisti zaznamenali najväčší absolútny prírastok počtu pracujúcich aj najväčší rast percentuálneho podielu.

V období rokov 2012-2019 sa najviac zvýšil počet pracujúcich v skupine zamestnaní 411 – Všeobecní administratívni pracovníci, a to o 44 tis. osôb, čo predstavuje pomerný prírastok takmer 163%. Aj ďalšie povolania zaznamenali vysoký pomerný prírastok napr. zamestnania 242 (Špecialisti v oblasti riadenia a správy), 243 (Špecialisti v oblasti predaja, marketingu a styku s verejnosťou), 252 (Špecialisti v oblasti databáz a počítačových sietí).

Pri sledovaní skupiny zamestnaní, ktoré v rokoch 2012-2019 zaznamenali najväčší úbytok počtu pracujúcich sme zistili, že najväčší absolútny pokles počtu pracujúcich bol sledovanom období zaznamenaný v skupine zamestnaní 833 – vodiči motorových vozidiel, a to o viac ako 12 tisíc. Prekvapivý je pokles zamestnaných v skupine zamestnaní 331 Odborní pracovníci v

oblasti finančníctva, poisťovníctva, ostatných finančných o 11,7 tis. osôb. Ďalšie významné zníženie počtu zamestnaných nastalo na pozíciách vyžadujúcich nižšie vzdelanie.

Zmeny v rozvoji digitálnej ekonomiky a spoločnosti sa prejavili aj v štruktúre nezamestnaných osôb. Tieto zmeny ovplvnili dobré ekonomické výsledky hospodárstva. V rokoch 2012-2019 sa nezamestnanosť výrazne znížila, počet nezamestnaných poklesol o 60,32%. Najväčší absolútny pokles počtu nezamestnaných nastal v triede 7 - Kvalifikovaní pracovníci a remeselníci, o 35 tis. osôb, o viac ako 30 tisíc osôb sa znížil aj počet nezamestnaných s posledným zamestnaním v triede 9 – Pomocný a nekvalifikovaní pracovníci a 5 - Pracovníci v službách a obchode.

Z anylýzy zmien na trhu práce pod vplyvom digitalizácie vyplynulo, že proces zmien bude naberať na intenzite a bude to proces permanentný, ktorý bude vyžadovať zmeny vo vzdelávacej sústave, ale aj v iných oblastiach života spoločnosti, najmä v oblasti organizácie práce, a to tak na mikroúrovni ako aj na makroúrovni. Nové formy vzdelania budú vyžadovať rôzne nové komponenty vzdelávacieho systému, ako napríklad neformálne vzdelávanie či online kurzy, samovzdelávanie a pod.. upravené primárne pre nové mobilné platformy (čiže napr. e-learning sa zmení na m-learning) a pod.

Dodatok

Tento príspevok bol vytvorený v rámci projektu VEGA 1/0689/20 Digitálna ekonomika a zmeny v systéme vzdelávania ako reflexia na požiadavky trhu práce.

LITERATÚRA

[1] Arntz, M., Gregory T. & Zierahn U. (2016). The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis, OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris, 2016. K dispozícii na: https://www.oecd-ilibrary.org/docserver/5jlz9h56dvq7-en.pdf?expires=1618220045&id=id&accname=guest&checksum=7F0037A535D5A9F4AA8E7274A084B747.

[2] Berkovič, V., Masárová, T. & Grenčíková, A. (2020). Vplyv Industry 4.0 na zmeny v štruktúre pracovných miest. In: *vplyv industry 4.0 na tvorbu pracovných miest 2019.* Trenčín: FSEV TnUAD, s. 44–52.

[3] Dubovská, M. & Rievajová, E. (2020). Vplyv vybraných aspektov na pracovnú mobilitu a dopady Industry 4.0 na procesy zamestnanosti v rámci partnerstva Eures-T Beskydy. In: *Vplyv Industry 4.0 na tvorbu pracovných miest 2019.* Trenčín: FSEV TnUAD, s. 100-110.

[4] Grenčíková, A. & Berkovič, V. (2020). *Vplyv industry 4.0 na zmeny v štruktúre pracovných miest.* Trenčín: TnUAD, 2020. 154 s. ISBN 978-80-8075-916-2.

[5] Hardy, Keister a Lewandowski (2016). Technology or Upskilling? *Trends in the Task Composition of Jobs in Central and Eastern Europe*. HKUST IEMS Working Paper No. 2016-40, BS Working Paper Series. Warsaw: Institute of Structural Research.

[6] Keister, R. & Lewandowski, P. (2016). A Routine Transition? Causes and Consequences of the Changing Content of Jobs in Central and Eastern Europe. *Instytut Badan Strukturalnych (IBS). Policy Papers* 05/2016. K dispozícii na: http://ibs.org.pl/app/uploads/2016/06/IBS_Policy_Paper_05_2016.pdf .

[7] Krajňáková, E. & Vyhnička, J. (2020). Vplyv priemyslu 4.0 na zmeny v štruktúre a počte pracovných miest. In: *Vplyv industry 4.0 na tvorbu pracovných miest 2019.* Trenčín: FSEV TnUAD, s. 247–253.

[8] Leško, P. (2019). Exponenciálna ekonomika podporujúca udržateľný ekonomický rozvoj krajiny. *Ekonomické Rozhľady – Economic Review*, ročník 48, 3/2019, s. 338–354. K dispozícii na: https://www.euba.sk/www_write/files/SK/ekonomicke-rozhlady/2019/er3_2019_lesko_fulltext.pdf .

[9] Martinák, D. (2020). Vplyv technologického pokroku na štruktúru zamestnanosti v krajinách V4. *Politická ekonomie*, ročník 68, č. 1, s. 42–61, https://doi.org/10.18267/j.polek.1265

[10] Masárová, T., Kordoš, M. & Strunz, H. (2019). The impact of Industry 4.0 initiative on labour market. In: *Proceedings of the international scientific conference Economic and social policy*. Ostrava: Vysoká škola sociálně správní, s. 221–230. K dispozícii na: https://www.narodacek.cz/wp-content/uploads/2019/10/Masarova_Kordos_Strunz.pdf.

[11] Národná sústava kvalifikácií. SK-ISCO 08. Štatistická klasifikácia zamestnaní. K dispozícii na: https://www.kvalifikacie.sk/sk-isco-08.

[12] Štatistický úrad SR. (2013). *Výsledky výberového zisťovania pracovných síl za 4.štvrťrok 2012 vrátane doplnkového modulu za 2.štvrťrok 2012 - Prechod z práce do dôchodku*. K dispozícii na: https://slovak.statistics.sk.

[13] Štatistický úrad SR. (2020). Výsledky výberového zisťovania pracovných síl v SR za 4. štvrťrok 2019 vrátane doplnkového modulu o organizácii práce a pracovného času za 2.štvrťrok 2019. K dispozícii na: https://slovak.statistics.sk.

[14] Štefánik, M. (2008). *Požiadavky trhu práce na zamestnancov v prostredí znalostnej spoločnosti (Správa z prieskumu)*. Bratislava: Ekonomický ústav SAV.

[15] Trexima. (2021). *Pozor, klasifikácia zamestnaní sa aktualizovala*. K dispozícii na: https://www.trexima.sk/pozor-klasifikacia-zamestnani-sa-aktualizovala/

[16] Tumidalská, V. (2019). Priemysel 4.0 a jeho vplyv na trh práce. Ochrana zamestnanca perspektívou priemyselnej revolúcie 4.0. In: *Zborník príspevkov zo IV. ročníka študentského sympózia z pracovného práva konaného v dňoch 5. – 6. apríla 2019 v Danišovciach.* K dispozícii na: https://dusevnezdravie.upjs.sk/wp-content/uploads/2019/11/ochrana-zamestnanca-s-perspekt%C3%ADvou-priem-revolucie-final.pdf .

[17] Tupá, M. (2020). Vplyv Priemyslu 4.0 na trh práce Slovenskej republiky v kontexte pracovnej migrácie. In: *Vplyv Industry 4.0 na tvorbu pracovných miest 2019.* Trenčín: FSEV TnUAD, s. 414–422.

[18] United Nations. (2019). *DIGITAL ECONOMY REPORT 2019. VALUE CREATION AND CAPTURE: IMPLICATIONS FOR DEVELOPING COUNTRIES.* K dispozícii na: https://unctad.org/system/files/official-document/der2019_en.pdf.

[19] Valenduc, G. & Vendramin, P. (2016). Work in the digital economy: sorting the old from the new. *Working Paper 2016.03.* Brussels, ETUI aisbl, Brussels. ISSN 1994-4454 (electronic version). K dispozícii na: https://dial.uclouvain.be/pr/boreal/object/boreal%3A173373/datastream/PDF_01/view.

ZMENY V ŠTRUKTÚRE ZAMESTNANOSTI V SLOVENSKEJ REPUBLIKE V KONTEXTE PANDÉMIE COVID-19

EMPLOYMENT STRUCTURE CHANGES IN SLOVAK REPUBLIC WITHIN THE CONTEXT OF COVID-19 PANDEMIC OUTBREAK ISSUE

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Abstrakt: *Pandémia ochorenia COVID-19 ovplyvnila ekonomickú aj sociálnu situáciu v celom svete, Slovensko nevynímajúc. Jednotlivé odvetvia a povolania tu boli zasiahnuté s rôznou intenzitou. Cieľom príspevku je preskúmať a zhodnotiť zmeny v štruktúre zamestnanosti v Slovenskej republike v kontexte šírenia pandémie COVID-19. Skúmame zmeny v štruktúre zamestnanosti v SR podľa ekonomických činností a podľa klasifikácie zamestnaní. Na zhodnotenie zmien v štruktúre zamestnanosti v SR využívame štvrťročné údaje, za obdobie 4Q2019-2Q2021. Dospeli sme k zisteniam, že najväčší pokles zamestnaných nastal v odvetviach: ubytovacie a stravovacie služby, priemyselná výroba a doprava a skladovanie. Z hľadiska klasifikácie zamestnaní najvýraznejšie kladné zmeny zaznamenali zamestnania v oblasti administratívy, predaja, školstva a zdravotníctva. Naopak najvýznamnejšie záporné zmeny nastali v zamestnaniach: Pracovníci pri likvidácii odpadu; Predavači v obchodoch; Čašníci, barmani a someliéri.*

Kľúčové slová: *pandémia COVID-19, zamestnanosť, klasifikácia ekonomických činností SK NACE Rev.2, klasifikácia zamestnaní SK ISCO-08, Slovenská republika*

Abstract: *The COVID-19 pandemic has affected the economic and social situation worldwide, including Slovakia. Individual sectors and professions have been affected here with varying intensity. The goal of the paper is to assess and evaluate the employment structure changes in Slovak Republic within the context of COVID-19 pandemic outbreak issue. We examine changes in the structure of employment in Slovak Republic according to economic activities and the classification of jobs. We use quarterly data for the period 4Q 2019-2Q 2021 to evaluate changes in the employment structure in Slovak Republic. We have found that the largest decline in employment occurred in the following sectors: accommodation and food services, industrial production and transport and storage. In terms of job classification, the most significant changes were recorded in jobs within the areas of administration, sales, education and healthcare. On the contrary, the most significant negative changes occurred in the following jobs: waste disposal workers; vendors in shops; waiters, bartenders and sommeliers.*

Key words: *COVID-19 pandemic, employment, classification of economic activities SK NACE Rev.2, classification of occupation SK ISCO-08, Slovak Republic*

JEL Classification: *E24, J21, O15*

1. ÚVOD

Aj v roku 2021 čelí Slovensko, rovnako ako ekonomiky celého sveta, ekonomickým a spoločenským problémom, ktoré sú zapríčinené mohutným šírením ochorenia COVID-19. Po rozšírení ochorenia už v prvých mesiacoch roku 2020 mnoho štátov pristúpilo k vyhláseniu stavu núdze a zatvorilo svoje hranice, zaviedli sa prísne bezpečnostné opatrenia, zatvorili medzinárodné letiská a zároveň zastavila sa medzinárodná prepravua okrem zásobovania. Mnohé podniky museli zatvoriť svoje prevádzky, zastaviť výrobu a obmedziť

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služby obyvateľom. Po stabilizácii situácie v lete roku 2020 sa obnovila výroba a obmedzenia sa zmiernili. Avšak v druhej polovici roka 2020 opäť narastal počet nakazených a museli sa prijať nové obmedzenia, ktorých ekonomické aj sociálne dopady boli už miernejšie. Na jeseň 2021 s príchodom tretej vlny pandémie sa opätovne začali sprísňovať mnohé opatrenia, čo sa prejavilo aj na trhu práce.

Cieľom tohto príspevku je preskúmať a zhodnotiť zmeny v zamestnanosti, ktoré nastali v kontexte šírenia ochorenia COVID-19.

2. TEORETICKÉ VÝCHODISKÁ

Už v minulosti sa svet potýkal s mnohými náročnými situáciami, či už to boli vojny, revolúcie, alebo nákazlivé choroby, ktoré plne pretvorili spoločnosť aj politiku. Aj prebiehajúca pandémia COVID-19 bude mať vážne celosvetové dopady. (Ceylan et al., 2020)

Účinky pandémie COVID-19 pôsobia na mnohé oblasti života ľudí a podľa Wang a Flessa (2020), táto pandémia predstavuje jednu z najväčších medicínskych, sociálnych, ekonomických a politických výziev za posledné desaťročia. Sukharev (2020) upozorňuje, že súčasná pandemická situácia prestavuje vážnu hrozbu, ktorá si vyžaduje hlboké zmeny v ekonomickom živote ľudí a aktiváciu mikrobiologického a lekárskeho výskumu.

Výskyt COVID-19 a následné opatrenia na jeho obmedzenie boli náhlym a obrovským šokom pre verejný a súkromný život. Účinky tohto javu sú viditeľné vo všetkých aspektoch, počínajúc ekonomickým poklesom, až po nové sociálne výzvy, zmenené pracovné návyky, zníženú dopravu a spotrebu energie atď. (Römisch, 2020)

Pandémia sa nevyhla ani Slovensku a jej vypuknutie spôsobilo, že v polovici marca 2020 došlo cez vládne opatrenia k výrazným obmedzeniam a zásahom do fungovania ekonomiky s cieľom znížiť mobilitu a sociálny kontakt, a tým spomaliť šírenie choroby. Epidemické opatrenia mali svoje sociálne a ekonomické dopady (Uhlerová et al., 2020). V prvom štvrťroku 2020 došlo v dôsledku prijatých opatrení k nárastu nezamestnanosti, ktorý však nebol príliš výrazný, keďže vláda uľahčila prístup k nemocenskému a ošetrovnému a mnohé firmy umožnili svojim zamestnancom pracovať z domu, preto zamestnávatelia neboli nútení okamžite prepúšťať. Na druhej strane najviac postihnutí boli živnostníci, ktorí boli nútení na určité obdobie obmedziť svoje prevádzky. Nezamestnanosť podľa Výberového zisťovania pracovných síl rástla aj v 2. a 3. štvrťroku 2020, avšak v poslednom štvrťroku 2020 nezamestnanosť poklesla. A hoci v 1. štvrťroku 2021 sa nezamestnanosť mierne zvýšila, odvtedy dochádza k jej poklesu.

Opatrenia zamerané na spomalenie epidémie nezasiahli jednotlivé odvetvia rovnako. Najviac boli postihnuté odvetvia ako cestovný ruch (Antošová et al., 2020), letecká doprava a medzinárodná preprava tovarov (Gray, 2020, Sokol, Pataccini, 2020), narušené boli dodávateľské reťazce (Kerr, 2020, Larue, 2020). Pomerne stabilný bol obchod s poľnohospodárskymi a potravinárskymi výrobkami, avšak obmedzenia cezhraničného pohybu ľudí vedú k nedostatku sezónnej pracovnej sily. (Kerr, 2020). Naopak počas tohto obdobia bol zaznamenaný rozmach digitalizácie (Dannenberg et al., 2020) a rozvoj on-line nákupov (Goddard, 2020), čo pravdepodobne pretrvá aj po skončení pandemických obmedzení.

Nerovnomerne sa epidémia prejavila aj v samotných povolaniach. Ako uvádza Jankovič (2020), mnohé ekonomické odvetvia počas pandémie nemajú možnosť poskytovať svoj produkt alebo službu, ak je k tomu nutná fyzická koncentrácia zákazníkov, pričom ide najmä o povolania kaderník či kozmetik, praktický lekár, praktická sestra. Za najmenej rizikové povolania sú považované oblasti matematických či štatistických špecialistov a povolanie lesník či ťažba dreva.

Michálek (2021) upozorňuje na kontrast medzi veľkými stratami pracovných miest v ťažko postihnutých odvetviach (ako napr. ubytovacie a stravovacie služby, umenie a kultúra, činnosti reštaurácií a pohostinstiev, maloobchod a stavebníctvo) a pozitívnym rastom pracovných miest v niektorých sektoroch služieb (napr. informácie a komunikácie, poštové služby a služby kuriérov, finančné a poisťovacie služby a činnosti).

Ako už bolo uvedené, počas pandémie koronavírusu došlo k výraznému nárastu práce na diaľku. Jej rozvoj do značnej miery závisí od štruktúry zamestnanosti a sektorovej špecializácie. Zatiaľ čo mnohé vysokokvalifikované práce v oblasti znalostí a služieb náročných na IKT sa dali vykonávať doma, v poľnohospodárstve, výrobe a sektore služieb je takýchto pracovných miest veľmi málo (Espon, 2021).

Úlohou hospodárskej politiky by malo byť najmä zabezpečiť stabilitu príjmov ohrozených skupín a podporiť ich návrat do zamestnania po tom, čo sa zdravotná situácia na Slovensku stabilizuje. Medzi opatrenia, ktoré by pomohli dosiahnuť tieto ciele patrí schéma podpory skrátenej práce, rozšírenie podpory v nezamestnanosti, príspevky rodinám, ktoré ostali na OČR, či rozšírenie aktívnych politík trhu práce. Existuje riziko, že koronakríza povedie k trvalým štrukturálnym zmenám a nie všetci, ktorí stratili prácu, sa budú môcť zamestnať v pôvodnom type povolania. O to vyššia bude úloha rekvalifikačných programov a vzdelávania dospelých. (Dujava, Peciar, 2020)

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je preskúmať a zhodnotiť zmeny v štruktúre zamestnanosti v Slovenskej republike v kontexte šírenia pandémie COVID-19. Skúmame zmeny v štruktúre zamestnanosti v SR podľa ekonomických činností (klasifikácia SK NACE), a tiež podľa klasifikácie zamestnaní (SK ISCO-08) z hľadiska hlavných tried zamestnaní a tiež detailnejšie - z hľadiska jednotlivých skupín zamestnaní.

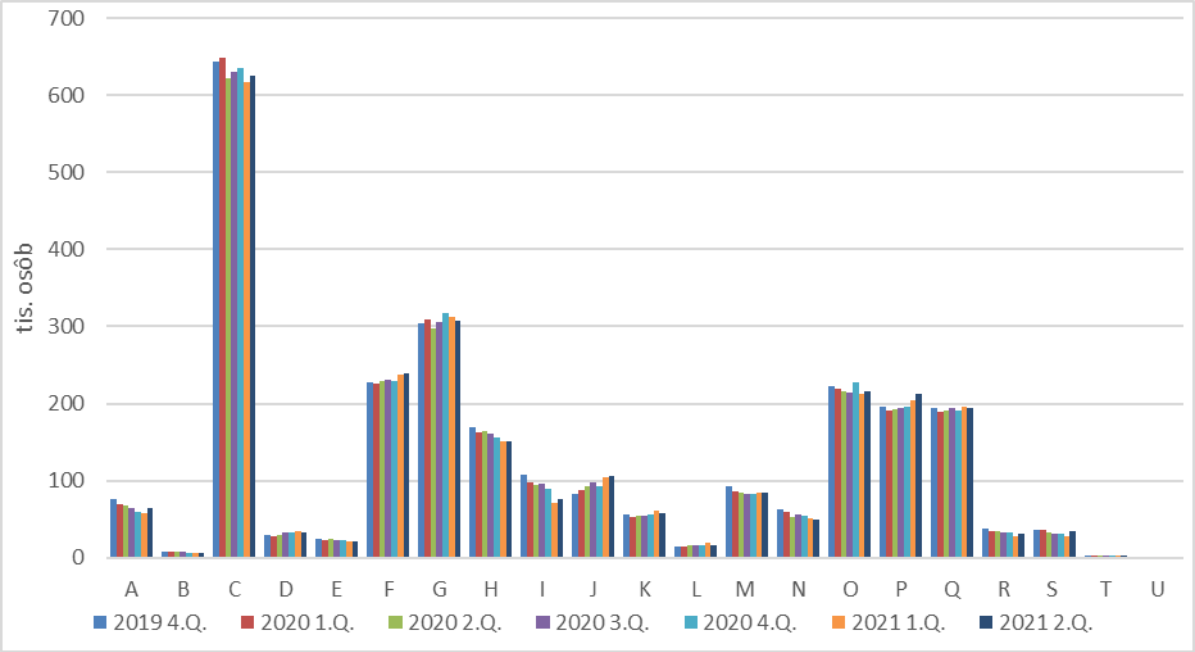
Na zhodnotenie zmien v štruktúre zamestnanosti v SR využívame štvrťročné údaje, pričom východiskovým obdobím je 4. štvrťrok 2019, zmeny sledujeme do 2. štvrťroku 2021. Údaje sme čerpali zo Štatistického úradu SR, databázy DataCube a výsledkov Výberového zisťovania pracovných síl za 4Q2019-2Q2021.

Na dosiahnutie stanoveného cieľa boli využité tieto metódy: analýza časového radu, komparácia a syntéza. Prepočítali sme aritmetický priemer, percentuálny podiel a absolútnu zmenu skúmaných ukazovateľov.

3. VÝSLEDKY A DISKUSIA

Pandémia ochorenia COVID-19, ktorá ovplyvnila ekonomickú aj sociálnu situáciu v celom svete, Slovensko nevynímajúc, zasiahla jednotlivé odvetvia s rôznou intenzitou. Na obrázku 1 je znázornený vývoj počtu zamestnaných v SR podľa jednotlivých odvetví na základe klasifikácie ekonomických činností SK NACE.

Obrázok 1. Počet zamestnaných v SR podľa klasifikácie ekonomických činností (v tis. osôb)



Zdroj: Štatistický úrad SR (2021a), vlastné spracovanie

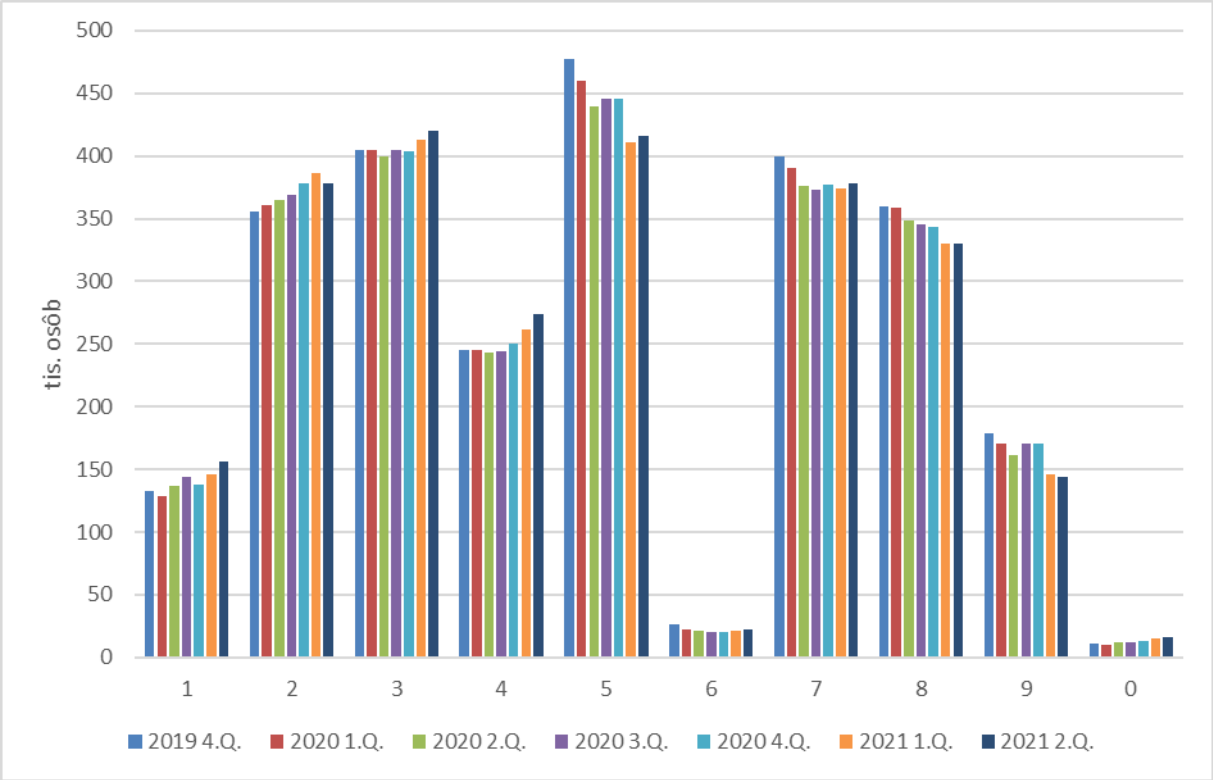
Vysvetlivky:

A Poľnohospodárstvo, lesníctvo a rybolov
B Ťažba a dobývanie
C Priemyselná výroba
D Dodávka elektriny, plynu, pary a studeného vzduchu
E Dodávka vody, čistenie a odvod odpadových vôd, odpady a služby odstraňovania odpadov
F Stavebníctvo
G Veľkoobchod a maloobchod; oprava motorových vozidiel a motocyklov
H Doprava a skladovanie
I Ubytovacie a stravovacie služby
J Informácie a komunikácia
K Finančné a poisťovacie činnosti
L Činnosti v oblasti nehnuteľností
M Odborné, vedecké a technické činnosti
N Administratívne a podporné služby
O Verejná správa a obrana; povinné sociálne zabezpečenie
P Vzdelávanie
Q Zdravotníctvo a sociálna pomoc
R Umenie, zábava a rekreácia
S Ostatné činnosti
T Činnosti domácností ako zamestnávateľov
U Činnosti extrateritoriálnych organizácií a združení

Na zamestnanosti v SR sa najviac podieľa priemyselná výroba. Počet zamestnaných v priemyselnej výrobe sa znížil v 2. štvrťroku 2020, v nasledujúcich dvoch štvrťrokoch kvôli stabilizácii situácie mierne narástol, a v 1. štvrťroku 2021 došlo k opätovnému poklesu zamestnanosti. Celkovo poklesol počet zamestnaných o 18,3 tis. osôb. Najviac však boli pandémiou zasiahnuté odvetvia: ubytovacie a stravovacie služby (pokles počtu zamestnaných o 30,9 tis. osôb), doprava a skladovanie (pokles počtu zamestnaných o 18,1 tis. osôb), administratívne a podporné služby (pokles počtu zamestnaných o 12,9 tis. osôb) a pôdohospodárstvo (pokles počtu zamestnaných o 11,7 tis. osôb). Naopak počas pandémie sa výrazne zvýšila zamestnanosť v odvetví Informácie a komunikácia (o 24,5 tis. osôb) a vzdelávanie (o 17,1 tis. osôb).

Štatistický úrad SR sleduje vývoj a štruktúru zamestnanosti aj podľa klasifikácie zamestnaní SK ISCO-08. Obrázok 2 znázorňuje vývoj počtu zamestnaných podľa hlavných tried zamestnaní.

Obrázok 2. Počet zamestnaných v SR podľa klasifikácie zamestnaní (v tis. osôb)



Zdroj: Štatistický úrad SR (2021a), vlastné spracovanie

Vysvetlivky:

1 Zákonodarcovia, riadiaci pracovníci	6 Kvalifikovaní pracovníci v poľnohospodárstve, lesníctve a rybárstve
2 Špecialisti	7 Kvalifikovaní pracovníci a remeselníci
3 Technici a odborní pracovníci	8 Operátori a montéri strojov a zariadení
4 Administratívni pracovníci	9 Pomocníci a nekvalifikovaní pracovníci
5 Pracovníci v službách a v obchode	0 Príslušníci ozbrojených síl

Aj na jednotlivé triedy zamestnaní pandémia vplývala odlišne. Počet zamestnaných v službách a obchode sa znížil najvýraznejšie, o 61,5 tis. osôb, čím sa podiel tejto triedy na celkovej zamestnanosti znížil o 2,02 p.b. na 16,40%. Podobne nepriaznivo pandémia zasiahla zamestnanosť pomocných a nekvalifikovaných pracovníkov, keď ich počet poklesol o 34,3 tis. osôb a ich percentuálny podiel na zamestnanosti poklesol o 1,2 p.b. na 5,68%. O takmer 30 tis. sa znížil počet zamestnaných operátorov a montérov strojov a zariadení, znížil sa aj počet kvalifikovaných pracovníkov a remeselníkov o 21,8 tis.

Naopak zvýšil sa počet zamestnaných v triedach 1-4, teda v zamestnaniach, ktoré vyžadujú vyššiu úroveň vzdelania. Počet administratívnych pracovníkov sa v sledovanom období zvýšil o 28,6 tis., počet zákonodarcov a riadiacich pracovníkov o 23,5 tis.

Hoci koncom roka 2019 najviac zamestnaných pracovalo v triede 5 (pracovníci v službách a obchode), v 2. štvrťroku 2021 už bolo najviac zamestnaných v triede 3 (technici a odborní pracovníci), keď ich podiel na celkovom počte zamestnaných dosiahol 16,55%.

V nasledujúcej časti sa zameriame na detailnejšiu analýzu zamestnanosti podľa klasifikácie zamestnaní, pričom budeme skúmať zmeny v počte zamestnaných v jednotlivých skupinách zamestnaní. V tabuľke 1 uvádzame počet zamestnaných v najpočetnejších skupinách zamestnaní v SR v 2. štvrťroku 2021, pričom ich porovnávame s priemernými hodnotami zamestnanosti za celé sledované obdobie.

Tabuľka 1. Najpočetnejšie skupiny zamestnaní v SR

Priemer 4Q/2019-2Q/2021		2Q/2021	
Skupina zamestnania	Počet zamestnaných (v tis. osôb)	Skupina zamestnania	Počet zamestnaných (v tis. osôb)
522 Predavači v obchodoch	144,7	522 Predavači v obchodoch	128,5
821 Montážni pracovníci	93,1	821 Montážni pracovníci	101,1
833 Vodiči motorových vozidiel	73,8	833 Vodiči motorových vozidiel	68,6
234 Učitelia v zákl.školách a v predškols. zariadeniach	73,0	234 Učitelia v zákl.školách a v predškols.zariadeniach	73,9
311 Technici vo fyzikálnych a technických vedách	72,2	311 Technici vo fyzikálnych a technických vedách	71,7
432 Administratívni pracovníci v skladoch a doprave	71,2	432 Administratívni pracovníci v skladoch a doprave	75,6
711 Kvalif.stavební pracovníci a remeselníci	70,3	711 Kvalif.stavební pracovníci a remeselníci	70,5
411 Všeobecní administratívni pracovníci	68,2	411 Všeobecní administratívni pracovníci	72,9
541 Prac.verejnej ochrany a bezpečnostných služieb	63,7	541 Prac.verejnej ochrany a bezpečnostných služieb	61,8
722 Kováči, nástrojári, zámočníci a podobní prac.	57,5	722 Kováči, nástrojári, zámočníci a podobní prac.	57,0
322 Odb.prac.v ošetrovateľstve a pôrodníctve	54,3	532 Prac. v oblasti osobnej zdravotnej starostlivosti	58,2
532 Prac.v oblasti osobnej zdravotnej starostlivosti	54,3	322 Odb. prac. v ošetrovateľstve a pôrodníctve	45,4
431 Administratívni pracovníci na záznam číselných údajov	47,0	431 Administratívni pracovníci na záznam číselných údajov	53,4

Zdroj: Štatistický úrad SR (2021b), vlastné spracovanie, vlastné prepočty

Z tabuľky 1 je zrejmé, že najväčší počet zamestnaných pracuje v skupine povolaní 522 – Predavači v obchodoch. Ich počet sa však v sledovanom období znižuje, rovnako ako počet vodičov motorových vozidiel a počet pracovníkov v oblasti osobnej zdravotnej starostlivosti.

Zvyšuje sa počet montážnych pracovníkov, administratívnych pracovníkov v skladoch a doprave a počet všeobecných administratívnych pracovníkov a administratívnych pracovníkov na záznam číselných údajov.

Ďalej sa zameriame na zistenie toho, ktoré skupiny zamestnaní boli pandémiou COVID-19 najviac ovplyvnené. V tabuľke 2 uvádzame skupiny zamestnaní s najvýraznejšími zmenami v období trvania pandémie COVID-19.

Tabuľka 2. Skupiny zamestnaní s najvýraznejšími zmenami v období 4Q/2019 – 2Q/2021

Najväčší prírastok počtu zamestnaných		Najväčší úbytok počtu zamestnaných	
Skupina zamestnania	Prírastok (v tis. osôb)	Skupina zamestnania	Úbytok (v tis. osôb)
431 Administratívni pracovníci na záznam číselných údajov	13,6	961 Pracovníci pri likvidácii odpadu	-24,1
334 Odborní asistenti v administratíve	11,4	522 Predavači v obchodoch	-18,9
524 Ostatní pracovníci v oblasti predaja	8,0	513 Čašníci, barmani a someliéri	-18,6
233 Učitelia v stredných školách	5,7	532 Prac. v oblasti osobnej zdravotnej starostlivosti	-16,4
226 Ostatní špecialisti v zdravotníctve	6,6	512 Kuchári (okrem šéfkuchárov)	-13,1
121 Riadiaci prac. admin. a podporných činností	5,3	911 Upratovači v domácnostiach,hoteloch a úradoch	-9,6
432 Administratívni pracovníci v skladoch a doprave	6,5	541 Prac.verejnej ochrany a bezpečnostných služieb	-9,3
962 Ostatní pomocní pracovníci	8,0	834 Operátori pojazdných strojových zariadení	-9,3
143 Riadiaci prac.v ost. službách (šport,kultúra)	6,7	751 Spracovatelia a výrobcovia potravinárskych výrobkov	-8,2
741 Montéri a opravári elektrických prístrojov	5,4	723 Mechanici a opravári strojov	-7,9

Zdroj: Štatistický úrad SR, vlastné spracovanie, vlastné prepočty

Počas pandémie COVID-19 sa najviac zvýšil počet zamestnaných v oblasti administratívy, predaja, školstva a zdravotníctva. Došlo aj k zvýšeniu počtu ostatných pomocných pracovníkov a montérov a opravárov elektrických prístrojov. Naopak najviac poklesol počet zamestnaných pracovníkov pri likvidácii odpadu (o viac ako 24 tisíc osôb), ďalej počet predavačov a čašníkov a barmanov, kuchárov a upratovačov.

4. ZÁVER

Rozšírenie ochorenia COVID-19 do celého sveta negatívne ovplyvnilo ekonomickú aj sociálnu situáciu vo svete, a malo dopady na rôzne oblasti života jednotlivcov a celej spoločnosti. Opatrenia zamerané na spomalenie šírenia ochorenia ovplyvnili aj úroveň a štruktúru zamestnanosti v SR. Jednotlivé odvetvia (ekonomické činnosti) a zamestnania (povolania) boli pandémiou zasiahnuté s rôznou intenzitou.

Z hľadiska klasifikácie ekonomických činností boli pandémiou zasiahnuté najmä odvetvia: ubytovacie a stravovacie služby (pokles počtu zamestnaných o 30,9 tis. osôb), priemyselná výroba (pokles o 18,3 tis. osôb), doprava a skladovanie (pokles o 18,1 tis. osôb), administratívne a podporné služby a pôdohospodárstvo. Naopak počas pandémie sa výrazne zvýšila zamestnanosť v odvetví Informácie a komunikácia (o 24,5 tis. osôb) a vzdelávanie (o 17,1 tis. osôb).

Z hľadiska klasifikácie zamestnaní sa najvýraznejšie znížil počet zamestnaných v službách a obchode (o 61,5 tis. osôb), počet pomocných a nekvalifikovaných pracovníkov (o 34,3 tis. osôb, výrazne sa znížil aj počet operátorov a montérov strojov a zariadení a kvalifikovaných pracovníkov a remeselníkov. Naopak zvýšil sa počet administratívnych pracovníkov a zákonodarcov a riadiacich pracovníkov.

Pri skúmaní jednotlivých skupín zamestnaní sme zistili, že počas pandémie COVID-19 sa najviac zvýšil počet zamestnaných v oblasti administratívy, predaja, školstva a zdravotníctva a najviac poklesol počet zamestnaných pracovníkov pri likvidácii odpadu, predavačov a čašníkov a barmanov, kuchárov a upratovačov.

Ekonomická recesia, ktorá bola spustená pandémiou COVID-19 spôsobila prudké zvýšenie nezamestnanosti v extrémne krátkom čase. Z prvých výsledkov je zrejmé, že trh práce veľmi citlivo reaguje práve na opatrenia prijaté s cieľom zamedziť šíreniu choroby. Táto situácia v rámci zamestnanosti však dala priestor pre rozvoj v takých oblastiach zamestnania, ktoré využívajú hlavne znalosti informačných a komunikačných technológií a tiež využívanie nového pracovného režimu cez vykonávania práce na diaľku, čiže home office.

Dodatok

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

LITERATÚRA

[1] Antošová, G., Vogl, M. & Schraud, M. (2020). Challenges for the Visegrad group – the coronavirus crises and its impact on tourism. *Visegrad Journal on Bioeconomy and Sustainable Development*, voll. 9, iss. 1, pp. 28–32, https://doi.org/10.2478/vjbsd-2020-0006.

[2] Ceylan, R.F., Ozkan, B. & Mulazimogullari, E. (2020). Historical evidence for economic effects of COVID‐19. *The European Journal of Health Economics*, vol. 21, pp. 817–823. https://doi.org/10.1007/s10198-020-01206-8.

[3] Dannenberg, P., Fuchs, M., Riedler, T. & Wiedemann, C. (2020). Digital transition by COVID-19 pandemic? The German food online retail. *Tijdschrift voor Economische en Sociale Geografie* 2020, vol. 111, pp. 543–560. https://doi.org/10.1111/tesg.12453.

[4] Dujava, D., & Peciar, V. (2020). *Trh práce v karanténe. Vplyv koronakrízy na trh práce na Slovensku.* Bratislava: Inštitút finančnej politiky, Ministerstvo financií SR.

[5] ESPON. (2021). *Employ Slovakia. Final report*. ISBN 978-2-919816-00-2. https://www.espon.eu/sites/default/files/attachments/EMPLOY-Slovakia.pdf

[6] Goddard, E. (2020). The impact of COVID-19 on food retail and food service in Canada: Preliminary assessment. *Canadian Journal of Agricultural Economics*, vol. 68, iss. 2, pp. 157–161. https://doi.org/10.1111/cjag.12243.

[7] Gray, R.S. (2020). Agriculture, transportation, and the COVID-19 crisis. *Canadian Journal of Agricultural Economics*, vol. 68, iss. 2, pp. 239–243. https://doi.org/10.1111/cjag.12235.

[8] Jankovič, P. (2020). Nerovnomerné dopady pandémie a nerovný prístup k digitálnym riešeniam. *Monitor hospodárskej politiky*, 2, 3–7.

[9] Kerr, W.A. (2020). The COVID-19 pandemic and agriculture: Short- and long-run implications for international trade relations. *Canadian Journal of Agricultural Economics*, vol. 68, iss. 2, pp. 225–229. https://doi.org/10.1111/cjag.12230.

[10] Larue, B. (2020). Labor issues and COVID-19. *Canadian Journal of Agricultural Economics, vol.* 68, iss. 2, pp. 231–237. https://doi.org/10.1111/cjag.12233.

[11] Michálek, A. (2021). Nezamestnanosť obyvateľstva počas pandémie Covid-19 na Slovensku v roku 2020. *ACTA GEOGRAPHICA UNIVERSITATIS COMENIANAE*, vol. 65, iss. 1, pp. 23–42. http://actageographica.sk/stiahnutie/65_1_02_Michalek.pdf.

[12] Römisch, R. (2020). *Covid-19 effects on Central Europe.* https://www.interreg-central.eu/Content.Node/discover/Covid-19-effects-on-Central-Europe.pdf.

[13] Sokol, M. & Pataccini, L. (2020). Winners and losers in coronavirus times: financialisation, financial chains and emerging economic geographies of the Covid-19 pandemic. *Tijdschrift voor Economische en Sociale Geografie* – 2020, vol. 111, iss. 3, pp. 401–415. https://doi.org/10.1111/tesg.12433.

[14] Štatistický úrad SR. (2021a). *DataCube*. Dostupné na: http://datacube.statistics.sk/.

[15] Štatistický úrad SR. (2021b). *Výsledky výberového zisťovania pracovných síl v SR*. Dostupné na: www.slovak.statistics.sk.

[16] Sukharev, O.S. (2020). Economic crisis as a consequence Covid-19 virus attack: risk and damage assessment. *Quantitative Finance and Economics*, 2020, 4(2), 274-293. https://doi.org/10.3934/QFE.2020013.

[17] Uhlerová, M., Švec, M. & Homer, Z. (2020). *Odbory 2020: Výzvy v čase krízy*. Bratislava: Friedrich Ebert Stiftung, 108 s. ISBN 978-80-89149-92-6.

[18] Wang, M. & Flessa, S. (2020). Modelling Covid‐19 under uncertainty: what can we expect? *The European Journal of Health Economics*, vol. 21, pp. 665–668. https://doi.org/10.1007/s10198-020-01202-y.

ZRUČNOSTI A SCHOPNOSTI ZAMESTNANCA V DIGITÁLNEJ EKONOMIKE

EMPLOYEE SKILLS AND ABILITIES IN DIGITAL ECONOMY

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Abstrakt: *Východiská: Digitalizácia ekonomiky vytvára nielen nové pracovné pozície a povolania ale aj nové zručnosti pre výkon zamestnania. Zamestnaci budú musieť byť ochotní a schopní sa ďalej vzdelávať a nadobúdať nové zručnosti. Cieľ a úlohy: Hlavným cieľom je zistiť úroveň zručností a schopností zamestnancov potrebných v digitálnych podnikoch. Na dosiahnutie cieľa sme identifikovali nasledovnú úohu: zistiť, aká je úroveň zručností a schopností obyvateľov SR potrebných pre prácu s novými technológiami, prípadne inými procesmi využívanými v digitálnych podnikoch. Výskumné metódy: Výskumné metódy, ktoré sú použité v príspevku patria medzi všeobecné teoretické metódy vedeckého poznania – indukcia, dedukcia, analýza, syntéza dostupných bibliografických zdrojov, vedecká abstrakcia pre zovšeobecnenie výsledkov. Ďalej sme vykonali prognózu a vypočítali sme hornú a dolnú hranicu spoľahlivosti prognózy. Výsledky: Našim zistením bolo, že v priebehu sledovaného obdobia bol zaznamenaný len veľmi malý nárast obyvateľov Slovenska s potrebnými zručnosťami a schopnosťami.*

Kľúčové slová: *digitálna ekonomika, schopnosť, zamestnanec, zručnosť*

Abstract: *Background: The digitization of the economy creates not only new job positions and occupations but also new skills for job performance.. Employees will need to be willing and able to learn and to acquire new skills.Purpose and tasks: The main purpose to determine the level of skills and abilities of employees needed in digital companies. Following tasks have been specified for the realization of our purpose: to find out what is the level of skills and abilities of the population of the Slovak Republic needed to work with new technologies or other processes used in digital companies. Research methods: Research methods used in the paper: theoretical general methods of scientific knowledge – induction, deduction, analysis, synthesis of available bibliographic references, scientific abstraction for generalization of the results. Next, we performed a forecast and calculated the upper and lower confidence limits of the forecast. Results: Our finding was that during the observed period there was only a very small increase in the population of Slovakia with the necessary skills and abilities.*

Key words: *digital economy, ability, employee, skill*

JEL Classification: *O33; M51; M52*

1. ÚVOD

Vplyvom digitalizácie ekonomiky nevznikajú len nové pracovné pozície a povolania, ale aj nové zručnosti potrebné pre výkon zamestnania. Niektoré zručnosti zaniknú a budú nahradené novými a iné nebudú ovplyvnené automatizáciou a aj napriek tomu budú veľmi dôležité. Technologický pokrok je nemysliteľný bez dostatočnej ponuky zodpovedajúcej

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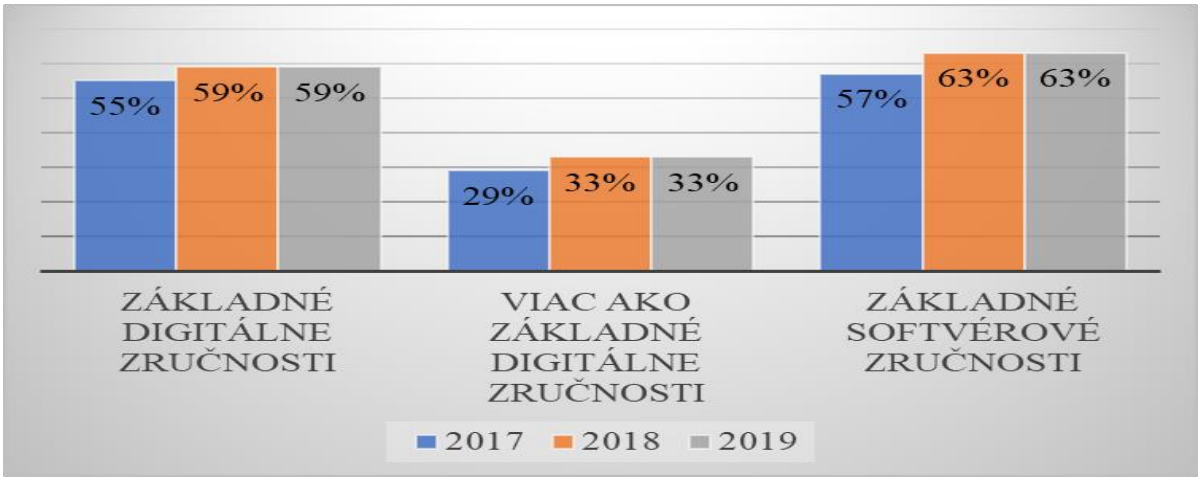
kvalifikovanej pracovnej sily. Rozhodujúci prínos k technologickému rozvoju možno očakávať najmä od pracovnej sily s terciárnym vzdelaním technického smeru, aj keď zastúpenie osôb s ostatnými odbormi vzdelania, najmä prírodovednými a manažérskymi je nemenej dôležité (Bunček a kol., 2016). V dnešnom ponímaní je digitálne gramotný taký človek, ktorý napríklad rozumie programovaniu a dokáže využívať digitálne technológie pre osobný rozvoj (Serfín, 2019, s 152). Empirický výskum na zisťovanie potrebných zručností výrobných pracovníkov a manažérov v inteligentných výrobách zistil, že medzi najviac potrebnú zručnosť zaradili obe skupiny respondentov kritické myslenie. Nasledujúce najviac potrebné a používané zručnosti sú schopnosť komunikovať, tímová práca, tvorivosť, schopnosť hľadania rôznych riešení a možností, digitálne zručnosti a podobne. Podľa Karbacha a kol. (2019) je dôležité, aby si zamestnanci uvedomili potrebu ovládať tieto zručnosti, aby naďalej mohli svoju prácu vykonávať v súlade s aktuálnymi potrebami a trendami v podnikoch. Každý zamestnanec by mal dbať na celoživotné vzdelávanie a vnímať ho ako zdroj získavania nových dôležitých informácií. Rovnaký názor na potrebné zručnosti ako výsledky zistené empirickým výskumom spomenutého vyššie majú aj Masárová a kol. (2018), ktorí tvrdia, že okrem schopnosti komunikácie ako takej a komunikácie so strojmi a robotmi, budú významné aj IT zručnosti, IT bezpečnosť, analyzovanie získaných dát a informácií, ochrana osobných údajov, schopnosť adaptácie na nové zmeny a ďalšie. Vzhľadom na meniace sa požiadavky na ľudské zdroje sa menia aj postavenia jednotlivých profesií. Pričom niektoré sa stanú nepotrebnými, podľa Záležákovej (2018) budú najviac ohrozené profesijné skupiny ľudí s nedostatočnými digitálnymi zručnosťami, zamestnanci starší ako 50 rokov alebo profesie ľahko nahraditeľné strojmi. Trh práce bude hľadať najmä zamestnancov s technickým vedomosťami, pretože novovzniknuté profesie budú vyžadovať kreatívne myslenie, ktorými disponujú vývojári systémov alebo aplikácií alebo zručnosti využiteľné pri nastavovaní a práci s robotmi alebo procesmi. Záležáková (2018) ďalej hovorí o „revolúcií zručností“, ktorá úplne mení pohľad a hodnotu zručností ľudí a upozorňuje na potrebu a dôležitosť zamestnancov, ktorí disponujú vysokým stupňom učenlivosti. Znamená to, že zamestnanci budú ochotní a schopní naďalej sa vzdelávať a nadobúdať nové zručnosti. Je veľmi dôležité rozvíjať zručnosti a nadobúdať vedomosti vzdelávaním, pretože tieto schopnosti a kreatívne myslenie nie sú nahraditeľné umelou inteligenciou. V dôsledku nedostatočne kvalifikovaných pracovných síl vzniká nerovnováha medzi dopytom a ponukou. Kvalifikovaní zamestnanci sú dôležití, aby jednotlivé podniky dokázali udržať krok s prebiehajúcou digitalizáciou. V magazíne Industry4 (2021) sa spomína, že okrem IT pracovníkov alebo vývojárov budú dôležité mäkké zručnosti ako sú riadiace, komunikačné, vodcovské a adaptačné schopnosti. Definovali aj pracovné pozície, ktoré vzniknú v dôsledku digitalizácie ako napríklad inžinier pre digitálnu výrobu, etik pre digitalizáciu, špecialista na systémy virtuálnej reality, špecialista na virtuálne simulácie, stratég pre kyberbezpečnosť výroby (Industry4, 2021) a ďalšie iné.

Podľa Karla Erika Sveibyho ľudský kapitál ako zručnosti a schopnosti ľudských zdrojov, vyplýva z intelektuálneho kapitálu spolu s štruktúrnym, kde sa zaraďujú rôzne licencie a softvéry a zákazníckym kapitálom, ktorý pozostáva z lojality a dobrých vzťahov so zákazníkmi. Na Grafe 1 môžeme vidieť rast ľudského kapitálu v rokoch 2017 až 2019 obyvateľov SR. Základné digitálne zručnosti v roku 2019 oproti roku 2017 narástli o 4%. Čo sa týka viac ako základných digitálnych zručností, vzrástli v roku 2019 o 4% oproti roku 2017. Najvyššie zaznamenané percentuálne vyjadrenie sa týka základných softvérových zručností, ktoré v roku 2017 dosahovali 57% a v roku 2019 63%, teda vzrástli o 6%, čo znamená najvyšší nárast v skúmaných 3 kategóriách zručností za sledované obdobie.

Graf 1. Ľudský kapitál obyvateľstva SR v rokoch 2017 – 2019 (v %)

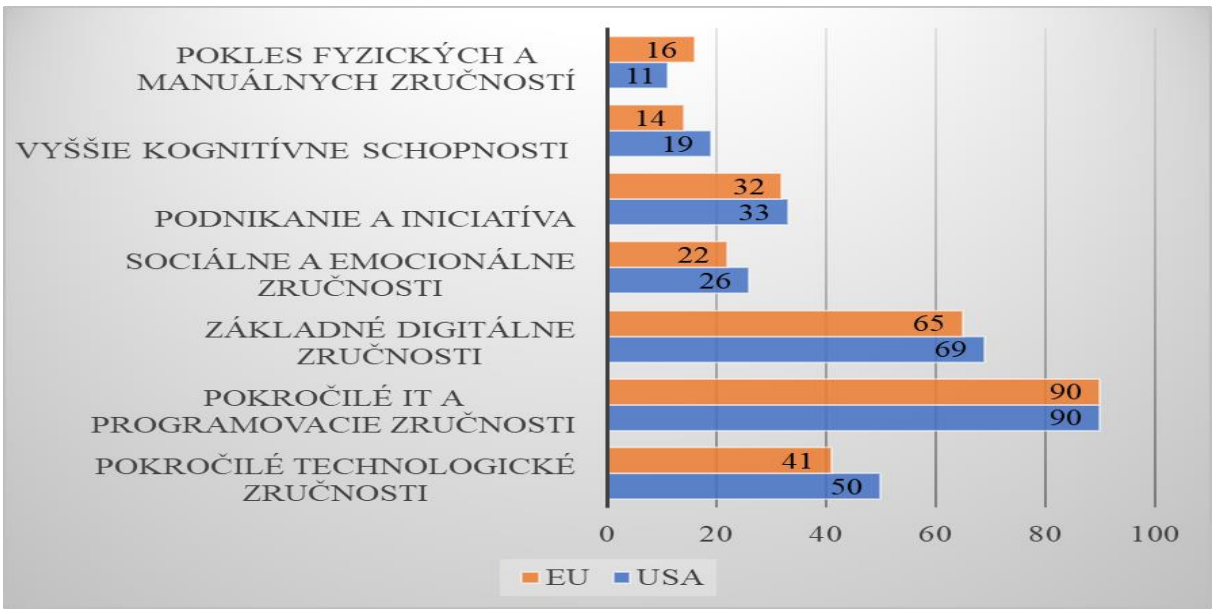


Zdroj: DESI, 2021

Spoločnosti budú klásť dôraz na praktické skúsenosti, vzdelanie v oblasti softvérov a informačných technológií a hlavne na odborné vzdelanie. Okrem IT zručností a technického vzdelania budú potrebné skúsenosti v komunikácií, ovládanie cudzích jazykov a hodnôt daných kultúr, schopnosť pracovať v tíme, angažovanosť v elektronických platformách a virtuálna spolupráca. Zamestnanci by mali byť kreatívni a spoľahliví a mali by byť ochotní neustále sa vzdelávať. Okrem vyššie spomenutých nárokov na zamestnanca bude dôležitá aj digitálna gramotnosť, ktorej základy nadobúdame používaním smartfónov, notebookov alebo priamo v škole. Zo vzniku nových zariadení vyplýva potreba profesií, ktoré sa budú starať o ich aktualizáciu, softvér a samotnú údržbu. Podľa Univerzity Minho (2016) v budúcnosti budú potrebné aj iné zručnosti, ktoré nie je možné zautomatizovať. Pre používanie virtuálnej platformy, ktorá bude využívaná medzi pracovníkmi, ktorí sú od seba vzdialení, bude potrebné disponovať zručnosťami, ako interpretácia vlastných myšlienok a sociálna inteligencia, a tak vzniká potreba stáleho vnímania ľudí ako vzájomného prepájania sa s organizáciou. V najbližších rokoch sa stanú sociálne médiá novými pracovnými nástrojmi a zamestnanci budú musieť vedieť komunikovať pomocou technológií so zákazníkmi alebo kolegami online formou. Zamestnanci budúcnosti by mali vedieť ovládať aj výpočtové zručnosti potrebné pri vývoji technológií, rozumieť dostupným dátam a vedieť vyhodnotiť ich absenciu a využívať interkultúrne zručnosti pri spoznávaní nových ľudí, oboznamovaní sa so zahraničnými hodnotami a kultúrami, čo bude v budúcnosti pre zamestnanca pridanou hodnotou. Organizácie by sa mali zamerať na skúsenosti a schopnosti viac než na vyštudovanú školu alebo pozíciu v životopise (RUZ, 2017). Poznatky získané v predošlých zamestnaniach majú niekedy vyššiu hodnotu ako vedomosti nadobudnuté vzdelávaním, nakoľko nie všetky zručnosti potrebné pre konkrétnu pozíciu je možné získať formálnym vzdelaním, ale iba činnosťou.

Graf 2 nám znázorňuje výsledky výskumu spoločnosti McKinsey, v ktorom zisťovali ako sa zmení dopyt po pracovnej sile v priebehu rokov 2016 až 2030 v USA a EÚ. Nakoľko sa technológie neustále integrujú a stávajú sa inteligentnejšími, mení sa aj pracovisko a v dôsledku toho sa menia aj požadované zručnosti zamestnancov. Najväčší rast dopytu sa očakáva po pokročilých IT a programovacích zručnostiach v rovnakej miere v USA a EÚ. Naopak najnižší rast dopytu v USA a v EÚ bude po fyzických a manuálnych zručnostiach a po vyšších kognitívnych schopnostiach, kde sa zaraďuje najmä kreativita, kritické myslenie a schopnosť vedieť rozhodovať.

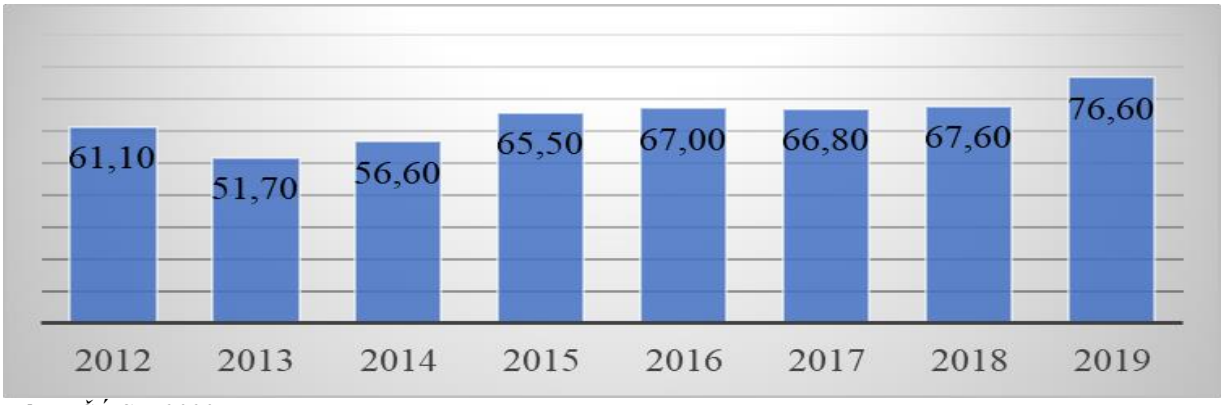
Graf 2. Dopyt po zručnostiach a schopnostiach v USA a v EÚ za obdobie 2016 – 2030 (v %)



Zdroj: McKinsey Company, 2021

V grafe 3 znázorňujúcom počet zamestnancov v sektore Informácie a komunikácia v rokoch 2012 – 2019 môžeme vidieť rastúcu tendenciu. Najmenej zamestnaných v skúmanom sektore je zaznamenaných v roku 2013 vo výške 51,7% a naopak najvyšší počet zamestnancov bol v roku 2019, a to 76,6%.

Graf 3. Zamestnanosť v sektore Informácie a komunikácia obyvateľstva SR 2012 – 2019 (v %)



Zdroj: ŠÚ SR, 2020

2. CIEĽ A METODOLÓGIA

Hlavným cieľom v predloženom príspevku autormi je zistiť úroveň zručností a schopností zamestnancov potrebných v digitálnych podnikoch. Na dosiahnutie cieľa autori identifikovali nasledovnú úlohu: zistiť, aká je úroveň zručností a schopností obyvateľov Slovenskej republiky potrebných pre prácu s novými technológiami, prípadne inými procesmi využívanými v digitálnych podnikoch. Autori predloženého príspevku pracovali s nasledujúcimi všeobecnými teoretickými metódami vedeckého poznania – indukcia, dedukcia, analýza, syntéza dostupných bibliografických zdrojov, vedecká abstrakcia pre zovšeobecnenie výsledkov. Ďalej autori vykonali prognózu a vypočítali hornú a dolnú hranicu spoľahlivosti prognózy.

3. RIEŠENIE PROBLÉMU / VÝSLEDKY / DISKUSIA

Údaje o vývoji jednotlivých zručností a schopností je zaznamenaný v Tabuľke 1, pričom údaje z roku 2018 neboli zverejnené. Schopnosti obyvateľov SR pozostávajú z dvoch kategórií, a to informačné schopnosti a komunikačné schopnosti. Zručnosti obyvateľovv SR sú rozdelené na zručnosti v riešení problémov, softvérové zručnosti a digitálne zručnosti. Rozdiel medzi zručnosťami a schopnosťami obyvateľov Slovenska medzi rokmi 2015 a 2019 je zaznamenaný v poslednom stĺpci, podľa ktorého môžeme ľahšie spozorovať, ako sa skúmané ukazovatele vyvíjali.

Tabuľka 1. Vývoj jednotlivých zručností a schopností obyvateľstva SR 2015 – 2019 (v %)

Zručnosti a schopnosti	**2015**	**2016**	**2017**	**2018**	**2019**	**Rozdiel (2015 – 2019)**
základné informačné schopnosti	10	10	9	-	10	0
vyššie základné informačné schopnosti	66	67	69	-	70	4
základné komunikačné schopnosti	15	15	14	-	14	-1
vyššie základné komunikačné schopnosti	59	62	64	-	65	6
základné zručnosti v riešení problémov	17	18	17	-	17	0
vyššie základné zručnosti v riešení problémov	50	53	57	-	59	9
základné softvérové zručnosti	23	22	22	-	23	0
vyššie základné softvérové zručnosti	34	35	41	-	32	-2
nízke digitálne zručnosti	24	25	22	-	29	5
základné digitálne zručnosti	27	26	26	-	27	0
vyššie základné digitálne zručnosti	26	29	33	-	27	1

Zdroj: Eurostat, vlastné spracovanie, 2021

V tabuľke 1 bol v prípade schopností obyvateľov SR zaznamenaný najväčší rozdiel oproti roku 2015 pri obyvateľoch s vyššími základnými komunikačnými schopnosťami, pričom sa počet obyvateľov SR oproti roku 2015 zvýšili o 6%. Naopak pokles o 1% v roku 2019 oproti roku 2015 bol zaznamenaný u obyvateľov SR so základnými komunikačnými schopnosťami

a nezmenený stav nastal u obyvateľoch SR so základnými informačnými schopnosťami. V kategórií zručností obyvateľov SR bol zaznamenaný najväčší nárast počtu obyvateľov s vyššími základnými zručnosťami v riešení problémov, a to o 9% obyvateľov. Menší nárast je možné vidieť pri obyvateľoch SR s nízkymi digitálnymi zručnosťami, ktorých počet sa od roku 2015 do roku 2019 zvýšil o 5%. Naopak o 2% sa znížil počet obyvateľov SR s vyššími základnými softvérovými zručnosťami a nezmenený stav údajov za obdobie 2015 – 2019 bol zaznamenaný pri obyvateľoch SR so základnými zručnosťami v riešení problémov, so základnými softvérovými zručnosťami a pri obyvateľoch SR so základnými digitálnymi zručnosťami.

Okrem vývoja jednotlivých zručností a schopností obyvateľov Slovenska do roku 2019, nás zaujímal aj ich samotný vývoj do budúcnosti. Pre vytvorenie ich vývoja v budúcnosti sme použili prognózu do roku 2022, ktorá je zobrazená v nasledujúcej tabuľke 2.

Tabuľka 2. Prognóza zručností a schopností obyvateľov SR v rokoch 2020 – 2022 (v %)

Zručnosti a schopnosti	Štatistické údaje				Prognóza			
	2015	2016	2017	2018	2019	2020	2021	2022
základné informačné schopnosti	10	10	9	-	10	9,80	9,79	9,78
vyššie základné informačné schopnosti	66	67	69	-	70	71,20	72,21	73,22
základné komunikačné schopnosti	15	15	14	-	14	13,61	13,33	13,05
vyššie základné komunikačné schopnosti	59	62	64	-	65	66,87	68,25	69,64
základné zručnosti v riešení problémov	17	18	17	-	17	16,89	15,78	16,43
vyššie základné zručnosti v riešení problémov	50	53	57	-	59	61,84	64,05	66,26
základné softvérové zručnosti	23	22	22	-	23	22,84	22,93	23,01
vyššie základné softvérové zručnosti	34	35	41	-	32	33,39	32,85	32,30
nízke digitálne zručnosti	24	25	22	-	29	29,08	30,30	31,52
základné digitálne zručnosti	27	26	26	-	27	26,84	26,93	27,01
vyššie základné digitálne zručnosti	26	29	33	-	27	28,70	28,77	28,84

Zdroj: Eurostat, vlastné spracovanie, 2021

Prognózu jednotlivých zručností a schopností obyvateľov Slovenska od roku 2020 do roku 2022, znázorňuje Tabuľka 2. Najväčší predpokladaný nárast od roku 2019 do roku 2022 je viditeľný u obyvateľov s vyššími základnými zručnosťami v riešení problémov, kde predpokladaný počet v roku 2022 vzrastie o 7,26%. Druhý najväčší predpokladaný nárast sa týka vyšších základných komunikačných zručností ľudí, ktorých nárast do roku 2022 sa predpokladá o 4,64% a predpokladá sa aj nárast vyšších informačných schopností obyvateľov o 3,22%. V prípade najväčšieho poklesu zručností a schopností obyvateľov od roku 2019 do roku 2022, je zaznamenaný pri základných komunikačných schopnostiach, a to vo výške 0,95%, za ktorým nasleduje pokles o 0,57% základných zručností v riešení problémov a pokles o 0,22% pri základných informačných schopnostiach. V prípade rozdelenia spomenutých zručností a schopností v Tabuľke 2 na jednotlivé kategórie, analýza prognózy údajov je nasledovná. Do roku 2022 vzrastú vyššie základné informačné schopnosti o 3,22% a predpokladaný pokles sa týka základných informačných schopností o 0,22%. V kategórií

komunikačných schopností vzrastú do konca sledovaného obdobia vyššie základné komunikačné schopnosti o 4,64% a pravdepodobne poklesnú základné komunikačné schopnosti o 0,95% oproti roku 2019. Počet ľudí s vyššími základnými zručnosťami v riešení problémov do roku 2022 sa zvýši o 7,26% a o 0,57% sa zníži počet obyvateľov so základnými zručnosťami v oblasti riešenia problémov. V kategórií ľudí so softvérovými zručnosťami bol zaznamenaný nárast obyvateľov, pri základných softvérových zručnostiach o 0,01% a v prípade počtu obyvateľov s vyššími základnými softvérovými zručnosťami v roku 2020 predpokladá nárast o 0,3%. Kategória obyvateľov s digitálnymi zručnosťami takisto zaznamenala iba predpokladaný nárast počtu obyvateľov, a to konkrétne pri obyvateľoch s nízkymi digitálnymi zručnosťami o 2,52%, pri obyvateľoch so základnými digitálnymi zručnosťami iba o 0,01% a v prípade obyvateľov s vyššími základnými digitálnymi zručnosťami je predpokladaný nárast o 1,84% v roku 2022. Zo zistených údajov môžeme konštatovať, že v prípade softvérových a digitálnych zručností obyvateľov SR, nebude podľa prognózy zaznamenaný pokles, ale naopak nárast, čo je pozitívnou informáciou najmä preto, že sa jedná o dôležité zručnosti v rámci digitalizácie ekonomiky a spoločnosti.

Pri prognóze je dôležité aj určenie dolnej a hornej hranice spoľahlivosti, čo znamená najlepší a najhorší dopad sledovaného ukazovateľa.

Vývoj softvérových, digitálnych zručností, zručností v riešení problémov a komunikačných a informačných schopností obyvateľov zobrazujúci Tabuľka 3, môže byť ovplyvňovaný v budúcnosti určitými faktormi. Môžeme konštatovať, že ich vplyv môže pozostávať z nezáujmu obyvateľov rozvíjať schopnosti a zručnosti, pričom si nemusia uvedomovať ich potrebu alebo využitie v živote. Takisto môže byť faktorom vplyvu aj dosiahnuté vzdelanie, sociálno - ekonomický a kultúrny status obyvateľov, ktorý nemusia mať prístup k ich získavaniu a rozvíjaniu. Schopnosti a zručnosti obyvateľov môžu byť ovplyvnené aj výkonom práce v sektore, v ktorom nie je potrebná znalosť jednotlivých zručností a schopností.

Tabuľka 3. Dolná a horná hranica spoľahlivosti prognózy zručností a schopností obyvateľov SR počas rokov 2020 – 2022 (v %)

Zručnosti a schopnosti	**2020**		**2021**		**2022**	
	Dolná hranica spoľahlivosti	Horná hranica spoľahlivosti	Dolná hranica spoľahlivosti	Horná hranica spoľahlivosti	Dolná hranica spoľahlivosti	Horná hranica spoľahlivosti
základné informačné schopnosti	8,87	10,73	8,86	10,73	8,84	10,72
vyššie základné informačné schopnosti	70,27	72,13	71,27	73,14	72,28	74,16
základné komunikačné schopnosti	13,11	14,10	12,84	13,82	12,56	13,54
vyššie základné komunikačné schopnosti	64,79	68,95	65,93	70,58	67,09	72,19
základné zručnosti v riešení problémov	15,96	17,82	14,85	16,72	15,48	17,37
vyššie základné zručnosti v riešení problémov	59,52	64,17	61,45	66,65	63,41	69,11
základné softvérové zručnosti	21,67	24,02	21,61	24,24	21,57	24,45

vyššie základné softvérové zručnosti	25,95	40,83	25,18	40,52	24,41	40,20
nízke digitálne zručnosti	24,91	33,26	26,00	34,61	27,09	35,96
základné digitálne zručnosti	25,67	28,02	25,61	28,24	25,57	28,45
vyššie základné digitálne zručnosti	22,59	34,81	21,94	35,60	21,35	36,32

Zdroj: Eurostat, vlastné spracovanie, 2021

4. ZÁVER

Stanovenou úlohou v príspevku sme chceli zistiť, aká je úroveň zručností a schopností obyvateľov Slovenska potrebných pre prácu s novými technológiami, prípadne inými procesmi využívanými v digitálnych podnikoch. Úlohu sme splnili, nakoľko sme zistili pomocou štatistických údajov vývoj zručností a schopností obyvateľov Slovenska a takisto sme vypracovali aj prognózu ich vývoja do roku 2022. V súčasnej dobe je veľmi dôležité, aby organizácie porozumeli dôležitosti ich digitalizácie a k tomu prispôsobili vhodné podnikové vzdelávanie zručností zamestnancov, aby mohli nadobudnúť vhodné zručnosti a schopnosti potrebné pre digitálnu spoločnosť a ekonomiku. Takisto je potrebné vytvoriť vzdelávací systém, ktorý bude podporovať vznik a rozvíjanie digitálnych zručností už počas štúdia na škole, čím sa pripravia absolventi vhodní na zamestnanie sa v digitálnej dobe.

Dodatok

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LITERATÚRA

[1] Bunček M. a kol.(2016). *Národní iniciativa průmysl 4.0*. Praha. [online]. [cit. 2020-11-24]. K dispozícii na: https://is.muni.cz/el/1456/podzim2017/MPH_MAN2/um/65177528/kzps-cr.pdf.

[2] European Commission. (2020). Index digitálnej ekonomiky a spoločnosti (DESI). Správa o krajine za rok 2020. [online]. [cit. 2020-10-22]. K dispozícii na: https://ec.europa.eu/digital-single-market/en/digital-economy-and-society-index-.

[3] Industry4. (2021). Na reformu vzdelávanie pre potreby Industry 4.0 je najvyšší čas. In Magazín Industry 4.0. [online]. [cit. 2020-09-14]. K dispozícii na: https://industry4.sk/magazin/industry-4-0/na-reformu-vzdelavania-pre-potreby-industry-4-0-je-najvyssi-cas/?fbclid=IwAR1nQdPuQ_fMHYq2n2jOAf0huwnbyum-PrblYSqPJGU-fFNBvJaui2EdlWc.

[4] Karbach, R., Krajňáková, E., Horvathová, A. (2019). Podnikové vzdelávanie v podmienkach inteligentnej výroby. Vplyv Industry 4.0 na tvorbu pracovných miest 2019. In: Zborník vedeckých príspevkov z medzinárodnej vedeckej konferencie. *Vplyv Industry 4.0 na tvorbu pracovných miest*. Trenčín: Trenčianska univerzita Alexandra Dubčeka v Trenčíne. s. 192-199 [online]. [cit. 2020-12-05]. ISBN 978-80-8075-903-2. K dispozícii na: https://www.researchgate.net/publication/342014025_Sbornik_statej_Slovakiapdf#page=184.

[5] Masárová, T., Kordoš, M., Sokol, J. (2018). Vplyv konceptu Priemysel 4.0 na spoločnosť. The impact of Industry 4.0 initiative on society. s. 155 – 161. In: Zborník príspevkov z medzinárodnej vedeckej konferencie: *Vplyv Industry 4.0 na tvorbu pracovných miest*. Trenčín: Trenčianska univerzita Alexandra Dubčeka v Trenčíne. [online]. [cit.2021-12-05]. K dispozícii na: https://fsev.tnuni.sk/konferencia2018/Zbornik-industry-4-0.pdf.

[6] Mckinsey Global Institute. (2019). *The future of women at work: Transitions in the age of automation*. [online]. [cit. 2020-09-14]. K dispozícii na: https://www.mckinsey.com/featured-insights/gender-equality/the-future-of-women-at-work-transitions-in-the-age-of-automation.

[7] Mckinsey Global Institute. (2018). *Skill shift: Automaton and the future od the workforce*. [online]. [cit. 2020-09-17]. K dipozícii na: https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce.

[8] RUZ. (2017). *Analýza dopadov digitálnej transformácie na podnikateľov v súkromnom a verejnom sektore*. [online]. [cit.2020-11-24]. K dispozícii na: https://www.ia.gov.sk/data/files/NP_CSD_II/Analyzy/RUZ/RUZ_Analyza_Analyza_dopadov_digitalnej_transformacie_na_podnikatelov__v_sukromnom_a_verejnom_sektore.pdf.

[9] Serafín, Č. (2019). Digitalizace - změna paradigmatu v přípravě učitelů. Schola nova, quo vadis? In Sborník recenzovaných příspěvků 4. ročníku mezinárodní vědecké konference. [online]. [cit. 2020-02-12]. Praha. ISBN 978-80-87570-44-9. K dispozícii na: http://www.extrasystem.com/9788087570449.pdf?fbclid=IwAR1UGQf4s0YrsCrr3kt57D-30uLxx1bxZsCDEamrHL_B3LXDhAxTQEJuJp4#page=163.

[10] Štatistický Úrad Európskych Spoločenstiev. (2021). K dispozícii na: https://ec.europa.eu/eurostat/web/main/data/database.

[11] University Of Minho. (2016). *Jobs for Work 4.0 – The Future of Employment. O2 – Work 4.0 Awareness Raising Guidelines*. K dispozícii na: http://work4-0.eu/wp-content/uploads/2017/11/Jobs-for-Work-4.0_Awareness-Raising-Guidelines_v24112017-2.pdf.

[12] Záležáková, E. (2018). Nástup Industry 4.0. *Manažment podnikania a vecí verejných: vedecko-odborný časopis.* vol. 13, iss. 7, pp. 1-9. [online]. [cit. 2020-04-11]. Bratislava. ISSN 2453-8167. K dipozíicii na: https://www.sam-km.sk/sites/www.sam-km.sk/files/2020-04/Zalezakova_Nastup_industry_4.0.pdf?fbclid=IwAR2-CVDKveV2x-7DShpoJNPL8nHAZZlNDV-ebGzT2tDXlTnMAPfux5F32rg.

TRENDS AND CHALLENGES OF EXTERNAL LABOR AND EDUCATIONAL MIGRATION OF THE UKRAINIAN POPULATION: STATISTICAL ASPECT

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Abstract: *The modern Ukrainian economy is integrated into the world economy not only on global markets of goods and services, money and capital, but also on the international labor market. In global migration processes, Ukraine acts mainly as a donor of labor. The largest age cohort of the emigrants in 2018–2019 is young people (15–34 years). The article contains results of a study of trends and dynamics of external labor migration of Ukrainian residents using information obtained from three rounds of the national Labor Migration Survey conducted by the State Statistics Service and its partners. The identical methodology and the national scale of coverage allow for a correct comparison of survey data for various years. Also, results of an analysis of education migration from Ukraine are shown. The purpose of this study is to identify the main trends of external labor migration of Ukrainian residents in the regional context, by gender and age structure, education level, and their impact on the labor market of Ukraine, as well as the trends in the education migration*.

Keywords: *Labor Migration Survey, labor migration, foreign students, educational migration*

JEL Classification: *C82, A22, O15, O61*

1. INTRODUCTION

Migration had a central role in the formation of modern Ukraine. The processes involved in the labor and educational migration had direct impact on the efficiency of management and allocation of resources, and planning of infrastructures. The visa-free entry to EU, acquired by Ukraine in June 2017, intensified the trans-border mobility of the Ukrainian population.

It was in the latest five years that economic factors of the migration were added by political and security ones, thus making migration sentiments of the population much stronger and migration flows even more intensive (Kordos, 2020; Kordos, Sokol, 2020).

According to Eurostat data, the number of permits allowing Ukrainian residents to stay across the EU-28 territory grew twice over the latest decade, to reach nearly 1.2 million in 2018. The estimated number of Ukrainians employed in the Polish economy in a given date is 900,000 persons. According to the estimation of the National Bank of Poland, their contribution in the GDP growth was 11 % in the latest give years. The education migration from Ukraine also increased.

Data from the State Statistics Service of Ukraine show that nearly 70 % of the total migrants are residents of Western Ukrainian regions. But the migration involvement of residents of Central, Southern and Eastern areas of Ukraine has been gradually increasing. Two thirds of the total migration are accounted for by men. The majority of migrants have secondary education (64 % according to the survey conducted by State Statistics Service of Ukraine in 2017). But the share of persons with complete and incomplete higher education grew up ((33.5 % in 2017 against 30.5 % in 2012) (Hladun et al., 2020). Although the main

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employment sectors of Ukrainian migrants remain to be construction (men) and household services (women), the employment in industry has been up. The most widespread model for the migration behavior is temporary, circular migration. According to data from the State Statistics Service of Ukraine, the duration of 57 % of the total labor trips is three months or shorter.

As regards the education migration, UNESCO data show that the number of Ukrainian students abroad was constantly up and grew nearly twice after 2013.

The migration has multifaceted impact on Ukraine. By increasing the threat of depopulation and triggering the loss of a part of labor and intellectual resources, it can turn into an impediment for economic development. The shortage of employees has been already felt by now in nearly all the activities, first and foremost in construction (as reported by half of the surveyed construction companies) and industry. In view of the above, a statistical analysis of tendencies and challenges of the external labor and education migration of Ukrainian population is critically important.

2. METHODOLOGY

The objective of our study is a statistical analysis of tendencies and challenges of the labor and educational migration of the Ukrainian population. It covers, first and foremost, the main tendencies of the external labor migration of the Ukrainian population by region, age and gender structure, education level, and their impact on the Ukrainian labor market, and, secondly, the education migration from Ukraine. The study was based on the information obtained from three rounds of the all-national Labor Migration Survey, conducted by the State Statistics Service of Ukraine and its partners. Also, statistical data of the Ukrainian State Center of International Education at the Ministry of Education and Science of Ukraine were used.

3. RESULTS

The external labor migration from Ukraine has pronounced regional specifics persisting over the whole period of Ukraine's independence, although with minor differences. The overwhelming majority of persons who work abroad come from Western regions of Ukraine: according to the Labor Migration Survey (LMS, a module sample survey), this region's share made 57.4 % in the first round of LMS, grew up to 71.6 % in the second round, and slightly decreased to 69.4 % in the third round. The share of residents from the Eastern part of Ukraine were declining in parallel: 18.8 % in LMS of 2008; 9.8 % in LMS of 2012; 6.8 % in LMS of 2017 (Hladun et al., 2020).

The age distribution of Ukrainian migrants working abroad has not undergone essential change over the latest decade. Labor migrants were distributed by age group rather evenly in all the three rounds of LMS. It should be emphasized that the increased share (higher than the third) of migrants aged 40–49 can be explained by replacing five-year age intervals in the distribution with ten-year age ones rather than by behavioral features of persons in this age category. Empirical evidence shows that labor migrants maintain their migrant activity at the primary level till the age of 50 years or older. The share of the older migrants gradually increases with the passing of time. The most probable reason for this tendency is that some cohorts from the earliest international flows, which chose temporary employment abroad as a permanent strategy of labor behavior, have moved on the age line towards older age categories. The intensity of engaging younger cohorts in the labor migration is not able to compensate for these processes.

The gender and age structure of the external labor migration of Ukrainian residents features an essentially larger share of men, as they account for more than the two thirds of the total

migrants (67.2 % in LMS-2008, 65.6 % in LMS-2012, and 70.4 % in LMS-2017). Women are more often engaged in labor migrations in older age groups. According to data from the third national LMS (2017), nearly one of the three women working abroad in the surveyed period was 40–49 years old. The respective share of men was early nearly one fourth (24.0 %). Each one of the four women was 50–59 years old. The shares of the oldest respondents (60–70 years old) are insignificant in both genders, with the fixed prevalence of women. The shares of 35–39 years old migrants are nearly the same in both genders. The difference between the shares of migrants belonging to three youngest five-year groups makes 4.8 to 9.0 percentage points, being larger for men. The overall population of labor migrants covered by LMS-2017 was quite evenly distributed between city and rural residents: the shares of those coming from rural settlements and cities (towns) made 49.1 % and 50.9 %, respectively. Whereas the earlier rounds of LMS showed a different pattern: while in 2008 there was a larger share of persons living in cities before going abroad (54.4 %), in 2012 the share of rural residents was higher (54.3 %). Migrant groups were distributed by age and type of residence more or less evenly in all the rounds of LMS. The age distribution of city and rural residents in all the rounds of LMS was similar to the overall age distribution. Although in absolute data the overall population of labor migrants was quite evenly distributed between city and rural areas, the frequency of trips abroad for job placement purposes was not the same for city and rural respondents. This can be explained by the level of urbanization of the Ukrainian population and the overall distribution of Ukrainian residents by type of locality. Thus, the share of labor migrants in the total population aged 15–70, according to the results of OLS-2017, was 3.4 % for cities (towns) and 6.9 % for rural settlements.

The external labor migrants questioned in all the three rounds of LMS had a notably lower education level than the employed population in Ukraine. The share of persons with higher education in the latter group was nearly twice higher than among migrants. The share of labor migrants with higher education made only 13,9 % in the first round of LMS, against 23,8 % for the employed population in Ukraine in 2008. This share was gradually increasing for both categories of Ukrainians: it made 15,4 % for migrants questioned in 2012, and 16,4 % in 2017. The share of Ukrainians with higher education grew from 27.1 % in 2011 to 32,3 % in 2016. Most often (33.9 % in LMS-2017) labor migrants from Ukraine have technical and vocational education conforming with the characteristics of works performed by them in host countries. Nearly the same share of persons (30.1 %) had the complete secondary education. Unfortunately, it is impossible to trace the dynamics of these shares, because the gradation of education used in the two earlier rounds of LMS differed from the one used in the third round of LMS. A comparison of three rounds of LMS shows the decreasing share of women with higher education in the total labor migration: it was 19.7 % in LMS-2008, 18.3 % in LMS-2021, and 13.6 % in LMS-2017. But the share of men with higher education was growing (11.0 %, 13.9 %, and 17.5 %, respectively) and, consequently, exceeded the analogous figure for women in 2017. However, the indicator of average number of years of training, used to assess the education level of labor migrants by gender group, showed the same figures for men and women in the third round of LMS (12.6 years of training for both gender groups). Their similarity is a result of the increased share of women with basic or incomplete higher education (25.0 % for women and 13.7 % for men). The average number of the years of study for migrants coming from city area, according to LMS-2017, was 12.7. For rural residents it was lower (10.3 years). The difference between these figures results from the increased (by several times) share of persons with complete or basic higher education in the labor migrants who are city residents. This trend is found in all the three rounds of LMS, and it follows the pattern of the total employed population of Ukraine.

Another way of integration is student migration. This process is bi-directional in Ukraine.

The number of young Ukrainians going to foreign universities for training purposes has been growing year by year (UNESCO, 2021). The countries that are most attractive for training

remain to be Poland, Germany, Canada, Italy, Czech Republic, the U.S., Spain, Austria, France, and Hungary. The student migration flow to these countries grew by 176 % in 2009–2016, with Ukrainians studying in Polish universities making two thirds of this growth. This category of students demonstrated the most rapid growth in absolute and relative figures: from 22,833 to 30,041 persons (or nearly 32 %). Also, a considerable relative and absolute increase in the number of Ukrainian students was reported by Canadian, Slovak and Italian universities.

Ukrainians accounts for a bit more than a hundredth in the total students trained in foreign countries. The largest share of Ukrainians is in the total foreign students in Poland (57 %). The presence of Ukrainian students in the other countries are far smaller than other student diasporas. Although Ukrainians are quite many in Czech Republic or Hungary, students from Balkan countries dominate. In Slovakia, however, Ukrainian students have gradually been taking the leadership.

The number of Ukrainian students trained abroad has been continuously growing. According to UNESCO data for 2017, 77,100 Ukrainian residents were educated in HEEs of foreign countries where sound data could be collected, which is the highest figure over the whole period of data collection by this organization. Because information from official statistical offices comes with considerable delays (1 to 2 years), data about Ukrainian students trained in 2018 have been supplied by now only by 24 countries (of the total 240), which to not include destination countries for the educational migration of Ukrainians.

The number of Ukrainian students trained abroad was 14,200 in 2002. The following two years marked their gradual increase, and in 2009 this number grew by nearly twice in relation to 2002, to reach 25,200. The first decrease in the number of Ukrainian residents in foreign HEEs occurred in 2010 (by 33.4 percentage points or 8,400 persons in relation to the previous year), which might be a result of the global financial crisis of 2008–2009. But the number of Ukrainian students abroad could quickly recover, as it increased by nearly twice in 2011, to reach 31,400.

The rapid growth in the Ukrainian student migration has been on since 2014. In 2017 it increased by 2.5 times or by 46,600 persons in relation to 2013. But the data for later years of the studied period show a slower growth rate. The number of Ukrainian student migrants grew in 2017 by only 0.4 percentage points in relation to 2016, or by 300 persons. In 2002–2017 there were changes in the list of countries hosting Ukrainian students.

A remarkable tendency is the increasing number of host countries and the expanding geography of the Ukrainian educational migration. 34,700 Ukrainian residents studied in Poland in 2017. Another popular host country for Ukrainian educational migrants is Germany due to high and competitive quality of its education, geographic location and less expensive training fees than in the other countries (like the U.K., the U.S. or Australia) which diplomas have high prestige on the global labor market. Statistical data on Ukrainian residents trained in postgraduate schools (PhD programs) in other countries are limited.

The number of Ukrainian PhD students trained in foreign countries in 2015/16 academic year was 1600. The main host countries for Ukrainians were Germany (525 persons), Poland (380), Czech Republic (223), France (201), Switzerland (105). But the data on Ukrainian PhD students in the U.S., the U.K. and Canada are still missing due to the payed access to the information.

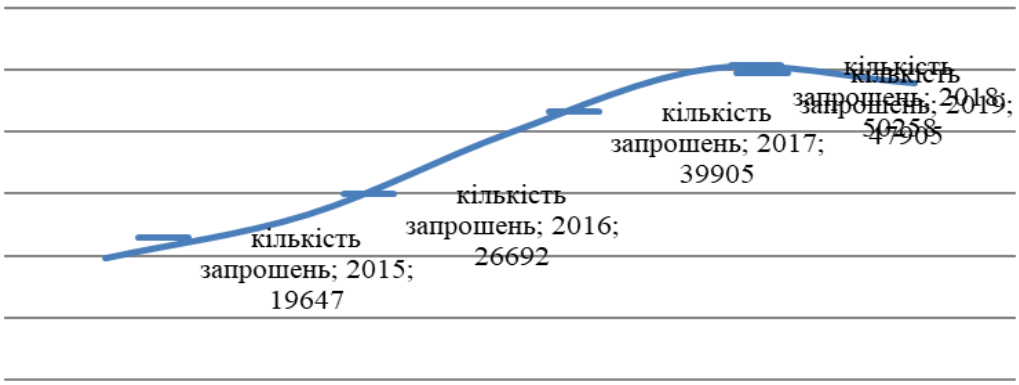
Turning educational migration into emigration is one of the adverse effects for the country of students' origin. Thus, according to survey data obtained by the International Institute of Education, Culture and Relations with Diaspora at the National University "Lviv Polytechnic", only 16.8 % of students from the National Technical University of Ukraine

"Kyiv Polytechnic Institute" and 21.2 % of students from "Lviv Polytechnic" reported about the desire to come back to Ukraine after training abroad.

Ukraine is an attractive country for foreign students, especially the ones seeking for medical or pharmaceutical diplomas. The number of foreign students in Ukraine was 80,500 in 2019/20 academic year. The share of foreign students grew by 42 % (or by 33,900 persons) in relation to 2010/11 academic year. The number of foreign students slightly decreased in 2014/15 academic year, obviously due to the beginning of military conflict in Donbas: in relation to the previous academic year it fell by 6,800 persons (or by 9.7 %). A slight growth in the number of foreign students was fixed in 2014/15–2017/18. But in the latest two years of the studied period the number of foreign students in Ukraine started to increase again and exceeded the "prewar" maximum of 70,000 persons (Stadnyi, 2017).

According to data for 2017/18 academic year, the number of foreign students in Ukraine grew in the following academic year by 9,300 persons (or by 14.0 %) (Ukrainian State Center for International Education, 2021). The growth in the following (2019/20) academic year made 4,900 persons (or 6,4 %). Residents of 158 countries were trained in Ukrainian HEEs in 2019 The number of registered invitations for foreign students grew from 19,600 to 47,900 in 2015–2019 (Figure 1).

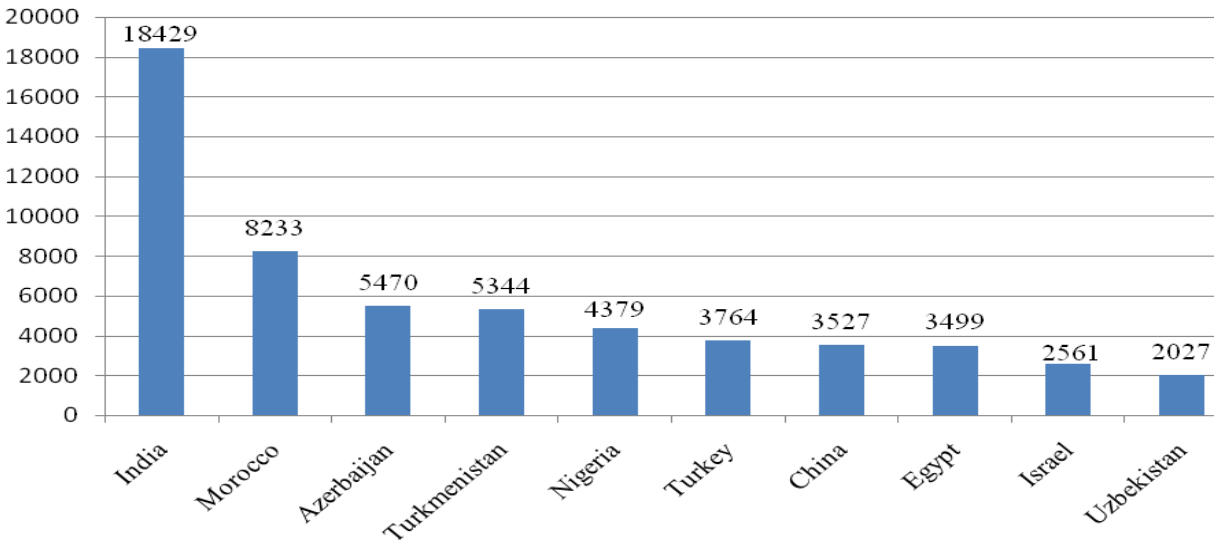
Figure 1. The number of registered invitations for foreign entrants



Source: Ukrainian State Center for International Education, 2021

Nearly 25 % of the foreign students are residents of India (18,400 persons or 22.9 % of the total); students from Morocco account for 10.2 %. The main countries of foreign students' origin also include Azerbaijan (6.8 %), Turkmenistan (6.6 %), Nigeria (5.4 %), Turkey (4.7 %), China (4,4 %) (Figure 2).

Figure 2. Countries of origin for the largest student diasporas in Ukraine



Source: Ukrainian State Center for International Education, 2021

The number of students from post-soviet countries decreased in the latest three academic years by 2,200 persons or by 11.4 %: from 19,500 in 2017/18 academic year to 17,300 in 2019/20 academic year. The consequences of pandemic in 2020, resulting in the closure of international borders, will obviously be felt by all the Ukrainian HEEs providing education services to foreign students. By far and large, they will affect the admission to the first academic year and the students who returned to the native countries on line of the programs for evacuation of compatriots.

Training abroad turns into the final emigration for the majority of Ukrainian students, a tendency which is likely to reduce the high skilled workforce in Ukraine and deplete the most valuable resources for the development of the Ukrainian economy.

Integration and internationalization processes in the higher education system of Ukraine raised an interest of foreign students in obtaining Ukrainian diplomas, which is confirmed by statistical data on the increasing inflow of young people from other countries. According to the State Statistics Service of Ukraine, the number of foreign students in Ukraine in the beginning of 2016/17 academic year made 52,147 persons coming from 148 countries, who trained in the first and second level of higher education (bachelor, master). If the third level, the research level (doctor of philosophy and doctor of sciences) and the language course is added, the total will exceed 66,000.

The main motives for foreigners to get higher education in Ukraine were determined: get high quality education and come back home (21 %); high prestige of the higher education in Ukraine (5 %); lower education fees than in one's native country (44 %); good "price-quality" balance (39 %); failure to pass the competition in domestic universities (11 %); start up a business and legalize one's stay in Ukraine after university graduation (12 %); introduction to other's culture (5 %). etc.

So, the strongest motive for foreign students in Ukraine is a relatively low education fees and accomodation costs. Only 12 % of them have a desire to stay in Ukraine. However, according to rough estimations, considering the average education fee and the cost of living, foreign students invest in the Ukrainian economy more than 100 million euro each year.

4. CONCLUSION

Hence, the intensity of job placement abroad has been region-specific over the whole time of the Ukraine's independence, with mostly natives of Western Ukrainian regions working beyond the Ukrainian borders. External labor migrations cover the persons belonging to various gender, locational and educational groups of population. A notable factor determining labor migration flows nowadays is COVID-19 epidemic that forced a part of labor migrants to return to the homeland. According to the International Organization of Migration, the total number of labor migrants that have come back to Ukraine after the announcement of quarantine makes 350,000 to 400,000. A recover of labor migration flows in future will depend on the scenarios of combatting this infection in Ukraine and host countries.

One the one hand, the increasing numbers of trans-border movements of students in Ukraine facilitates integration of the domestic higher education system in the European Education Area and cross-cultural communications. On the other hand, this tendency provokes the constantly increasing shortage of students in Ukrainian HEEs; as a result, the Ukrainian labor market is coming under the heavy pressure to the extent that the continuing migration of domestic skilled workforce and young people to other countries is fraught by extremely adverse effects for the development of the Ukrainian economy.

REFERENCES

[1] Hladun, O. M. (Ed.) (2020). *The population of Ukraine. Demographic tendencies in Ukraine in 2002– 2019*. Kyiv: National Academy of Sciences of Ukraine, Ptoukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine, 174 p.

[2] International Labor Organization (2013). Report on methodology, organization and results of a module sample survey on issues of labor migration in Ukraine. Budapest ILO: Decent Work Technical Support Team and Country Office for Central and Eastern Europe, 96 p.

[3] Kliuchkovska, I. & Piatkovska, O. (2017). *Migrations sentiments of students in the conditions of visa liberalization (a survey of students of the National University "Lviv Polytechnic")*. Lviv [in Ukrainian]. [cit. 2021-10-28]. Available at: http://miok.lviv.ua/.

[4] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[5] Kordos, M. & Sokol, J. (2020). The Synergy of Tourism and Industry 4.0 in Spain within the Example of AirBnB and Collaborative Economy. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 213-222.

[6] Stadnyi, E. (2017). Ukrainian students abroad: facts and stereotypes. [online]. [cit. 2021-10-28]. Available at: https://cedos.org.ua/uk/articles/ukrainski-studenty-za-kordonom-fakty-ta-stereotypy.

[7] State Statistics Service of Ukraine. (2017). *External labor migration of population* (by the results of a module sample survey). Kyiv: Statistical bulletin, 36 p.

[8] UK Statistics Authority. (2017) The Quality of the Long-Term Student Migration Statistics. Office for Statistics Regulation. [online]. [cit. 2021-10-28]. Available at: https://osr.statisticsauthority.gov.uk/wp-content/uploads/2017/07/The-quality-of-long-term-student-migration-statistics.pdf.

[9] Ukrainian State Center for International Education at the Ministry of Education and Science of Ukraine. (2021). [online]. [cit. 2021-10-28]. Available at: https://studyinukraine.gov.ua/en/life-in-ukraine/international-students-in-ukraine/.

[10] State Statistics Committee of Ukraine. (2009). Ukrainian Center for Social Reforms, Kyiv: External labor migration of Ukrainian population, 120 p.

[11] UNESCO. (2021) [online]. [cit. 2021-10-28]. Available at: https://en.unesco.org/gem-report/report/2019/migration .

RISK MANAGEMENT IS A TOOL FOR FLEXIBLE ADAPTATION TO CHANGES IN THE ENVIRONMENT AND INCREASING THE RESILIENCE OF THE ENTERPRISE

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Abstract: *Quality management consists of human resources, which contribute to the development not only of the enterprise but also of the whole company. At present, the importance is placed on the need to create a good team on enterprise, which can respond flexibly and adaptively to changes of the enterprise's environment. The current situation associated with the COVID-19 pandemic has highlighted the importance of the enterprise's readiness and its management. The further direction of the enterprise depends on the management of the enterprise and especially the top managers are the main activists in the decision-making processes. The achievement of the enterprise's goal depends on the abilities, skills, and knowledge of the manager, as well as the effect of manager in the labor market. The manager must deal with a possible crisis, make decisions and take measures. The main problem for many enterprises is the unpreparedness and lack of managerial experience with risk management within project management. Identification of risks in project management is necessary for the needs of streamlining managerial work. Especially at the current when the world and business environment are affected by the COVID-19 pandemic, there is pressure on managers to address as well as the constraints, the measures that result from state-imposed obligations. Errors and shortcomings arise in the low interest of managers in the issue of risk management, as well as insufficient understanding of risk and its possible consequences. Management, the manager must know the risks. If the manager does not know them, there is an obstacle in ensuring that the enterprise takes appropriate measures to address the risk. The article aims to point out the importance of readiness of enterprise managers, concerning the area of risk management in connection with project management.*

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

JEL Classification: *L21, L26, M51*

1. INTRODUCTION

The importance of risk management in connection with project management and personnel management has now proved to be a way of creating the resilience of enterprises, given the negative impacts and changes in the environment. The current situation associated with the COVID-19 pandemic has highlighted the importance of training and educating not only top, middle and line management in this area, but also lower professional staff, who are responsible for individual processes and are in direct contact with project activity in the enterprise (Danila 2020). Some managers manage to turn risks into opportunities. According to Korecký (2011) risk management as prevention of potential crisis situations should be part of the project management and planning of each enterprise to ensure a certain degree of success of projects and the possibility of creating stable management of the enterprise. Pchelintseva (2021) claims that the aim of implementing risk management into project management is to ensure and improve the quality of project management in enterprises.

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Chernogorova (2021) attaches importance to the activities of the management itself, with risk management being closely linked to the successful implementation of projects. The success of the project depends on the comparison of analyzes of planned and implemented activities on ongoing projects while monitoring parameters such as time, budget, and scope of the project. These three main limitations of the project affect the further evaluation of the project. According to Doležal (2016) project management is a set of activities, standards, recommendations, and best practices, describing how to properly manage a project. According to Hrázdilová (2016) project management is the application of knowledge, skills, tools, and techniques to project activities in order to achieve project requirements even with changes in the environment. The aim of every enterprise is to respond flexibly to changes in the environment. Sohi (2021) says that there are two main approaches to project management, namely mechanistic and organic. „Mechanistic reflects the traditional waterfall approach and organic reflects a more adaptive approach. The organic approach became known by the awareness of dynamic project environment and changing requirements. The organic approach is characterized by flexibility“ (Sohi 2021). Insufficient flexibility of the enterprise for changes in the environment can be a weakness of the organizational functioning of the enterprise. Integration of the process of risk management into project management and the overall management system significantly contributes to strengthening the organizational culture and at the same time creates a practice of systematic and purposeful influencing of risks accompanying each project (Parashkevova 2020).

According to Svozilová (2016) and Všetečka (2017), project risk management is a systematic process that aims to identify, analyze, evaluate and manage risks using procedures, methods and techniques to prevent unnecessary losses. According to Moshtaghian (2020) the creation of an integrated platform for risk identification would reduce redundant activities for reprocessing, control of project activities and overall project costs, while ensuring less wasted resources.

1.1 The importance of risk management with the connection of project management in the enterprise

The enterprise's position in the labor market depends on the enterprise itself and the functionality of management to respond flexibly to changes in the external environment and the use of the enterprise's internal resources. A prerequisite for fulfilling the enterprise's visions and strategies is, first and foremost, qualified enterprise management and, last but not least, an understanding of the need for continuous education and training of all enterprise employees. The ability of employees to respond flexibly to the requirements and potential opportunities of the market can be ensured by continuous improvement of the enterprise's management system. No matter what industry the enterprise operates in, any enterprise should be prepared for different changes in the environment. Every enterprise can find itself in a crisis once in the course of its business, which can disrupt its stability, cause a deviation from the normal state and even cause the enterprise to disappear. The business environment is constantly changing, as are customer requirements, to which the enterprise's management should be able to respond. The flexibility of the enterprise should be dynamically reflected in the activities of management. Management should plan, prepare the enterprise to mitigate the effects of changes that may affect its direction and market position.

Chernogorova (2021) and Rodrigues (2021) argue that the current situation associated with the COVID-19 pandemic has highlighted the importance of preparing the enterprise and its management to deal with unexpected situations. The readiness of the enterprise's management

contributes to securing and increasing the resilience of the enterprise. There is currently pressure on managers to address the constraints associated with the COVID-19 pandemic. The main problem of many enterprises is the unpreparedness and lack of managerial experience

with risk management within project management. Identification of risks in project management is necessary for the needs of streamlining managerial work. According to Hudakova (2017) and Masar (2019 and 2020) errors and shortcomings arise in the low interest of managers in the issue of risk management, as well as insufficient understanding of risk and its possible consequences. The enterprise's management must know the risks and, if it does not know them, there is an obstacle in ensuring that the enterprise takes appropriate measures to address the risks.

Each activity within the activities of the enterprise's management is in a way a project for which the team of people is responsible and which is influenced by various risks. Helfley (2021) says that the success of a project depends on the abilities, skills, and knowledge of management. Each project focuses on a different area, and thus the barrier and risk management are different in each enterprise. The planning phase in project management is the most important of all project phases. Failure to thoroughly assess the risk before the implementation of a project may affect its overall course and may contribute to the project's failure.

According to Dandage (2021) and Zachosova (2020) the main problem for the vast majority of enterprises is the unpreparedness and lack of managerial experience with risk management in the project management of implemented projects. The problem is based on the way information flows and communication, which take place between the individual components of the system at the horizontal as well as the vertical level of enterprise management. There is a need to standardize communication, decision-making processes, and synchronization between individual departments of enterprises to ensure a degree of flexibility for which most enterprises in Slovakia but also in Europe are not currently prepared.

The implementation of projects itself often lacks the phase of their detailed planning. The basic problem is the absence of any risk assessment and management of the risk. Firstly, it is necessary to teach the enterprise a uniform understanding of key concepts and their definitions and then learn the methodology, sequence, and principles on which project management and risk management are based. Only in this way is it possible to ensure project management with the required degree of risk management in business projects (Damnjanovic 2020; Ghaeli 2018).

By implementing risk management with the connection of project management, it is possible to ensure the continuity of individual activities of the enterprise even in the event of a change in the environment, and it is possible to reduce the risk without unnecessary losses (Lima 2021; Nagyova 2021).

According to Rehacek (2017), through several standards, it is possible to ensure the implementation of risk management in the project. These are, for example (Máchal 2015; Masar 2017; Zuzek 2020):

- ISO 21500:2012 Guidance on project management,
- IEC 62198:2013 Managing Risk in Project - Application Guidelines,
- ISO 10006:2017 Quality management systems - Guidelines for quality management in projects,
- ISO 31000:2018 Risk management – Guidelines,
- ISO 31010:2019 Risk management - Risk assessment techniques.

ISO 31000 Risk management – Guidelines is the most widely used international standard for risk management. It is used in businesses regardless of their size or industry (Testorelli 2020).

2. GOAL AND METHODOLOGY

Several scientific methods were used in the preparation of the article, such as scientific methods focused on the analysis and synthesis of knowledge from professional domestic and foreign sources and scientific articles on the issue of risk management with the connection of project management. An analysis of data from various surveys focused on problems and shortcomings in the field of project management, identification of risk awareness within the organizational hierarchy of the enterprise structure in the field of risk management, information and use of risk management in enterprises as well as the impact of COVID-19 on projects as well as decision-making at a time of change.

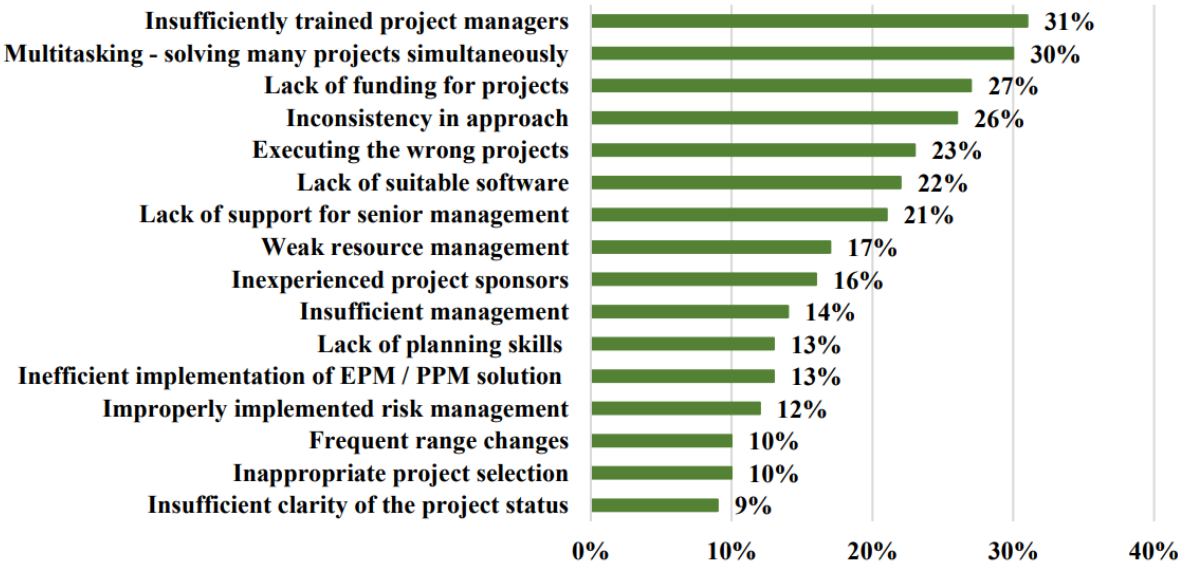
The survey results aim to point out the importance of implementing risk management into individual project steps of the enterprise and its management. Thanks to the connection of risk management into the enterprise's project processes, the continuity of project activities, increased resilience of the enterprise, ensured readiness of the enterprise, and its very response to changes in the environment is ensured.

3. RESULTS

Constant errors, changes in projects, and indecision of the enterprise's management significantly affect the fluidity and especially the result of the project itself. If these shortcomings can be eliminated or reduced, the chances of project success will also increase. Enterprises can manage projects in the right way, consider their organization and the challenges they face if quality personnel management is ensured (Chernyakhovskaya 2020).

British enterprise Wellington PPM, which deals with project management, created a survey in 2017 to review project management in all industries. The results of the survey pointed to the unpreparedness of enterprises, errors in the implementation of risk management, and in particular, insufficient planning and non-compliance with project plans. Only 59% of respondents are based on the planned scope of projects, 48% mostly or always based on their project schedules, and 62% always or mostly participate in risk management (Wellingtone PPM 2018).

Figure 1. Main problems in project management



Source: adjusted according to Wellingtone PPM (2018)

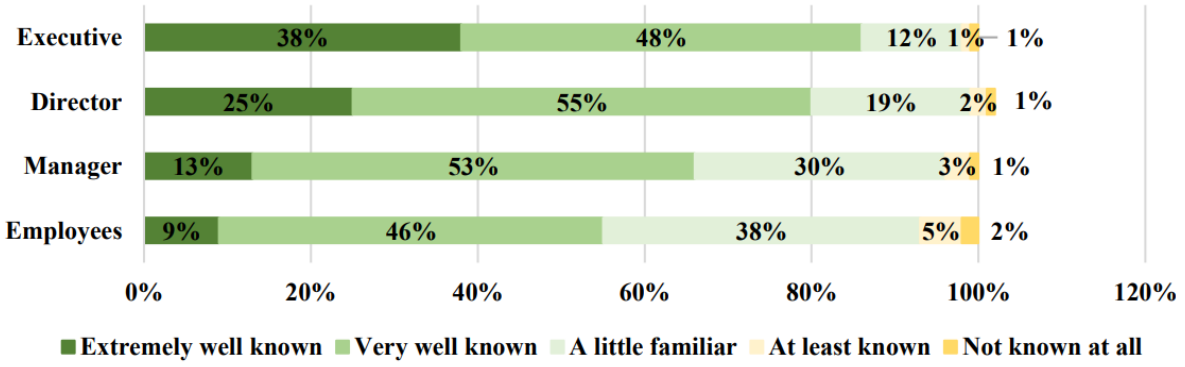
Figure 1 shows the most important problems in the field of project management, mainly poorly trained project managers, solving several projects at the same time and lack of financial resources, inconsistency in approach, and the like. Most of the identified shortcomings are directly related to the project teams or the management of the enterprise involved in the project processing. The failure of the human factor is the most significant shortcoming of most enterprises, which in turn affects the overall course of the project and its outputs. The results of the survey also include incorrectly implemented risk management. However, this may also be due to differences in the understanding of the definition of risk management across different areas for which it is not uniform.

3.1 The impact of the COVID-19 pandemic on risk perception within the enterprise

Awareness and level of knowledge about project management and risk management it is key to the successful implementation of projects. At present, the global pandemic of COVID-19 has caused significant disruption to businesses and their operational capabilities. The pandemic has caused great hardship to many enterprises and institutions around the world. Therefore, it is necessary to gain more time so that the systems can meet the conditions of the originally set time windows and axes for individual project processes.

Concerning risks and risk management in foreign manufacturing enterprises, ISACA enterprise, CMMI Institute, and InfoSecurity realized a survey for the period 2020, which was aimed at determining risk awareness according to the organizational hierarchy of the enterprise. Survey data suggest that respondents, especially those at a higher level in the organizational hierarchy, have a good understanding of the most critical risk that poses a challenge to their businesses. They understand the risk and the consequences if there are any undesirable results. As many as 67% of respondents say that they know either very or very well the current risks facing their enterprise (ISACA 2020).

Figure 2. Risk awareness according to seniority levels

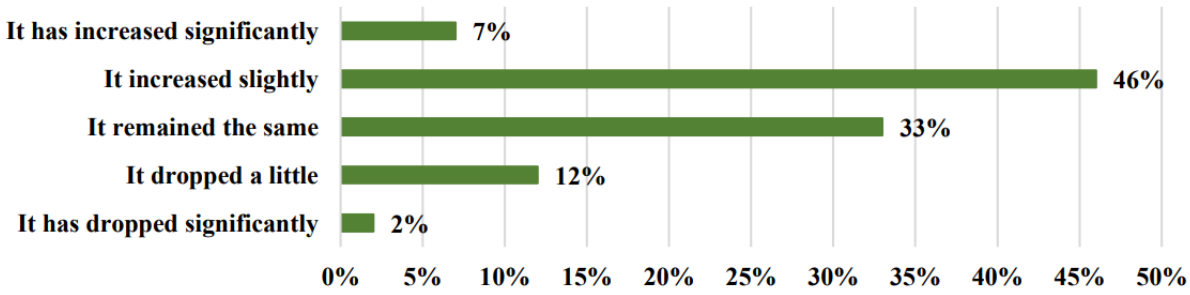


Source: adjusted according to ISACA (2020)

Figure 2 shows how the risk is perceived and individual positions and the extent to which individual employees within the organizational structure of the enterprise are familiar with it. In the position of the executive director, it is 86%, in the position of the director 80%, in the position of the manager 66%, and in the position of the employee 55%, he is either very or very familiar with the risk. Insufficient understanding of the risk may create an obstacle to ensuring that the enterprise takes appropriate measures to address the risk. In most cases, decision-makers with greater organizational authority understand risk better than others, so enterprises are then able to propose appropriate measures to address the risk. Survey

respondents report that all risks have increased over the last 12 months, with 53% of respondents saying that risk has generally increased (Figure 3) (ISACA 2020).

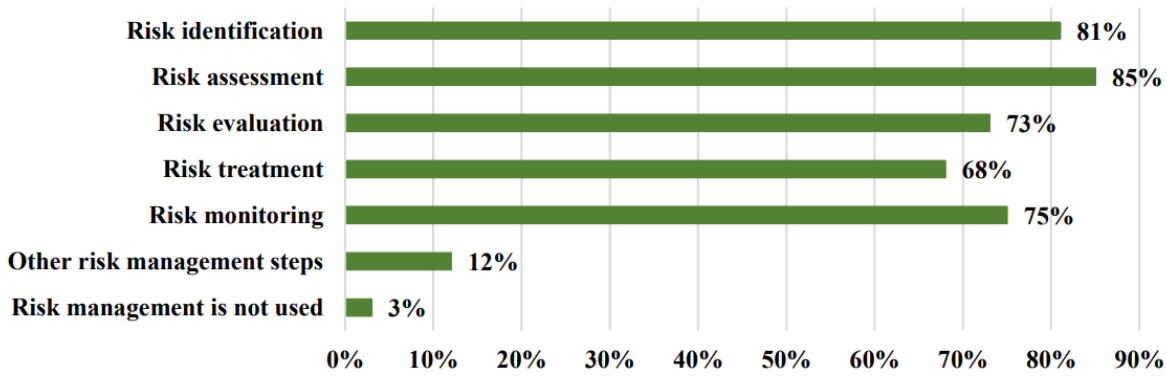
Figure 3. Change in the overall level of risk in the enterprise over 12 months



Source: adjusted according to ISACA (2020)

Even if the enterprise knows the risk, it is still possible to improve the way it manages the risk. Despite the awareness of the risk, mistakes and problems in their handling are constantly emerging. By effectively implementing risk management into project activities, it is possible to reduce unnecessary errors, losses during risk management. Figure 4 shows that although most survey respondents indicate that their enterprises have implemented the most important risk management steps, including assessment at 85% and risk identification at 81%, ongoing risk measurement and monitoring is less developed and the ability to predict new risk is an area of challenge (ISACA 2020).

Figure 4. The degree of use of individual steps of risk management in the enterprise



Source: adjusted according to ISACA (2020)

The operation of the enterprise depends on a thorough understanding and perception of risk within the company and at the same time on the readiness and subsequent response of the company's management. Human resources form the basis of the enterprise on which the enterprise builds and operates. In this case, the staffing of the enterprise is a very important aspect that affects the development of the enterprise itself to its very stability. The enterprise's management is constantly faced with obstacles that it has to face and it is up to them whether a possible change will be a threat or an opportunity for the enterprise. Utilizing the potential

of the personnel component, as well as just the right choice, it is possible to "build" an effective enterprise that is able to respond to any changes, whether external or internal environment of the enterprise.

4. DISCUSSION

Knowledge and implementation of risk management in the enterprise and at the same time in its project activities would contribute to ensuring and increasing the resilience of the enterprise. Risks are an integral part of the business, and managers must be able to assess and manage them to ensure the smooth running of the enterprise. As part of the project management used in the enterprise, each project plan should also include a risk plan. The risk plan includes defining, anticipating, monitoring, and limiting the consequences of risk events. During the planning process itself, several project risks may arise that can jeopardize the project in any way. Key risks are those that threaten the time, cost, and quality of the project. According to Acebes (2021), project risks are most often manifested due to changes in the project, poor communication due to changes in external circumstances and conditions. Concerning the enterprise's management, human behavior and the culture itself in the enterprise significantly affect all aspects of risk management at every level and every stage. Project risks are most often associated with setting project objectives and their relationship to the organization's strategy, the organizational structure of the project, project management, the external and internal environment, the application of risk management, and the like (Gruenbichler 2021; Holla 2016).

Advantages of implementing risk management into project activities (risk management as support of project control):

- is easier recognition of problems in the project,
- the enterprise is more prepared - it can handle unexpected situations (changes in the environment),
- guaranteed data quality - a need during decision-making processes,
- increased communication between stakeholders,
- more accurate estimates - ensuring compliance with time, finances, quality within the project,
- expected higher success of the project,
- the team knows and expects problems during the project - the team is ready to manage and respond to the problems that the project will bring.

5. CONCLUSION

In the current dynamic environment, emphasis is placed on the readiness of the enterprise and at the same time the need to create a good team of the enterprise, which can respond flexibly and adequately to changes in the enterprise's environment. Particularly in the current when the world and business environment are affected by the COVID-19 pandemic, managers are under pressure to address the constraints arising from state-imposed obligations. Errors and shortcomings arise in the low interest of managers in the issue of risk management, as well as insufficient understanding of risk and its possible consequences. The manager must know the risks. If the manager does not know them, there is an obstacle in ensuring that the enterprise takes appropriate risk management measures.

Concerning project management, in any project management, managers should focus on increasing the safety of activities and processes. One of the reasons is the effort to achieve

positive results, but especially the responsibility that management has towards all stakeholders. At the same time, raising awareness of the possibilities and approaches to risk management in project management supports the success of implemented activities, development, and raises the level of knowledge of all stakeholders, which is also related to knowledge of risk and the need to respond to it. The process of activities introduced in this way and managed is a prerequisite for increasing the success of the implemented project

activities of enterprises from the point of view of risk and sustainable development. Within the organizational structures, it is necessary to gradually introduce the function of a project risk manager or project manager with a strong focus on solving project risks. It is also necessary to support risk management in enterprises in connection with the existence and incorporation into project activities.

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REFERENCES

[1] Acebes, F., Pajares, J. Gonzlez-Varona, J. M. & Lpez-Paredes, A. (2021). Project risk management from the bottm-up: Activity Risk Index. *Central European journal of operations research*, vol. 29, iss. 4, pp. 1375-1396.

[2] Damnjanovic, I. & Reinschmidt, K. (2020). Project Risk Management Funfamentals. In: Data analytics for engineering and construction project risk management. Switzerland: Springer international publishing AG, pp. 23-41.

[3] Dandage, R. V., Rane, S. b., Mantha & S. S. (2021). Modelling human resource dimension of international project risk management. *Journal of global operations and strategic sourcing*, vol. 14, iss. 2, pp. 261-290.

[4] Danila, D. S. & Adam, O. A. (2020). Challenges in project management during the COVID-19 crisis. In: Strategica; preparing for tomorrow, today. Romania: Bucharest, pp. 909-917.

[5] Doležal, J. et al. (2016). *Projektový management – komplexně, prakticky a podle světových standardů*. Praha: Grada Publishing, p. 424.

[6] Ghaeli, M. R. (2018). The advantage of project risk management tools. *Journal of project management*, vol. 3, iss. 2, pp. 121-124.

[7] Gruenbichler, R., Klucka, J., Haviernikova, K. & Strelcova, S. (2021). Business Performance Management in Small and Medium-Sized Enterprises in the Slovak Republic: An Integrated Three-Phase-Framework for Implementation. *Journal of competitiveness*, vol. 13, iss. 1, pp. 42-58.

[8] Hefley, W. E. & Bottion, M. (2021). Skills of junior project management professionals and project success achieved by them. *Ijispm-international journal of information systems and project management*, vol. 9, iss. 1, pp. 56-75.

[9] Hrázdilová Bočková, K. (2016). *Projektové řízení*. Martin Koláček - E-knihy jedou, p. 470.

[10] Hudakova, M., Mika, V. & Masar, M. (2017). The current need of education in the field of risk management. In: *9th international conference on education and new learning technologies (Edulearn 2017)*, pp. 819-827.

[11] Holla, K. et. Al. (2016). Results of Survey Among SEVESO Establishments in the Slovak Republic. *Journal of Chemical Healt Safety*, vol. 23, iss. 2, pp. 9-17.

[12] Chernogorova, Y., Bliznakov, Z. & Bliznakova, K. (2021). Management challenges in implementing scientific projects during COVID-19 pandemic. *Polish journal of management studies*, vol. 23, iss. 1, pp. 136-150.

[13] Chernyakhovskaya, L. Nikulina, N., Malakhova, A. & Ivanova, I. (2020). Simulation Modeling Of Innovative Project Management Processes. In: *Proceedings of the 8th scientific conference on information technologies for intelligent decision making support (ITIDS 2020)*, vol. 174, pp. 24-29.

[14] ISACA (2020). *State Of Enterprise Risk Management 2020*. [online]. [cit. 2021-10-22]. Available at: https://www.isaca.org/-/media/info/state-of-enterprise-risk-management-survey/index.html

[15] Korecký, M. & Trnkovský, V. (2011). *Management rizik projektů se zaměřením na projekty v průmyslových podnicích*. Praha: Grada Publishing, p. 583.

[16] Lima, P. F. D., Marcelino-Sadaba, S. & Verbano, C. (2021). Successful implementation of project risk management in small and medium enterprises: a cross-case analysis. *International journal of managing projects in business*, vol. 14, iss. 4, pp. 1023-1045.

[17] Máchal, P., Ondrouchová, M. & Presová, R. (2015). *Světové standardy projektového řízení: pro malé a střední firmy*. Praha: Grada, p. 144.

[18] Masar, M. & Hudakova, M. (2017). Benefits of use integration ISO 21500:2012 and ISO 31000:2009 in project risk management. In: *Proceedings of the 10th international scientific conference: Karvina PH. D. conference on business and economics*, pp. 124-134.

[19] Masar, M. & Hudakova, M. (2019). Project risk management in the context of industry 4.0 in condition of manufacturing enterprises in Slovakia. In: *Impact industry 4.0 in job creation*. Slovakia: Trencianske Teplice, pp. 145-154.

[20] Masar, M. & Hudakova, M. (2020). The impact of human factor on project of implementation concept industry 4.0 in manufacturing enterprises. In: *Vplyv industry 4.0 na tvorbu pracovných miest 2019*. Slovakia: Trencianske Teplice, pp. 268-276.

[21] Moshtaghian, F., Golabchi, M. & Noorzai, E. (2020). A framework to dynamic indetification of project risks. *Smart and sustainable built environment*, vol. 9, iss. 4, pp. 375-393.

[22] Nagyova, A., Pacaiova, H., Markulik, S., Turisova, R., Kozel, R. &Dzugan, J. (2021). Design of a Model for Risk Reduction in Project Management in Small and Medium-Sized Enterprises. *Symmetry-basel*, vol. 13, iss. 5.

[23] Parashkevova, E. (2020). Integratinfg project risk into risk management strategies in public sector organizations. In: *7th international conference on education and social sciences (intcess 2020)*, pp. 754-764.

[24] Pchelintseva, I., Gordashnikova, O., Goryacheva, T. & Vasina, A. (2020). Methodological Toolbox for Risk Assessment of Innovative Projects in the Context of Project Management Quality. *Quality-access to success*, vol. 21, iss. 177, pp. 92-95.

[25] Rehacek, P. (2017). Risk management standards for project management. *International journal of advanced and applied sciences*, vol. 4, iss. 6, pp. 1-13.

[26] Rodrigues, M., Franco, M. Sousa, N. & Silva, R. (2021). COVID 19 and the Business Management Crisis: An Empirical Study in SMEs. *Sustainability*, vol. 13, iss. 11.

[27] Sohi, A. J., Bosch-Rekveldt, M. & Hertogh, M. (2021). Practitioners´ Perspectives on Flexible Project Management. *IEEE transactions on engineering management*, vol. 68, iss. 4, pp. 911-925.

[28] Svozilová, A. (2016). *Projektový management – Systémový přístup k řízení projektů*. Praha: Grada Publishing, p. 424.

[29] Testorelli, R. & Verbano, C. (2020). Value creation with project risk management: a systematic literature review. In: *13th annual conference of the euromed academy of business: business theory and practice across industries and markets*, pp. 1489-1494.

[30] Všetečka, P. (2017). *Projektové myslenie – sprievodca súborom znalostí*. Liptovský Mikuláš, p. 528.

[31] Wellingtone PPM (2018). *The State of Project Management Annual Survey*. [online]. [cit. 2021-10-22]. Available at: https://www.wellingtone.co.uk/wp-content/uploads/2018/05/The-State-of-Project-Management-Survey-2018-FINAL.pdf

[32] Zachosova, N. Zhyvko, Z. & Zanora, V. (2020). Human risks of project management involving remote teams in the context of the enterprise economic and financial security. *Financial and credit activity-problems of theory and practice*, vol 4, iss. 25, pp. 514-521.

[33] Zuzek, T., Rihar, L., Berlec, T. & Kusar, J. (2020). Standard Project Risk Analysis Approach. *Business systems research journal*, vol. 11, iss. 2, pp. 149-158.

DOPADY PANDÉMIE COVID – 19 NA SLOVENSKÝ TRH PRÁCE

IMPACTS OF THE COVID - 19 PANDEMIC ON THE SLOVAK LABOR MARKET

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Abstrakt: *Pandémia nového vírusu COVID-19 má negatívny vplyv na ekonomiku a aj na vývoj na trhu práce. V dôsledku zavádzania protiepidemických opatrení bola obmedzená hospodárska činnosť viacerých podnikov, čo sa negatívne prejavilo okrem iného aj na zamestnanosti. Vláda Slovenskej republiky so zámerom znižovania sociálno-ekonomických dôsledkov šírenia ochorenia COVID-19 prijala viacero opatrení vo forme priamej a nepriamej podpory udržania pracovných miest, na udržanie a na podporu hospodárskej činnosti podnikov. Príspevok je zameraný na skúmanie prijatých opatrení na podporu zamestnanosti v čase mimoriadnej situácie v SR v dôsledku šírenia vírusu COVID-19, ktoré priamo smerovali k podpore udržania zamestnanosti a zamedzeniu vzniku nezamestnanosti. Finančná pomoc bola poskytovaná ako nenávratný finančný príspevok.*

Kľúčové slová: *štátna pomoc, udržanie zamestnanosti, právne predpisy, pandémia COVID-19*

Abstract: *The pandemic of the new COVID-19 virus has a negative impact on the economy and also on the development of the labor market. As a result of the introduction of anti-epidemic measures, the economic activity of several companies was limited, which had a negative effect on employment, among other things. With the intention of reducing the socio-economic consequences of the spread of COVID-19, the Government of the Slovak Republic has taken several measures in the form of direct and indirect support for job retention, maintenance and support of economic activity of enterprises. The paper focuses on the examination of measures taken to support employment in times of emergency in the Slovak Republic due to the spread of the COVID-19 virus, which were directly aimed at supporting the maintenance of employment and preventing the emergence of unemployment. Financial assistance was provided as a non-repayable financial contribution.*

Key words: *state aid, employment retention, legislation, pandemic COVID-19*

JEL Classification: *K0, J3, J6*

1. ÚVOD

Vzhľadom na mimoriadne okolnosti spôsobené nárastom vírusu COVID-19, ktorý sa rozšíril do všetkých členských štátov Európskej únie a aj do iných štátov sveta, aj Slovenská republika začala iniciovať aktivity jednak na zabránenie šírenia vírusu, jednak na ochranu verejného zdravia občanov a na zmierňovanie hospodárskych dôsledkov tejto pandémie. Pre národohospodársku politiku je nevyhnutné, aby boli chránené nielen odvetvia národného hospodárstva, ale aj pracovné miesta a práva zamestnancov. Vláda SR so zámerom znižovania sociálno-ekonomických dôsledkov šírenia ochorenia COVID-19 prijala viacero opatrení vo forme priamej a nepriamej podpory udržania pracovných miest, na udržanie a na podporu podnikania. Prioritou týchto opatrení bolo okrem iného aj udržanie zamestnancov v pracovnom pomere s adekvátnym príjmom, čo by im zabezpečilo sociálnu istotu. Ide o opatrenia, ktorých gestormi sú najmä Ministerstvo práce, sociálnych vecí a rodiny SR. So zámerom zabrániť šíreniu ochorenia boli zavádzané opatrenia na obmedzenie kontaktu medzi

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ľuďmi, cestovné obmedzenia, karantény či uzavretia určitých okresov s vysokým výskytom ochorenia. Práve v dôsledku zavádzania opatrení tohto druhu bola obmedzená ekonomická aktivita hospodárskych subjektov. Členské štáty Európskej únie čelili aj problému ako je núdzová zdravotná situácia, vyžadujúca trvalé či dočasné opatrenia na obmedzenie slobody pohybu osôb (Ispa, G. L., 2021).

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je analyzovať druhy a podmienky poskytovania štátnej pomoci v nadväznosti na vzniknutú situáciu so šírením vírusu COVID-19. Prínosom príspevku je poukázať na význam politiky štátnej pomoci a na opatrenia majúce pozitívny vplyv na zamestnanosť. Na základe získaných dát z Protimonopolného úradu SR a Ministerstva spráce sociálnych vecí a rodiny SR sme sekunárnou analýzou za použitia vedeckých metód objasnili systém a objemy poskytnutej štátnej pomoci oprávneným subjektom.

2.1 Uplatniteľnosť článku 107 ods. 3 písm. b) ZFEÚ - Zmluva o fungovaní Európskej únie

Európska komisia aj v čase šírenia ochorenia zameriava svoje aktivity na to, aby sa v Európe vybudovalo inteligentné, udržateľné a inkluzívne hospodárstvo. Tieto tri vzájomne sa posilňujúce priority by mali členským štátom aj počas nepriaznivej situácie spôsobenej vírusom COVID-19 pomôcť udržať pracovné miesta a posilniť sociálnu súdržnosť. Európska únia prijíma v rámci svojej pôsobnosti rôzne nástroje, ktoré sú záväzné pre všetky členské štáty. Okrem primárnej právnej úpravy EÚ v záujme správneho fungovania vnútorného trhu prijímajú inštitúcie EÚ sekundárne právne predpisy, ktoré sú členské štáty povinné rešpektovať a smernice musia transponovať v požadovanom čase do vnútroštátnych právnych predpisov (Jančíková, E., 2021). Slovenská republika ako riadny členský štát EÚ je povinná správne aplikovať všetky jej právne predpisy. Táto povinnosť jej priamo vyplýva aj z článku 7. ods. 2 Ústavy Slovenskej republiky. Politika štátnej pomoci je regulovaná Zmluvou o fungovaní Európskej únie (ZFEÚ) a sekundárnymi aktami. ZFEÚ v ustanovení článku 107 ods. 1 ustanovuje právnu koncepciu a všeobecný zákaz poskytovania štátnej pomoci, ktorá narúša hospodársku súťaž a obchod medzi členskými štátmi. Okrem iného sú zakázané všetky iné výhody predstavujúce preferenčné zaobchádzanie s danými podnikmi alebo odvetviami, ktoré narúšajú alebo pravdepodobne narušia hospodársku súťaž a nepriaznivo ovplyvňujú obchod medzi členskými štátmi (Parenti, R., 2021). Primárna právna úprava EÚ obsahuje aj určité výnimky z tohto všeobecného zákazu v ustanovení článkov 107 (2) a 107 (3) ZFEÚ, na základe ktorých je možné poskytovať štátnu pomoc. V zásade ide o štátnu pomoc, ktorá sa poskytuje z verejných zdrojov v súlade s úniovými pravidlami. V danej súvislosti ide o zásah štátu, resp. použitie finančných prostriedkov z verejných zdrojov, v dôsledku čoho môže byť ovplyvnený obchod medzi členskými štátmi. Príjemca pomoci môže byť zvýhodnený, alebo môžu byť narušené pravidlá hospodárskej súťaže. Opatrenia štátnej pomoci sú výhody v akejkoľvek forme (napr. ako pôžičky, priame granty, daňové úľavy, schémy finančnej podpory), ktoré môže orgán verejnej moci poskytnúť podnikom (Delarue, J. & Bechtel, S. D., 2021). Pri poskytovaní štátnej pomoci v súvislosti s nákazou COVID-19 sa uplatňujú aj nasledujúce vnútroštátne právne predpisy:

a) zákon č. 358/2015 Z. z. o úprave niektorých vzťahov v oblasti štátnej pomoci a minimálnej pomoci a o zmene a doplnení niektorých zákonov a
b) zákon č. 5/2004 Z. z. o službách zamestnanosti a o zmene a doplnení niektorých zákonov v znení neskorších predpisov.

Štátna pomoc je poskytovaná prostredníctvom platných schém štátnej pomoci a vo forme nenávratného finančného príspevku na základe predložených relevantných dokladov.

V záujme rešpektovania princípu transparentnosti sú základné dáta o príjemcoch zverejňované poskytovateľmi štátnej pomoci.

2.2 Subjekty oprávnené požiadať o štátnu pomoc

Príjemcom štátnej pomoci podľa súčasnej platnej právnej úpravy EÚ (č.107 (1) ZFEÚ) a aj v zmysle § 5 ods. 2 zákona č. 358/2015 Z. z. môže byť iba subjekt, ktorý vykonáva hospodársku činnosť. Inými slovami povedané, akýkoľvek subjekt vykonávajúci hospodársku činnosť bez ohľadu na právne postavenie, spôsob financovania a bez ohľadu na to, či dosahuje zisk, napr. aj neziskové organizácie, neziskové organizácie poskytujúce verejnoprospešné služby, občianske združenia, združenia občanov, nadácie, ktoré vykonávajú hospodársku (ekonomickú) činnosť, alebo realizujú aktivity, ktorých výstupom je hospodárska (ekonomická) činnosť. Charakteristickým znakom hospodárskej činnosti je, že ide o činnosť, ktorá spočíva v ponuke tovaru alebo poskytovaní služieb na trhu. Ustálená judikatúra Súdneho dvora EÚ je pomerne široká vo väzbe na definíciu pojmu hospodárska činnosť. Podľa rozsudku vo veci C 327/12 (konanie o prejudiciálnej otázke) *„je hospodárskou činnosťou každá činnosť spočívajúca v ponuke tovaru alebo služieb na danom trhu. Naopak, činnosti, ktoré sa viažu na výkon verejnej moci nemajú hospodársku povahu odôvodňujúcu uplatnenie pravidiel v oblasti hospodárskej súťaže.“* Z uvedeného je zrejmé, že žiadateľmi štátnej pomoci môžu byť iba subjekty vykonávajúce hospodársku činnosť, nech je ich status akýkoľvek.

2.3 Dočasný rámec pre opatrenia štátnej pomoci

Európska únia v rámci svojej pôsobnosti začala prijímať rôzne opatrenia zamerané na zmiernenie dôsledkov pandémie. Súčasťou týchto opatrní sú aj zmäkčujúce pravidlá umožňujúce poskytovanie štátnej pomoci v rôznych oblastiach, ktorých cieľom je udržanie pracovných miest a pomoc prevádzkam a podnikom, ktoré z dôvodu obmedzenia prestali vykonávať hospodársku činnosť alebo museli tieto objekty dočasne uzatvoriť (Kováč, M., 2021). Vhodným príkladom je dokument *Dočasný rámec pre opatrenia štátnej pomoci na podporu hospodárstva v súčasnej situácii spôsobenej nákazou COVID-19*, ktorý bol prijatý s cieľom riešiť vážne poruchy fungovania v hospodárstve spôsobené neželanou pandémiou (Ú. v. C 91 20. 3. 2020). V minulosti boli prijímané aj opatrenia v nadväznosti na globálnu finančnú krízu so zámerom zabrániť závažným negatívnym účinkom presahovania na celý finančný systém v dôsledku zlyhania individuálnej finančnej inštitúcie.

Na základe dočasného opatrenia je možné poskytovať štátnu pomoc v týchto formách:

a) pomoc vo forme priamych grantov, vratných preddavkov alebo daňového zvýhodnenia,
b) pomoc vo forme záruk za úvery,
c) pomoc vo forme dotovaných úrokových sadzieb na úvery,
d) pomoc na krátkodobé poistenie vývozných úverov.

Okrem týchto opatrení boli prijímané počas pandémie aj opatrenia týkajúce sa dotácií na mzdy, pozastavenia platieb dane z príjmu právnických osôb a dane z pridanej hodnoty alebo príspevkov na sociálne zabezpečenie.

2.4 Prvá pomoc Slovensku

Koncom marca 2020 schválila vláda SR opatrenia zamerané na zmiernenie ekonomických dopadov pandémie COVID-19. Najprv boli schválené nové typy sociálnych dávok v podobe pandemického nemocenského a ošetrovného, následne vláda predstavila aj opatrenia priamej pomoci na udržanie pracovných miest v rámci tzv. „Prvej pomoci“ zamestnancom,

podnikateľom a samostatne zárobkovo činným osobám (SZČO). Paralelne s týmito opatreniami umožnila novelizácia zákona o sociálnom poistení odklad alebo odpustenie odvodov na sociálne poistenie pre niektorých zamestnávateľov. Prehľad zavedených opatrení je uvedený v nasledujúcej tabuľke (tabuľka 1).

Tabuľka 1. Prehľad zavedených opatrení "Prvej pomoci" v SR (marec 2020 až júl 2021)

Opatrenie	Zverejnenie	Oprávnený žiadateľ	Cieľová skupina	Výška príspevku max. EUR	Podmienky opatrenia
1	**06.04.2020**	zamestnávateľ, SZČO ak je zamestnávateľom	zamestnanec	1100	zamestnávateľovi na zamestnanca na prekážke
2	**09.04.2020**	SZČO	SZČO	180-540, resp. 90-270	pokles tržieb najmenej 20%, resp. 10%
3A	**17.04.2020**	zamestnávateľ, SZČO ak je zamestnávateľom	zamestnanec	880	činnosť obmedzená z dôvodu ekonomického poklesu: zamestnávateľovi na zamestnanca na prekážke
3B	**21.04.2020**	zamestnávateľ, SZČO ak je zamestnávateľom	zamestnanec	180-540, resp. 90-270	pokles tržieb najmenej 20%, resp. 10%, pre zamestnávateľa
4A	**23.04.2020**	SZČO	SZČO	210, resp. 105 paušál	
4B	**23.04.2020**	jednoosobová s.r.o.	jediný spoločník a konateľ	210, resp. 105 paušál	

Zdroj: Vlastné spracovanie na základe materiálu MPSVR SR (2020): Prvá pomoc Slovensku: priebežná správa o sociálnej pomoci pracujúcim a rodinám. [online 2021] [cit. 2021-10-09]. Dostupné na: <https://institutsocialnejpolitiky.sk/wp-content/uploads/2020/08/isp_2020_prva_pomoc_slovensku_final5.pdf>

3. VÝSLEDKY A DISKUSIA

V analýze sme sa zamerali na prehľad poskytovania štátnej pomoci na Slovensku v súvislosti s pandémiou COVID-19. Štátna pomoc bola poskytovaná na základe rôznych druhov dočasných opatrení, ktoré boli a sú cielené pre rôzne skupiny žiadateľov a aj pre rôzne cieľové skupiny. Táto pomoc mala zmierniť dôsledky pandémie na ekonomiku SR a predovšetkým na trh práce. Na základe sledovania vývoja mesačnej miery evidovanej nezamestnanosti v súvislosti s výškou vyplatenej štátnej pomoci budeme sledovať účinnosť zavedených opatrení.

3.1 Analýza vývoja nezamestnanosti na Slovensku počas pandémie

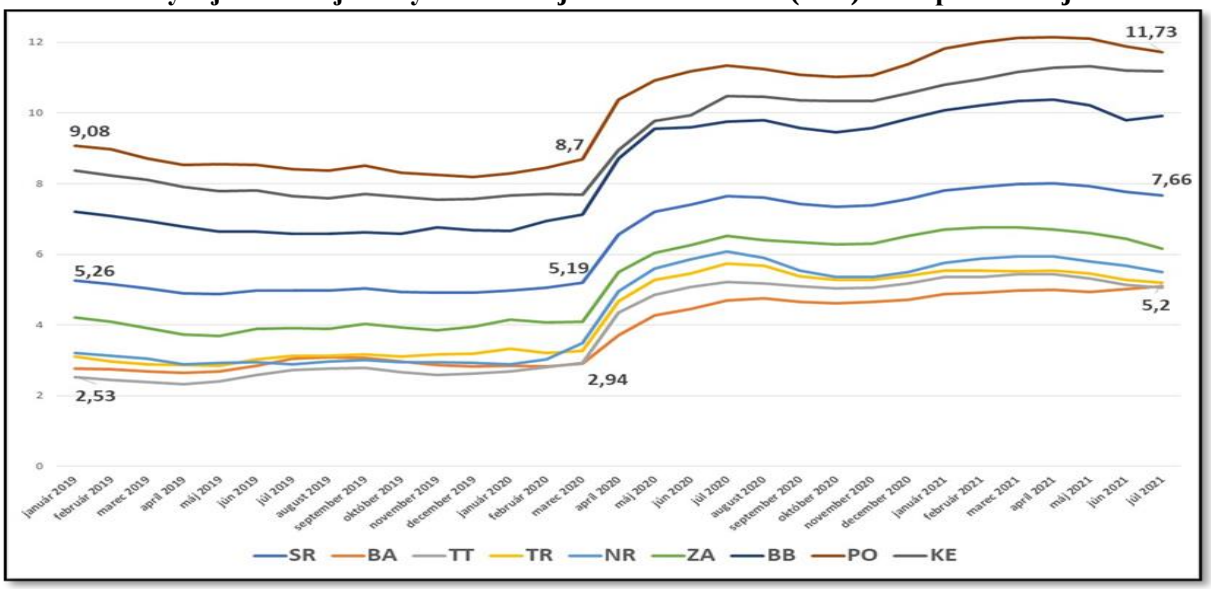
Na základe dát zverejnených Ministerstvom práce sociálnych vecí a rodiny (9/2021) v dátovej prílohe k správe „Prvá pomoc Slovensku" sme analyzovali vývoj mesačnej miery evidovanej nezamestnanosti v SR celkovo a aj podľa krajov za obdobie január 2019 až júl 2021 (pozri tabuľku 2 a obrázok 1).

Tabuľka 2. Miera evidovanej nezamestnanosti (v %) podľa krajov SR

Kraj SR	Miera evidovanej nezamestnanosti v %				
	január 2019	**január 2020**	**marec 2020**	**január 2021**	**júl 2021**
SR - Slovensko	5,26%	4,98%	5,19%	7,81%	7,66%
BA - Bratislavský kraj	2,76%	2,84%	2,91%	4,87%	5,10%
TT - Trnavský kraj	2,53%	2,68%	2,94%	5,35%	5,05%
TR - Trenčiansky kraj	3,12%	3,33%	3,27%	5,55%	5,20%
NR - Nitriansky kraj	3,21%	2,90%	3,50%	5,77%	5,50%
ZA - Žilinský kraj	4,21%	4,15%	4,09%	6,71%	6,17%
BB - Banskobystrický kraj	7,21%	6,67%	7,12%	10,07%	9,91%
PO - Prešovský kraj	9,08%	8,29%	8,70%	11,83%	11,73%
KE - Košický kraj	8,38%	7,67%	7,68%	10,81%	11,19%

Zdroj: Vlastné spracovanie na základe údajov z MPSVR SR (2021): Prvá pomoc Slovensku - priebežná správa o sociálnej pomoci pracujúcim a rodinám - AKTUALIZÁCIA 16 a 17. [online 2021] [cit. 2021-05-10]. Dostupné na: <https://www.employment.gov.sk/sk/ministerstvo/vyskum-oblasti-prace-socialnych-veci-institut-socialnej-politiky/analyticke-komentare/prva-pomoc-slovensku.html>

Obrázok 1. Vývoj mesačnej miery evidovanej nezamestnanosti (v %) v SR podľa krajov



Zdroj: Vlastné spracovanie na základe údajov z MPSVR SR (2021b): Prvá pomoc Slovensku - priebežná správa o sociálnej pomoci pracujúcim a rodinám - AKTUALIZÁCIA 16 a 17. [online 2021] [cit. 2021-05-10]. Dostupné na: <https://www.employment.gov.sk/sk/ministerstvo/vyskum-oblasti-prace-socialnych-veci-institut-socialnej-politiky/analyticke-komentare/prva-pomoc-slovensku.html>

V porovnaní s rokom 2019, v roku 2020 a 2021 postupne rástla miera nezamestnanosti na Slovensku vplyvom pandémie COVID-19. Kým v januári 2019 v SR bola na úrovni 5,26 % a v marci 2020 dokonca len 5,12 %, tak vplyvom zavedenia pandemických opatrení u nás a aj vo svete postupne rástla. Je zrejmé, že s nástupom pandémie v marci 2020 začala aj na Slovensku stúpať nezamestnanosť. Miera evidovanej nezamestnanosti bola v januári 2019 5,16 % a v januári 2021 už 7,81 %, t.j. vzrast o 2,55 percentuálneho bodu (p. b.).

V júli 2021 dosiahla miera evidovanej nezamestnanosti hodnotu 7,66 %, ale v porovnaní s predchádzajúcimi mesiacmi (apríl, máj a jún 2021), začala klesať. Na základe aktuálnych informácií v septembri 2021 dosiahla táto miera úroveň 7,09 %. V porovnaní s predchádzajúcim mesiacom poklesla o 0,28 p. b. (7,37 % v auguste 2021). Medziročne poklesla o 0,34 p. b. (7,43 % v septembri 2020). Septembrová miera evidovanej nezamestnanosti bola najnižšia od mája 2020 (MPSVR SR, 2021b).

V júli 2021 si našlo prácu viac ako 13-tisíc nezamestnaných (13 611). Poklesla miera evidovanej nezamestnanosti a aj miera nezamestnanosti z celkového počtu uchádzačov

o zamestnanie. Trend poklesu tak pokračuje štvrtý mesiac po sebe a potvrdzuje postupné zotavovanie trhu práce. V ponuke je najviac dostupných pracovných miest od začiatku tohto roka. V septembri 2021 sa na trhu práce uplatnilo až 17 437 uchádzačov o zamestnanie, čo je o 4 778 viac ako v predošlom mesiaci. Nastupuje však opäť ďalšia vlna pandémie a na Slovensku rapídne pribúda počet nakazených občanov.

Úrady práce evidovali v júli 2021 až 73 575 dostupných pracovných miest, čo je najviac od začiatku roka 2021 (63 411 v januári 2021). Najväčšia ponuka práce bola v Bratislavskom kraji, a to 20 896 miest (podiel 28,40 %), najmenej miest bolo v Košickom kraji 3 831 (podiel 5,21 %). Počet dostupných pracovných miest vhodných pre absolventov bol v mesiaci jún najvyšší od začiatku roka 2021, a to 34 596. Najčastejšie zamestnávatelia hľadali profesie: Operátori a montéri strojov a zariadení (32 687 miest), Kvalifikovaní pracovníci a remeselníci (14 903 miest), Pomocní a nekvalifikovaní pracovníci (8 006 miest).

Aj v septembri 2021 sa potvrdil pokračujúci pozitívny trend rastu voľných pracovných miest na trhu práce. Úrady práce ich evidovali najviac od septembra minulého roku, a to až 76 254. V medzimesačnom porovnaní ide o nárast o 815 miest. Najviac ich bolo v Bratislavskom kraji, a to 21 747 miest (podiel 28,52 %), najmenej miest bolo v Košickom kraji 3 888 (podiel 5,10 %). Úrady práce, sociálnych vecí a rodiny evidovali v septembri 36 873 voľných pracovných miest vhodných pre absolventov. Pokles zaznamenal aj počet nahlásených hromadných prepúšťaní. V porovnaní s obdobím január až september je ich v tomto roku menej o 37. V prípade počtu ohrozených pracovných miest ide o pokles o 2 128 osôb.

V júli 2021 poberalo pomoc v hmotnej núdzi celkom 56 631 osôb, čo je najmenej od začiatku tohto roka. Medzimesačne sa počet poberateľov znížil o 1 121 osôb (57 752 poberateľov v júni 2021). Medziročne je to pokles o 7 807 poberateľov (64 438 poberateľov v júli 2020). Celkovo bola v prvom polroku 2021 vyplatená pomoc v hmotnej núdzi 66 774 poberateľom v sume takmer 53 mil. eur.

Nezamestnanosť v regiónoch (krajoch) SR je dlhodobo na rozdielnej úrovni. Najnižšia nezamestnanosť je na západe Slovenska, v Trnavskom kraji (TT) a Bratislavskom kraji (BA) a opačne najvyššia na východe Slovenska, v Prešovskom kraji (PO) a Košickom kraji (KE). Je to spôsobené rozdielnou úrovňou rozvoja priemyslu v regiónoch SR a ich dostupnosťou. Kým miera nezamestnanosti v januári 2019 v Trnavskom kraji bola len 2,53 %, tak postupne rástla a v júli 2021 dosiahla hodnotu až 5,05 % (tabuľka 4: vzrast o 2,52 p. b.) a v období pandémie (marec 2019 až júl 2021) bola vyššia ako v Bratislavskom kraji (tabuľka 4: vzrast o 2,34 p. b.). Na východe Slovenska v Prešovskom kraji bola miera nezamestnanosti v januári 2019 pomerne vysoká (9,08 %) a počas pandémie vzrástla ešte o 2,65 p. b. a dosiahla úroveň 11,73 % v júli 2021. Ešte vyšší prírastok za pandemické obdobie bol však v Košickom kraji (2,81 p. b.) a Banskobystrickom kraji (2,7 p. b.). Kým do januára 2020 v porovnaním s januárom 2019 (obdobie pred pandémiou COVID-19) miera nezamestnanosti klesla v SR (o -0,28 p. b.) a aj vo väčšine krajov bol klesajúci trend (okrem 3 krajov: BA, TT a TR).

Tabuľka 3. Absolútne zmeny (DIFF) mier evidovanej nezamestnanosti podľa krajov SR (v p. b.)

DIFF	SR	BA	TT	TR	NR	ZA	BB	PO	KE
1_2020 - 1_2019	-0,28	0,08	0,15	0,21	-0,31	-0,06	-0,54	-0,79	-0,71
1_2021 - 1_2020	2,83	2,03	2,67	2,22	2,87	2,56	3,40	3,54	3,14
1_2021 - 1_2019	2,55	2,11	2,82	2,43	2,56	2,50	2,86	2,75	2,43
6_2021 - 1_2019	2,40	2,34	2,52	2,08	2,29	1,96	2,70	2,65	2,81
6_2021 – 3_2020	2,47	2,19	2,11	1,93	2,00	2,08	2,79	3,03	3,51

Zdroj: Vlastné spracovanie na základe údajov z MPSVR SR (2021): Prvá pomoc Slovensku - priebežná správa o sociálnej pomoci pracujúcim a rodinám - AKTUALIZÁCIA 16. Dostupné na: <https://www.employment.gov.sk/sk/ministerstvo/vyskum-oblasti-prace-socialnych-veci-institut-socialnej-politiky/analyticke-komentare/prva-pomoc-slovensku.html>

4. ZÁVER

Na základe zhromaždených faktov a dát sme preukázali, že Vláda SR prijala viacero opatrení počas zhoršenej epidemickej situácie, s cieľom minimalizovať jej negatívne ekonomické a sociálne následky. Z tohto dôvodu bola prijatá rozšírená verzia „Prvej pomoci +“ v podobe tzv. „Prvej pomoci ++“, ktorá navýšila finančné príspevky, zároveň však došlo k úprave pri výpočte príspevku s cieľom odbremeniť zamestnávateľov od platenia celej výšky odvodov za svojich zamestnancov.

Pomoc pre postihnuté subjekty sa na základe pravidiel „Prvej pomoci ++“ vyplácala od februára 2021 až do konca júna 2021. Hoci sa epidemická situácia na Slovensku vyvíjala v letných mesiacoch 2021) priaznivejšie, ako v roku 2020, neznamená to automaticky aj zastabilizovanie ekonomickej kondície podnikov a SZČO, s čím úzko súvisí aj situácia na trhu práce. Vláda SR sa preto priklonila k sanácii negatívnych dopadov pandémie až do konca roka 2021. Uznesením vlády SR č. UV-10569/2021 prijatým 9. júna 2021 sa vyplácanie finančnej pomoci za júl 2021 naviazalo na stav epidemickej situácie cez tzv. Covid automat. Úpravou Covid automatu na základe uznesenia vlády SR č. UV-16464/2021 prijatého 10. augusta 2021 prišlo k zmenám v poskytovaní finančných príspevkov prostredníctvom nástrojov „Prvej pomoci“.

LITERATÚRA

[1] Delarue, J. & Bechtel, S. D. (2021). Access to justice in State aid: how recent legal developments are opening ways to challenge Commission State aid decisions that may breach EU environmental law. ERA Forum 22, 253–268 (2021). [cit.23.9.2021]. Dostupné na: https://doi.org/10.1007/s12027-021-00665-7.

[2] Európska komisia (2020). Oznámenie Komisie Dočasný rámec pre opatrenia štátnej pomoci na podporu hospodárstva v súčasnej situácii spôsobenej nákazou COVID-19 2020/C 91 I/01 C/2020/1863.Ú.v. C 91 20.3.2020 s.1-9.

[3] ISPA, G. L. (2021). Impact of the COVID-19 on the migration in the European Union. *Juridical Tribune*. vol. 11, iss. 1, pp. 38.

[4] Jančíková, E. (2021). Správne fungovanie vnútorného trhu EÚ a ochrana spotrebiteľa. *Manažment podnikania a vecí verejných*. Ročník XVI, číslo 1/2021, str. 3-17. Bratislava. ISSN 2453-8167.

[5] Kováč, M. (2021). Spoločná cesta k bezpečnej Európe – digitálna brána. *Manažment podnikania a vecí verejných.* vol. XVI, iss. 2, pp. 17-26.

[6] MPSVR SR. (2021a). Nezamestnanosť klesla ďalší mesiac po sebe, trh práce je stabilný. [online 2021]. [cit. 2021-08-24]. Dostupné na: https://www.employment.gov.sk/sk/uvodna-stranka/informacie-media/aktuality/nezamestnanost-klesla-dalsi-mesiac-po-sebe-trh-prace-je-stabilny.html.

[7] MPSVR SR. (2021b). Prvá pomoc Slovensku - priebežná správa o sociálnej pomoci pracujúcim a rodinám - Aktualizácia 17. [online 2021] [cit. 2021-10-02]. Dostupné na: https://www.employment.gov.sk/sk/ministerstvo/vyskum-oblasti-prace-socialnych-veci-institut-socialnej-politiky/analyticke-komentare/prva-pomoc-slovensku.html; https://www.employment.gov.sk/sk/uvodna-stranka/informacie-media/aktuality/september-znameni-najnizsej-nezamestnanosti-za-poslednych-17-mesiacov.html.

[8] Parenti, R. (2021). *Politika hospodárskej súťaže*. [online 2021-05] [cit. 2021-09-23] Dostupné na: https://www.europarl.europa.eu/factsheets/sk/sheet/82/politika-hospodarskej-sutaze.

[9] Protimonopolný úrad SR. (2021). Správa o poskytnutej štátnej pomoci v Slovenskej republike. [online 2021] [cit. 2021-04-09]. Dostupné na: https://www.slov-lex.sk/legislativne-procesy/-/SK/LP/2021/210https://www.slov-lex.sk/legislativne-procesy/-/SK/LP/2021/210.

[10] Súdny dvor EÚ. (2013). Rozsudok Súdneho dvora Európskej únie zo dňa 12.12.2013 vo veci C 327/12 Ministero dello Sviluppo economico, Autorità per la vigilanza sui contratti pubblici di lavori, servizi e forniture proti SOA Nazionale Costruttori – Organismo di Attestazione SpA (konanie o prejudiciálnej otázke).

[11] Ústava Slovenskej republiky. Zákon č. 460/1992 Zb. v znení neskorších zmien.

[12] Úrad vlády SR. (2021). *Covid Automat*. [online2021][cit.12.9.2021-09-12] Dostupné na : https://rokovania.gov.sk/RVL/Negotiation/1152.

[13] Úrad vlády SR (2021). Návrh zákona, ktorým sa dopĺňa zákon č. 67/2020 Z. z. o niektorých mimoriadnych opatreniach vo finančnej oblasti v súvislosti so šírením nebezpečnej nákazlivej ľudskej choroby COVID-19 v znení neskorších predpisov. [onlien 2021]. [cit.12.9.2021-09-12] Dostupné na: https://rokovania.gov.sk/RVL/Negotiation/1143.

[14] Zákon č. 358/2015 Z. z. o úprave niektorých vzťahov v oblasti štátnej pomoci a minimálnej pomoci a o zmene a doplnení niektorých zákonov.

APLIKÁCIA INOVAČNÝCH TECHNOLÓGIÍ V ODVETVÍ ŤAŽBY A SPRACOVANIA NERASTNÝCH SUROVÍN

APPLICATION OF INNOVATIVE TECHNOLOGIES IN THE MINING AND PROCESSING SECTORS OF MINERALS

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Abstrakt: *V súčasnosti v procese narastajúcej digitalizácie aplikácia inovačných technológií sa stáva významným determinantom posilnenia konkurencieschopnosti podnikov. Potreba zavádzania nových inovačných technológií sa vzťahuje na všetky oblasti hospodárstva a služieb. Úspešne aplikovaná inovácia prináša zvýšenú pridanú hodnotu, čo sa pozitívne prejaví aj na hospodárskych výsledkoch podniku. V príspevku sme sa zamerali na objasnenie pojmu inovácie z viacerých uhľov pohľadu a zároveň sme identifikovali hospodárske subjekty pôsobiace v oblasti ťažby a spracovania bentonitu, ktoré zavádzajú inovačné technológie, čo sa pozitívne prejavuje nielen na hospodárskom raste, ale aj na napĺňaní cieľov v kontexte ochrany životného prostredia.*

Kľúčové slová: *inovačný proces, invencia, technológie, nerastné suroviny*

Abstract: *Currently, in the process of increasing digitization, the application of innovative technologies has become an important determinant of strengthening the competitiveness of enterprises. The need to introduce new innovative technologies applies to all areas of the economy and services. Successfully applied innovation brings increased added value which will also have a positive effect on the company's economic results. In this paper, the authors focused on the clarification of the concept of innovation from several perspectives. At the same time, the authors identified economic entities operating in the field of bentonite mining and processing which introduce innovative technologies, which has a positive effect on economic growth and in the achievement of objectives in the context of environmental protection.*

Key words: *innovation process, invention, technologies, minerals*

JEL Classification*: L15, L71, O13*

1. ÚVOD

Súčasný proces globalizácie a internacionalizácie napomáha aj rozvoju podnikania prostredníctvom informačných technológií (Mičátek, V., 2019). Vplyvom týchto procesov sa hospodárske odvetvia menia a prispôsobujú novým trendom, najmä v oblasti digitalizácie, automatizácie a robotizácie. Priemyselné revolúcie menia výrobné procesy, pracovné podmienky, životný štýl ľudí, sú procesom budovania inteligentných tovární. Technologický pokrok podporuje efektívne využívanie materiálov a zdrojov, ako aj ochranu životného prostredia. Digitalizácia ťažobného priemyslu je nevyhnutná v súčasnosti najmä vo väzbe na zlepšenie environmentálneho pôsobenia ťažobného priemyslu. Digitálna transformácia ťažobného priemyslu je súčasťou vykonávania Európskej zelenej dohody a Plánu Európskej Únie na obnovu. Ťažbou neenergetických surovín sa zabezpečuje množstvo základných surovín pre rôzne priemyselné odvetvia. Ekonomický význam predmetného odvetvia je pomerne rozsiahly, ak sa zohľadní pridaná hodnota pre väčšie spracovateľské odvetvia, ktorých hospodárska činnosť závisí od dodávok nerastných surovín. Odvetvie ťažby sa člení podľa Európskej komisie na tri skupiny, t. j. stavebné nerasty, priemyselné a kovové nerasty.

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(Európska komisia, 2011) Do skupiny priemyselných nerastov patrí aj bentonit, ktorý sa ťaží a spracováva na Slovensku. Výskyt nerastov je podmienený geologickou aktivitou v minulosti, avšak aj ťažba a využívanie nerastov v priemyselnej výrobe do veľkej miery závisia od úrovne investícií a inovácií. V praxi to znamená, že aj ťažobný priemysel z hľadiska efektívneho využívania zdrojov aplikáciou nových technológií a automatizácie procesov môže zvýšiť svoju konkurencieschopnosť. Empiricky je preukázané, že endogénne faktory regionálneho rozvoja, najmä tie, ktoré súvisia s technologickým pokrokom, prispievajú k ekonomickému rastu. Fagerberg a Verspagen (2002) zistili, že inovácie a ich priestorová difúzia prispievajú k ekonomickému rastu a spôsobujú striedanie období konvergencie a divergencie v regionálnom rozvoji.

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je skúmať aktivity vybraných podnikov spracovávajúce nerastnú surovinu bentonit, ktoré zavádzajú inovatívne technológie do výroby. Špeciálne nás zaujímajú nasledujúce výskumné otázky:

Q1: Ktoré konkrétne podniky pri ťažbe a spracovaní bentonitu zavádzajú inovačné technológie?

Q2: Akým spôsobom sú financované inovačné aktivity podnikov pôsobiace v ťažobnom a spracovateľskom priemysle?

V záujme naplnenia cieľa príspevku sme sekundárnou analýzou dát získaných z Centrálneho registra projektov, zo Štatistického úradu SR a Obchodného registra SR objasnili inovačné aktivity podnikov majúce národohospodárky význam. Prostredníctvom metódy analýzy sme vyčlenili zo širokého spektra dát a informácií, podstatné, ktoré mám pomohli objasniť podstatu nami skúmaného javu. Použitím metódy syntézy sme skúmali vzťahy medzi faktami, charakter vzájomných súvislosti a objasnili funkčnú závislosť skúmanej problematiky. K poznaniu danej problematiky bolo potrebné vykonať aj rešerš vo vedeckej a odbornej literatúre, najmä vo väzbe na objasnenie základnej terminológie.

3. RIEŠENIE PROBLÉMU

3.1 Vymedzenie pojmu inovácie

Samotný pojem inovácia je latinského pôvodu a jeho ekvivalentom je pojem obnova. K pojmu inovácie existuje viacero definícií a viacero názorov autorov ako napríklad Mariaš, Čimo (1998) Jáč, Rydvalová, Žižka (2005) Tidd, Bessant, Pavitt (2007). V danej súvislosti s pojmom inovácia sa spája aj pojem invencia, čo možno chápať ako nápad, vynález, nové technické riešenie, hmatateľný výstup vedeckého výskumu, no len niektoré invencie sa stávajú inováciou (Csank, P. at al., 2016). V zásade inovácie predstavujú vytvorenie niečoho nového alebo moderného, zdokonaľujú určité procesy, vytvárajú nové modely. V niektorých prípadoch urýchľujú procesy a zefektívňujú činnosť. Každá inovácia je finančne náročná a má vplyv na celú spoločnosť. Profesor Josef Alois Schumpeter (1931) za inovácie považoval len prvé uvedenie nového výrobku, suroviny, technologického postupu na trh, t. j. prvú materializáciu určitej myšlienky (invencie). Na rozdiel od iných autorov Peter Drucker (2016) považuje inováciu za špecifický nástroj podnikateľov, prostriedok, pomocou ktorého využívajú zmeny ako príležitosti na odlíšenie svojho podnikania alebo služieb.

Kollár a Matúšová (2019, s. 7) zdôrazňujú, že inovácie sa týkajú výrobkov, technológií, výrobných prostriedkov, profesijnej a kvalifikačnej štruktúry pracovnej sily a organizačného usporiadania organizácie. Zároveň upozorňujú, že inovácie sa nevyhnutne spájajú s

konkurencieschopnosťou na podnikovej úrovni, výskumom, vývojom a transferom technológií (Kollár a Matúšová, 2019, s. 8-10).

Ďalšími autormi, ktorí vo svojich prácach a vedeckých štúdiách objasňujú a skúmajú problematiku inovácií sú napríklad Kahn (2018), Gault (2013), King a Anderson (2002) a mnohí ďalší. Vo väčšine prípadov charakterizujú inovácie ako:

a) generovanie nových nápadov a myšlienok,
b) novú znalosť, využitú pri produkovaní výrobkov alebo služieb,
c) inovácie ako proces, resp. nástroj zmeny,
d) spôsob, resp. štýl myslenia,
e) proces,
f) nové, vylepšené riešenie.

Okrem uvedených definícií pojmu inovácie sa v praxi používa aj tzv. *Oslo manuál* OECD, ktorý sa neustále vyvíja. V roku 2018 bolo publikované jeho štvrté prepracované vydanie. Oslo manuál definuje inováciu „*ako nový alebo vylepšený produkt alebo proces (alebo ich kombinácia), ktorý sa výrazne líši od predchádzajúcich produktov alebo procesov a bol sprístupnený potenciálnym používateľom (inovácia produktu) alebo ho jednotka uviedla do používania (inovácia procesu) Za jednotku sa považuje čokoľvek, čo vyvíja inovácie – podniky, domácnosti alebo združenia.* "

V praxi a aj v odbornej literatúre sa odkazuje pomerne často na zákonnú definíciu pojmu inovácia v zmysle § 2 ods. 5 zákona č. 172/2005 Z. z. o organizácii štátnej podpory výskumu a vývoja a o doplnení zákona č. 575/2001 Z. z. o organizácii činnosti vlády a organizácii ústrednej štátnej správy v znení neskorších predpisov. Podľa uvedenej právnej normy sa pojem inovácia chápe ako:

a) „*nový alebo zdokonalený výrobok alebo nová alebo zdokonalená služba, ktoré sú uplatniteľné na trhu a založené na výsledkoch výskumu a vývoja alebo podnikateľskej činnosti,*

b) *nový alebo zdokonalený výrobný postup alebo distribučná metóda vrátane podstatných zmien techniky, zariadenia alebo softvéru, nový spôsob organizácie v podnikateľskej praxi, organizácie pracoviska alebo vonkajších vzťahov,*

c) *prenos poznatkov vedy a techniky do praxe,*

d) *nákup súhrnu výrobno-technických a obchodných skúseností (know-how), získavanie a prenájom práv z licenčných zmlúv,*

e) *zavedenie moderných metód v predvýrobných etapách a v organizácii práce*," atď.

Z uvedeného je zrejmé, že ide o dlhodobý plánovaný proces, v dôsledku ktorého sa očakáva zlepšenie určitých procesov alebo produktu, pričom by mala byť garantovaná konkurenčná schopnosť a trvalo udržateľný rast. Súčasná teória a aj hospodárska prax pozná technologické inovácie produktov a procesov a netechnologické inovácie, medzi ktoré môžeme zaradiť marketingové inovácie a organizačné inovácie.

3.2 Inovačná aktivita podnikov

V prostredí priemyslu sa čoraz častejšie stretávame s novými informačnými technológiami. Inovačná aktivita je považovaná za dôležitý determinant rastu ekonomík. Inovačná aktivita podnikov je realizovaná väčšinou v oblasti výmeny strojných zariadení, softvéru, obnovy

budov alebo inovácii produktov a služieb. Malý priestor venujú podniky vlastnému výskumu a zamestnávaniu výskumných pracovníkov. Z dát zverejnených Štatistickým úradom SR v databáze DATAcube vyplýva, že najviac zamestnancov v oblasti výskumu a vývoja v roku 2019 pracovalo v Bratislavskom kraji, a to 14 291 osôb. V Košickom kraji pôsobí 4 202 osôb na pozícii výskumných pracovníkov a najmenej v Prešovskom kraji v počte 1 276 osôb. (Štatistický úrad SR,2021) Daná situácia je ovplyvnená jednoznačne tým, že v Bratislavskom kraji pôsobí množstvo vedecko-výskumných inštitúcií a vysokých škôl. Zaujímavá je skutočnosť, že v oblasti ťažby nerastov nie je evidovaný ani 1 výskumný pracovník. Dôsledky úspešnej inovačnej aktivity podnikov sa môžu prejaviť vo viacerých oblastiach: a to napríklad na konkurenčnej výhode ponúkaných produktov/služieb, raste tržieb, na zefektívnení práce zamestnancov, na znížení výrobných nákladov, na exporte a pod. Medzi určité prekážky inovačnej aktivity podnikov možno zaradiť nedostatok vlastných zdrojov na financovanie výskumu a obstarávania nových technologických zariadení, ako aj nedostatok odborníkov so skúsenosťami na trhu práce, nezáujem o kreativitu, náročné administratívne postupy pri získavaní finančných grantových schém. Naše tvrdenie je založené na fakte, že nami uvádzané obchodné spoločnosti získali finančné prostriedky v rámci Operačného programu veda a výskum zo štrukturálnych fondov EÚ, pričom sa podieľajú aj na spolufinancovaní z vlastných zdrojov minimálne 25%.

Sme presvedčení, že inovácie procesov a produktov majú cielené zastúpenie v priemyselných podnikoch. Podľa databázy DATAcube Štatistického úradu SR v roku 2018 až 2 600 podnikov realizovalo inovačné aktivity, z toho 1472 podnikov pôsobiacich v priemysle a 1 128 pôsobiacich v oblasti služieb. Intenzita inovácií v roku 2018 v priemyselnej výrobe sa pohybuje od 2,2% po 2,4 % a v sektore služieb od 2,4% po 5,2%. (STATdat, 2020)

V súčasnosti existujú možnosti na získanie finančných prostriedkov na podporu inovácií a rozvoja podnikania z Nórskych grantov a štátneho rozpočtu Slovenskej republiky. Výzva je zameraná na zelené inovácie v priemysle. Žiadatelia môžu získať na realizáciu projektu finančný príspevok až do výšky 2 000 000 EUR.

Európska komisia sleduje poradie inovatívnosti jednotlivých krajín prostredníctvom štandardizovaného súboru ukazovateľov. V roku 2019 zverejnila Európsky prehľad inovácií a regionálny prehľad inovácií. Popredné miesto v oblasti inovácií v rámci Európskej únie za rok 2019 patrí Švédsku**,** za ktorým nasleduje Fínsko, Dánsko a Holandsko. Na globálnej úrovni Európska únia predstihla aj Spojené štáty americké. V porovnaní s predchádzajúcimi rokmi sa zvýšila inovačná výkonnosť o 8,8%. Najväčší pokrok dosiahla Litva, Grécko, Estónsko. Štáty ako sú Rumunsko a Slovinsko v oblasti zavádzania inovácií majú ešte rezervy. (Európska komisia, 2019) V nasledujúcej tabuľke uvádzame konkrétne oblasti inovačných aktivít v členských štátoch EÚ.

Tab.1. Prehľad oblastí inovácií v niektorých členských štátoch EÚ

Názov členského štátu EÚ	Oblasti inovácií
Dánsko	ľudské zdroje a prostredie priaznivé pre inovácie
Írsko	inovácie a ich vplyv na zamestnanosť a predaje
Luxembursko	atraktívne výskumné systémy
Francúzsko	financie a podpora
Malta	duševné vlastníctvo
Nemecko	podnikové investície
Rakúsko	komunikácie

Zdroj: vlastné spracovanie podľa: Európska komisia (2019) Prehľad výsledkov inovácií za rok 2019

Jednotlivé členské štáty Európskej únie realizujú v rôznych oblastiach inovačné činnosti, ktoré sú potrebné z hľadiska budovania spoločného trhu. Podľa hodnotiacej správy Európskej komisie za rok 2019 Slovensko dosahuje dobré výsledky v oblasti v environmentálnej

udržateľnosti a využívania informačných technológií. Pomerne veľký nárast dosiahla aj v terciárnom vzdelávaní, v oblasti medzinárodnej vedeckej publikačnej činnosti. (Európska komisia, 2019)

Svetová organizácia duševného vlastníctva (WIPO) je odbornou organizáciou Organizácie spojených národov na ochranu priemyselných práv autorov a práv autorov umeleckých a literárnych diel. Daná medzinárodná organizácia hodnotí inovačné výkony 131 štátov a zostavuje tzv. Globálny inovačný index (Global Innovation Index 2020) na základe stanovených kritérií. Inovačné aktivity v roku 2020 v najväčšom rozsahu boli realizované vo Švajčiarsku. Druhé miesto obsadilo Švédsko a na treťom mieste sú Spojené štáty americké. V rámci globálneho inovačného indexu bolo hodnotené aj Slovensko, ktoré sa umiestnilo na 39. mieste. Spomedzi štátov patriacich do skupiny V 4 inovatívne aktivity Slovenska zaostávajú.

3.3 Aplikácia inovačných technológií v odvetví ťažby a spracovania nerastných surovín

Na inovácie by sa malo nazerať pomocou holistického prístupu, teda ako na celok. Okrem sledovania ziskov a návratu investícií by mal byť zohľadnený aj faktor ochrany životného prostredia. V ťažobnom a spracovateľskom priemysle sú hlavným faktorom prírodné zdroje a kombinácia iných faktorov:

a) vedecký a technologický pokrok,
b) vysoká kapitálová náročnosť,
c) sofistikované vybavenie a technológie,
d) špeciálne požiadavky na pracovnú silu,
e) stratégia odbytu.

V príspevku sme sa zamerali na obchodné spoločnosti, ktoré ťažia a spracovávajú nerastnú surovinu bentonit na Slovensku. Daná surovina má širokú škálu technického a ekologického využitia v rôznych odvetviach priemyslu, poľnohospodárstva i v oblastiach životného prostredia. Pomerne veľká je využiteľnosť bentonitu predovšetkým na výrobu podstieľok pre zvieratá a špeciálnych bentonitových zmesí pre keramický priemysel, pre stavebné účely a pre oblasť nakladania s odpadmi. Je to surovina budúcnosti, pretože má veľmi dobré charakteristické vlastnosti ako je ako absorpčná schopnosť, plasticita. Produkty obchodných spoločností sú vysoko ekologické, a systém ťažobnej stratégie a ťažobný proces je realizovaný v súlade s princípmi ochrany životného prostredia.

Obchodná spoločnosť EVNIGEO, a. s. majúca sídlo v Banskobystrickom kraji má v predmete činnosti podľa dát zverejnených v Obchodnom registri SR spracovanie nerastnej suroviny bentonit, ako aj iných činností spojených s geologickými prácami. Pôsobí na trhu od roku 2003 a jej súčasná právna forma je akciová spoločnosť. Podľa dát zverejnených v databáze FINSTAT.sk, hospodársky subjekt patrí k úspešným podnikateľským subjektom, ktoré dlhodobo pôsobia na trhu a má význam aj z hľadiska zamestnanosti pre Banskobystrický kraj. K 31.12.2020 pracovalo v danom subjekte 107 zamestnancov. (výročná správa 2020) V roku 2020 dosiahla výnosy v objeme 15 696 820 EUR, vo výške zisk 191 605 EUR, aktíva 6 150 602 EUR, tržby 15, 47 mil. EUR. (FINSTAT, 2021)

Daná obchodná spoločnosť v období rokov 2017 a 2018 v rámci projektu spolufinancovaného z prostriedkov Európskej únie v objeme 282 246,12 EUR zaviedla inovatívne technológie na úpravu nerastnej suroviny bentonit. Celkové výdavky na realizáciu projektu boli plánované vo výške 627 213,60 EUR. Obchodná spoločnosť na realizáciu projektu poskytla 344 967,48 EUR z vlastných zdrojov. (Centrálny register projektov, 2017, Príloha k Zmluve, s.7-8)

Konkrétnym výstupom je nový slovenský produkt, ktorý odoláva aj zahraničnej konkurencii. V roku 2020 zvýšil subjekt výrobu o 10% v porovnaní s rokom 2019 a predal cca 7 000 ton bentonitu v dôsledku zavedenia novej výrobnej linky a inovatívnych technológií. Až 80% produktov smerovalo do zahraničia (Maďarsko, Rakúsko, Poľsko a Nemecko). Inovácie boli realizované v laboratóriách, pričom modernizácia laboratórnych zariadení zjednodušuje a zefektívňuje kvalitu a vývoj produktov. (Výročná správa EVNIGEO,2020)

Ďalším hospodárskym subjektom pôsobiacim v oblasti ťažby a spracovania bentonitu je Kremnická banská spoločnosť, s. r. o. so sídlom v Kremnici, ktorá má dlhodobú históriu v oblasti banskej činnosti. Kremnická banská spoločnosť, s. r. o. kladie dôraz na kvalitu a je držiteľom certifikátu za zavedený systém manažérstva podľa normy: ISO 9001:2015 / STN EN ISO 9001: 2016. Predmet jej činnosti má širší záber, okrem ťažby a spracovania bentonitu do jej portfólia patrí aj výroba elektrickej energie v malých vodných elektrárňach. Obchodná spoločnosť v rokoch 2010-2011 realizovala projekt za účelom zavedenia inovatívnej technológie na výrobu granulovaného bentonitového produktu. Na realizáciu inovatívnej technológie získala nenávratné finančné prostriedky z Európskeho fondu regionálneho rozvoja vo výške 420 156 EUR. (Centrálny register projektov, 2013) Celkový rozpočet projektu bol vo výške 840 312,80 EUR. Ostatné finančné náklady na realizáciu projektu uhradila obchodná spoločnosť z vlastných zdrojov. Okrem zvýšenia kvalitatívnych parametrov výrobného procesu, obchodná spoločnosť sledovala aj špecifický cieľ, a to zníženie negatívneho vplyvu na životné prostredie najmä prostredníctvom eliminácie, resp. maximálneho využitia odpadu z výroby. Merateľným ukazovateľom projektu bolo zvýšenie nárastu pridanej hodnoty a zvýšenie tržieb. Inovácia výrobného procesu umožňuje dosahovanie novej úrovne pri zavádzaní nového produktu na trh, zvyšuje konkurencieschopnosť, čo má dlhodobý kladný vplyv v sociálno-hospodárskej, environmentálnej a spoločenskej oblasti. Podľa dát zverejnených v databáze FINSTAT daná obchodná spoločnosť v roku 2020 znížila zisk o 45 % na 108 320 EUR a tržby jej klesli o 2 % na 4,022 mil. EUR. Jej celkové výnosy v roku 2020 boli v objeme 4 140 130 EUR. Obchodná spoločnosť k 31.12.2020 zamestnáva 107 zamestnancov. Zaujímavá je skutočnosť, že podľa informácií zverejnených vo Výročnej práce Kremnickej banskej spoločnosti za rok 2020 daná spoločnosť nerealizovala v roku 2020 žiadne výskumné aktivity. (FINSTAT, 2021)

Okrem uvedených hospodárskych subjektov dnes pôsobia aj inštitúcie spájajúce teóriu s praxou a dávajú príležitosť novým myšlienkam. K takýmto subjektom patrí aj HUB EIT RawMaterials v Košiciach. Aktivity centra sú zamerané na mobilizáciu lokálnych organizácií a jednotlivcov k tomu, aby zvýšili regionálny inovačný potenciál v oblasti nerastných surovín. (TUKE,2021) Nielen podniky, ale aj vedecko-výskumné pracoviská sa podieľajú na výskume v oblasti ťažby nerastných surovín, pričom práve na východnom Slovensku sa nachádzajú významné zdroje nerastných surovín (mastenec, bentonit a pod.)

4. ZÁVER

Nerastné suroviny, ich ťažba a spracovanie sú významnou súčasťou hospodárskej politiky štátu. Podstatnú časť na Slovensku tvorí ťažba nerudných, stavebných a energetických surovín. Využiteľné zásoby nerastných surovín predstavujú pre Slovensko komoditu strategickú aj z hľadiska exportu. Aj tento sektor hospodárstva prechádza značnými zmenami a proces ťažby alebo spracovania vyťažených surovín je inovovaný.

Naša odpoveď na výskumnú otázku Q1 je jednoznačná, na konkrétnych príkladoch sme poukázali, že hospodárske subjekty majúce v predmete činnosti spracovanie alebo ťažbu bentonitu zavádzajú inovačné technológie a modernizujú výrobné procesy s cieľom zlepšenia svojho postavenia na trhu medzi konkurentmi, a to nielen na Slovensku, ale aj v zahraničí.

Pri hľadaní odpovede na druhú výskumnú otázku Q2 sme analyzovali viaceré relevantné dokumenty a dospeli sme k záveru, že hospodárske subjekty svoje inovačné aktivity financujú zo štrukturálnych fondov EÚ a z vlastných zdrojov. Významným merateľným ukazovateľom pri zavádzaní nových technológií v rámci výroby u obidvoch subjektoch je posilnenie konkurencieschopnosti a ochrana životného prostredia. V príspevku sme zároveň objasnili význam inovačnej aktivity podnikov a identifikovali bariéry inovácií podnikov. Záverom možno konštatovať, že inovačná schopnosť podnikov pôsobiacich v oblasti ťažby a spracovania bentonitu je síce priaznivá, avšak existujú ešte určité rezervy, ako by mohli dané subjekty svoju hospodársku činnosť zlepšiť a inovovať.

LITERATÚRA

[1] Áč, I., Rydvalová, P. & Žižka, M. (2005). *Inovace v malém a středním podnikání.* Brno : Computer Press, 2005. 174 s. ISBN 80-251-0853-8.

[2] Centrálny register projektov. (2013). Kremnická banská spoločnosť. [online 2013]. [cit.2021-09-22]. K dispozícii na: https://crp.gov.sk/zavedenie-inovtivnej-technologie-na-vyrobu-granulovaneho-bentonitoveho-produktu/.

[3] Centrálny register projektov. (2017). ENVIGEO, a.s. [online 2017]. [cit.2021-09-22]. K dispozícii na: https://www.crp.gov.sk/84417-sk/zavedenie-inovativneho-produktu-v spolocnosti-envigeo-a-s/.

[4] Csank, P., Jovanovič, P. & Vozáb, J. (2016). *INKA. Inovační kapacita ČR: hlavní závěry ověřovacích analýz*. Praha: Technologická agentura ČR. ISBN 978-80-906369-0-3.[online 2016] [cit.2021-09-22]. K dispozícii na: https://inka.tacr.cz/media/publications/2016/02/23/INKA_ Inova% C4%8 Dn% C3%AD_kapacita_%C4%8CR_-_hlavn%C3%AD_z%C3%A1v% C4%9 Bry_ov% C4%9B%C5%99ovac%C3%ADch_anal%C3%BDz.pd.

[5] Čimo, J. & Mariaš, M. (2006.) *Inovačný manažment*. Bratislava: GeoPARNAS, 2006. 219 s. ISBN 80-969555-7-8.

[6] Drucker, P. F. (1985). *Innovation and Enterpreneurship*. s.l. : Harper and Row, 1985. ISBN 9780060913601.

[7] ENVIGEO. (2020). *Výročná správa 2020* [online 07-2021][cit.2021-09-23] K dispozícii na: https://finstat.sk/31600891/zavierka.

[8] Európska komisia. (2011).*Usmernenia EK pre nové činnosti v oblasti ťažby neenergetických surovín v súlade s požiadavkami sústavy Natura 2000*. Luxemburg. ISBN 978-92-79-19367-5.

[9] Európska komisia. (2019). Prehľad výsledkov inovácií na rok 2019. Prehľad výsledkov inovácií na rok 2019. [online 2019 -6-17][cit.2021-09-23] K dispozícii na: https://ec.europa.eu/regional _policy/sk/newsroom/news/2019/06/17-06-2019-2019-innovation-scoreboards-the-innovation-performance-of-the-eu-and-its-regions-is-increasing.

[10] Fagerberg, J. & Verspagen, B. (2002). Technology-gaps, Innovation-diffusion and Transformation. An Evolutionary Interpretation. *Research policy*, vol. 31, iss. 8–9, pp. 1291–1304, [cit.2021-09-22]. K dispozícii na: https://doi. org/10.1016/S0048-7333(02)00064.

[11] FINSTAT (2021a). Finančné ukazovatele o ENVIGEO, a.s. [online 2021]. [cit.2021-09-24]. K dispozícii na: https://www.finstat.sk/31600891.

[12] FINSTAT. (2021b). Individuálna výročná správa za obdobie 1.1.2020 - 31.12.2020 Kremnická banská spoločnosť, s.r.o. [online 2021]. [cit.2021-09-24]. K dispozícii na: https://www.finstat.sk/31596819/zavierka.

[13] FINSTAT. (2021c). Finančné ukazovatele Kremnická banská spoločnosť. [online 2021]. [cit.2021-09-24]. K dispozícii na: https://www.finstat.sk/31596819.

[14] Gault, F. (2013). The Oslo Manual. In: Handbook of Innovation Indicators and Measurement. New York: Edward Elgar Publishing.

[15] Kahn, K. B. (2018). Understanding Innovation. *Business Horizons*, vol. 61, iss. 3, pp. 453-460.

[16] King, N. & Anderson, N. R. N. (2002). *Managing innovation and change: a critical guide for organizations.* Psychology at work.

[17] Kollár, V. & Matúšová, S. (2019). Manažment inovácií. Výber základných poznatkov. Bratislava: VŠEMVS, 2019. 110 s. ISBN 978-80-89654-55-0.

[18] Mičátek, V. (2019). Nové pravidlá adresované komerčným používateľom online sprostredkovateľských služie*b. Manažment podnikania a vecí verejných*. No. 4/19. Bratislava ISSN 2453-8167 (13-21).

[19] OECD. (2018). Oslo Manual 2018.Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition. [online 2018-10-22]. [cit.2021-09-21]. K dispozícii na: https://www.oecd.org/science/oslo-manual-2018-9789264304604-en.htm.

[20] Schumpeter, J. A. (2006). *Teorie der wirtschaftlichen Entwicklung*. Duncker and Humbolt, 2006. ISBN 978-3428117468.

[21] STATdat. (2020). Intensity of innovations by technological sectors in % [online 2021]. [cit.2021-09-24]. K dispozícii na: http://statdat.statistics.sk/cognosext/cgi-bin/cognos.cgi?b_action=cognosViewer&ui.action=run&ui.object=storeID(%22i8EE0D381C7D346B99EB97FBF88361C59%22)&ui.name=.

[22] Štatistický úrad SR. (2021). Zamestnanci výskumu a vývoja podľa krajov a vednej oblasti [vt3006rr].[online 2021]. [cit.5.9.2021]. K dispozícii na: http://datacube.statistics.sk/#!/ view/sk/ VBD_SK_WIN/ vt3006rr/v_ vt3006rr_00_00_00_sk.

[23] Tidd, J., Bessant, J. & Pavitt, K. (2007). *Řízení inovací*. Brno: Computer Press, 2007. 549 s. ISBN 978-80-251-1466-7.

[24] TUKE (2021) HUB EIT RawMaterials. [online 2021]. [cit.2021-09-24]. K dispozícii na: https://hub.fberg.tuke.sk/2021/03/01/vyzva-na-podavanie-projektov-pre-rok-2022-je-spustena/

[25] WIPO(2020). Global Innovation Index 2020. [online 2021]. [cit.2021-09-24]. K dispozícii na: https://www.wipo.int/global_innovation_index/en/2020/.

[26] Zákon č. 172/2005 Z. z. o organizácii štátnej podpory výskumu a vývoja a o doplnení zákona č. 575/2001 Z. z. o organizácii činnosti vlády a organizácii ústrednej štátnej správy v znení neskorších predpisov.

ONLINE LABOUR MARKET

Cecília OLEXOVÁ[103]

Abstract*: The paper focuses on the issue of the online labour market and the need for the legal regulation of labour for digital platforms in a sharing economy. The paper aims to define the concepts of sharing economy and online labour market based on the study of literature and available official materials and define the specifics and problems related to work for further research. Legislation often only responds to the real functioning of entities within a sharing economy. In addition to the biggest problem of respecting workers' fundamental rights, social and health security and, in general, job insecurity, attention needs to be paid to the digital market value of workers, training opportunities, remuneration and assessing the similarity of online recruitment platforms with temporary employment agencies.*

Keywords: *digital platform, online labour market, sharing economy, workers*

JEL Classification: *J40, F66, K22*

1. INTRODUCTION

The sharing economy is currently a global phenomenon. There are many platforms for sharing around the world, and their number and use are growing. According to the study from 2019, the activity of the sharing economy in 2018 was worth 204 billion USD (the highest share of the total volume of the sharing economy, 57.8%, is transport) and is expected to be more than double by 2023 (Mastercard and Kaiser Associates, 2019). The growth of the sharing economy is driven by technological advances that allow the development of digital platforms, increased scope and frequency of transactions with reducing transaction costs, and increased assurance of credibility and ease of connection and payment (OECD, 2021). The extent of the sharing economy is also affected by the COVID-19 pandemic, the development of the technological environment, or gradual legal regulation (e.g. in the field of labour law) both at the national and transnational levels.

The need for the legal regulation of work is also related to the development of information and communication technologies and the subsequent use of digital platforms in a sharing economy. People working in a sharing economy work primarily as self-employed people. Also, it is assumed that many people only make money in this way, and it is not their main job. The impact of the sharing economy on the labour market situation and employment is therefore questionable. The paper focuses on the issue of work in a sharing economy, and it aims to define the concept of sharing economy and online labour market based on the study of available materials and define the problems related to work in a sharing economy for further study research.

2. DEFINITION OF THE SHARING ECONOMY

The concept of sharing economy is defined differently and inconsistently in literature and practice. Different terms are used, such as "shared economy", "peer economy", or "peer-to-peer economy", "collaborative economy", "collaborative consumption" these terms are being used interchangeably. Botsman (2013) states that a sharing economy lacks a shared definition, and it should be noted that each of the above terms has its specific meaning. In connection with the sharing economy, we also encounter other terms, especially "digital economy", "gig

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economy", "on-demand economy", "platform economy", "freelance economy", "crowd economy", and others.

From a historical point of view, it should be noted that sharing still existed here, but now sharing with foreign people has been also added (Schor, 2014). A sharing economy can be defined as the sharing of unused assets using information technology. Typical goods for sharing are cars and houses, but it can also be other consumer goods. However, the examples of exceptions are glasses and mobile phones (Frenken & Schor, 2017).

According to Rinne (2017), in a sharing economy, the emphasis is on sharing underutilised assets, whether monetised or non-monetised, in a way that improves efficiency, sustainability and joint ownership. The closest concept to this understanding is shared consumption, which focuses on shared forms of consumption, production, financing and learning. The European Commission (2016a) defines the term collaborative economy as business model in which collaborative platforms support business activities. These create an open market allowing the temporary use of goods and services that private individuals often provide. PricewaterhouseCoopers (2015) defines a sharing economy as an economy that uses digital platforms that allow users to access tangible and intangible assets but not their ownership, so it is an alternative to ownership. This definition already includes a digitisation element that allows sharing to be extended. This approach is particularly addressed by Pouri & Hilty (2021), who uses the term 'digital sharing economy' (DSE).

Based on a comparison of definitions, Görög (2018) understands the sharing economy in the narrow sense as the re-use of underused assets, similarly to Frenken and Schor (2017), according to which the sharing of unused capacity is a central element of any definition of a sharing economy. In a broader sense, this concept is closest to the concept of shared consumption, but it also has an element of financial or other compensation.

There are three categories of entities in the sharing economy (European Commission (2016):

a) service providers - share assets, resources, time or skills, either as private individuals offering services on an occasional basis (so-called "peers"), or provide professional services in the exercise of their profession,
b) users of the services provided,
c) intermediaries - their activity consists of connecting service providers with their users through an online platform and arranging transactions between them. Such transactions generally do not involve a change of ownership and may be made with or without profit.

In addition to the above entities, another group of entities participates in the sharing economy. These are providers of support services following the main subject of the transaction, e.g. providing a cleaning service in real estate that is rented on a short-term basis, for instance, through the Airbnb portal (Hučková et al., 2018).

3. ONLINE LABOUR MARKET CLASSIFICATION

Petropoulos (2017) identified four sectors with the most significant representation of sharing economy platforms: accommodation, transport, finance, and the online labour market.

In terms of the paper's focus, we are interested in the online labour market, which is based only on the provision of services. At the same time, platforms specialising in connecting employers and employees (freelancers) are used to develop micro-assignments for which it is not necessary to hire employees.

For comparison, this area of sharing economy was also identified by Daverio and Vaughan (2016) in two areas:

a) On-demand services for households - this is the use of an online marketplace based on many participants in the form of households trying to use services or goods offered by other households. Based on this definition, the area of household services can be further divided into:
- Crowdsourced delivery networks, i.e. the general community provides services or goods without people asking for the goods or services: either generalised "AtoB" delivery services (e.g. UberRUSH) or specialised on-demand services, e.g. food delivery and delivery of meals from local restaurants.
- On-demand domestic work network, i.e. these are goods and services whose supply depends on their demand, e.g. do-it-yourself work (DIY), which is often used by freelancers (e.g. TaskRabbit, JaSpravím.sk), or specialised services for households.

b) Professional on-demand services - market of freelancers with special skills for performing administrative, consulting or graphic work:
- Large online platforms for freelancers (e.g. Upwork, guru, Fiverr - focused on more administrative tasks, e.g. creative activities, writing, translation, programming and more).
- Specialised professional platforms for on-demand services (e.g. HolterWatking - more specialised in technical services).

The online labour market in the sharing economy is rather supply-oriented, with a predominance of services in the field of design, programming, graphics or other creative activities, or other services, except for accommodation and transport (Slovak Business Agency, 2018), e.g.:

- provision of food,
- education (online training courses from various scientific disciplines),
- tools and equipment.

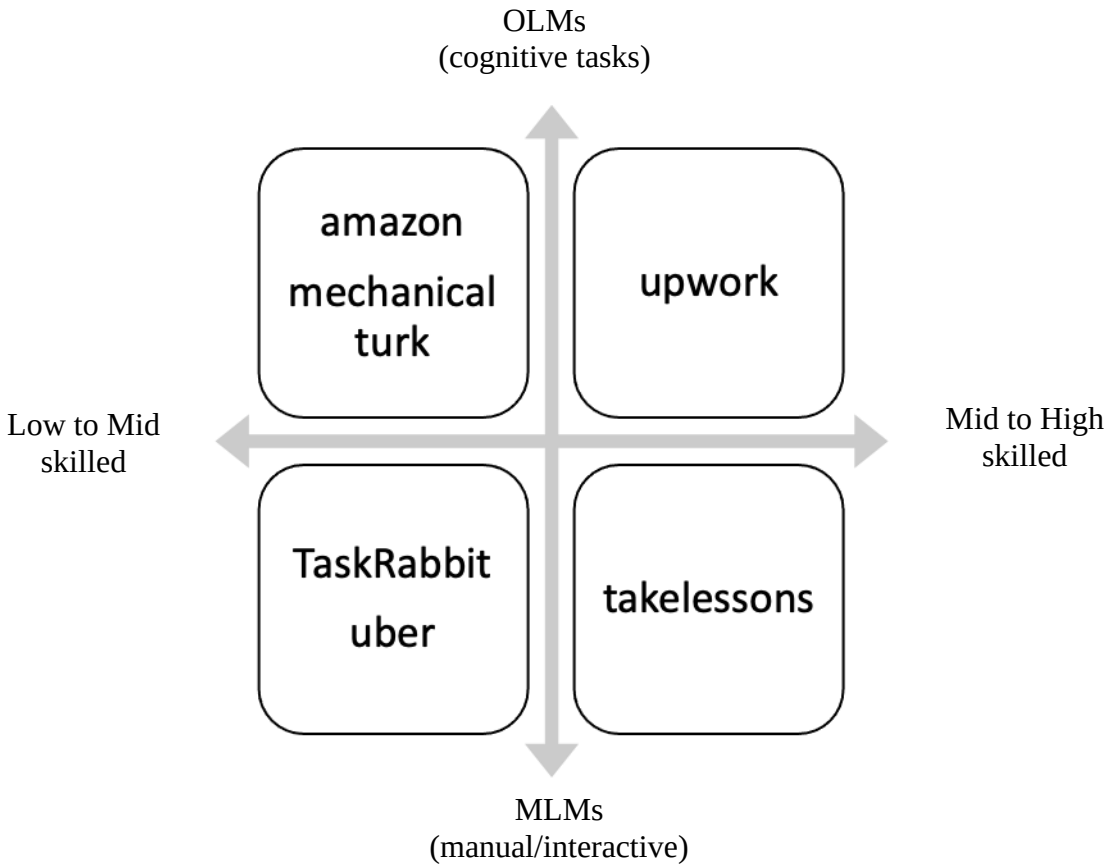
The typology of the digital labour market is presented by Codagnone et al. (2016):

1. The first type: online labour markets (OLMs), which enable the provision of electronically portable services at a distance (Horton, 2010). In these markets, it is non-standard work; it focuses on the offer of abilities and skills, money is provided for the work, the result of the work is transmitted electronically, and the allocation of work and money is given by the structure of sellers and buyers within the price system. Examples are Upwork, Freelancers, Amazon and Mechanical Turk. Working remotely brings various benefits, in particular cost savings and increased flexibility.
2. The second type: mobile labour markets (MLMs), where supply and demand matching and their administration operate electronically, but the delivery of services is physical and requires direct interaction between the provider and the applicant. An example is TaskRabbit, but also Uber, Lyft.

When it comes to both types of markets in general, the term digital labour markets is used, or alternatively the acronym 2SOLMLMs (two-sided online and mobile labour markets). People who work through these platforms are called different, e.g. micro-entrepreneurs, "gigs", contractors, on-demand workers, freelancers. The terms "workers" and "contractors" are most commonly used.

A more detailed typology of digital labour markets is shown in Figure 1.

Figure 1. Typology of digital labour markets



Source: Codagnone et al. (2016)

According to this typology, the digital labour market is divided into four subcategories:

- OLM, which focuses on micro-tasks and micro-processes - on platforms, you pay for a single transaction or a small task, cognitive work that requires a relatively low to medium level of skills. Examples of work tasks are rewriting, data entry, content control. An example of a platform is Amazon Mechanical Turk.
- OLM, which is focused on tasks and delivery in parts or as a whole in the form of individual projects, which are more often paid at a fixed rate for their delivery, or hourly rate, and which require a medium to a high level of skills, often flexibility, creativity, ability to solve problems or communication skills. For instance, it is software development, graphic design, office and secretarial work. Examples of platforms are Upwork, Freelancer, Toptal, 99designs, Peopleperhour, Freelance Writing Gigs, iFreelance, Project4hire, SimplyHired, also Guru and Fiverr.
- MLM, which focuses on the physical delivery of services, is a manual job requiring a low level of skills. Remuneration is often stated as a fixed amount for work performed, sometimes, but less often than the hourly rate. Examples of these platforms are TaskRabbit or Gigwalk.
- MLM, which focuses on interactive services that require a high level of skills. These are, for instance, tutoring, education. An example is TakeLessons, or in Slovakia doučma.sk, where teachers and students can pair.

4. WORKING WITHIN THE SHARING ECONOMY

The sharing economy creates space for various flexible forms of employment and opportunities for the self-employed. According to the Eurofound Foundation (2018), working for platforms is a form of employment. The online platform gives organisations, or individuals access to other organisations or individuals who know how to solve a problem or provide a service for a fee. The main features of this work are:

- Use of an online platform to organise paid work.
- Involvement of three parties: employee, customer and online platform.
- Work is the execution of a given task or the solution to a problem.
- The work can be contractually agreed or outsourced.
- The work is divided into tasks.
- It is a service provided on request, the so-called on-demand.

However, the problem is the legal regulation of the position of service providers in the online labour market. These are independent individuals looking for part-time work, one-off work, freelancers or self-employed people. The International Labor Organization (De Stefano & ILO, 2016) also uses the term “disguised employment”, false or fictitious self-employment, especially in connection with the circumvention of the obligation of legal and social protection of such workers.

According to the Opinion of the European Economic and Social Committee - Decent work in the platform economy (2020), workers are considered to be "self-employed" and not employees, as the platform is seen as an intermediary rather than an employer. The decision as to whether a service provider can be considered an employee of the platform is a national competence, considering criteria such as the relationship of subordination to the platform, the nature of the work and remuneration for work (European Commission, 2016, Jurčová, 2017). In the case of compliance with the subordination requirement, the service provider must act under the direction of a shared platform, which determines the scope of work, how the worker is remunerated and the working conditions. In order to meet the requirement as to the nature of the work, the service provider must provide an activity of economic value, which must be basic, active and genuine, and does not include marginal, ancillary activities on a small scale. Remuneration is required to meet the third criterion; if the services were provided without remuneration or only for the reimbursement of costs incurred in providing the service, the remuneration condition would not be met.

The number of people involved as workers in a sharing economy is difficult to estimate, as they are people between "employees" and "self-employed", at the same time, they can be registered on multiple platforms or work alongside employment. Harris and Krueger (2015) estimated that 0.4% of all workers in the sharing economy in the United States were working, and their number may be higher since then, but overall this share of total employment is low. In the European Union, based on income estimates, the share of the online labour market in total employment was less than 1% (European Commission, 2016b). Recent OECD studies (2019) indicate that the workforce for platforms accounts for 0.5% to 3% of the total workforce. According to a survey in 16 European countries, 1.4% of the adult population (aged 16-74) report work for platforms as their main activity (Kilhoffer et al., 2019).

According to one of the available "Request for Startups (RFS) 1099 Report" surveys (European Commission, 2016b), the sharing economy is dominated by workers - men who are younger and have higher education, which is mainly explained by the need to master information technology. According to the Opinion of the European Economic and Social Committee (2020), the predominance of men is in services related to software development and the provision of transport services, the predominance of women is in translation and the services provided on the ground. In terms of age structure, as in the survey above, young

people predominate. Workers in a sharing economy have about ten years less than people working offline (Pesole et al., 2018).

The biggest motivation for working in a sharing economy according to the results of a survey conducted in 2015 (Burston-Marsteller, Aspen Institute and TIME, 2015) which aimed to find out the opinions of adult respondents in the USA on a sample of 3,000 respondents is:

- this work represents the primary source of income (33%),
- I could not find a classic job (33%),
- I like flexibility in a sharing economy (32%),
- I like independence (30%),
- I like that I can organise my work myself (28%).

5. CONCLUSION

The sharing economy is evolving, also in connection with the enormous development of digital technologies. This raises the need to theoretically define the sharing economy in relation to the traditional economy and legislatively regulate the possibilities of functioning of individual entities in the sharing economy. It is possible to agree with the opinion held by Dolobáč (2018) that legislation is only catching up with technological progress and tries many times to legally correct and regulate what works and what is still developing, but with potential social risks for the wider society. Legal protection in a sharing economy must be aimed at consumers who use services covered by online platforms and the providers of these services themselves, who often operate on the edge of business and dependent work.

In addition to the biggest problem related to respect for workers' fundamental rights, social and health security and, in general, job insecurity, these are issues related to the digital market value of workers (transferability of ratings and reviews on the Internet, compliance with data protection rules, unfair practices in an online evaluation), as well as access to lifelong learning and training, or remuneration issues. It is also necessary, as stated in the European Agenda for the Collaborative Economy (European Parliament, 2018), to examine the similarity of online mediation platforms to temporary employment agencies and to assess the extent to which online platforms are covered by the Temporary Employment Agencies Directive (2008/104/ EC).

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REFERENCES

[1] Botsman, R. (2013). The Sharing Economy Lacks A Shared Definition [online]. [cit.2021-08-22]. In: *FastCompany*. Available at: https://www.fastcompany.com/3022028 /the-sharing-economy-lacks-a-shared-definition#10.

[2] Burston-Marsteller, Aspen Institute and TIME. (2015). *The Collaborative Economy Survey*. [online]. [cit.2021-08-21]. Available at: www.burson-marsteller.com/ondemand-survey/.

[3] Codagnone, C. & Abadie, F. & Biagi, F. (2016). *The future of work in the 'sharing economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation? JRC Science and Policy Report: European Commission*. Joint Research Centre Institute for Prospective Technological Studies.

[4] Daverio, R. & Vaughan, R. 2016. *Assessing the size and presence of the collaborative economy in Europe. 2016. Analytical paper for European Commission (DG GROW).*

[5] De Stefano, V. (2016). *The rise of the «just-in-time workforce»: On-demand work, crowdwork and labour protection in the «gig-economy».* Geneva: International Labour Office.

[6] Dolobáč, M. (2018). Legislatívne výzvy priemyselnej revolúcie 4.0. In: *Švec, M. – Bulla, M. (eds.): Práca 4.0, digitálna spoločnosť a pracovné právo.* Bratislava: Friedrich Ebert Stiftung, zastúpenie v SR. ISBN 978-80-89149-58-2 (e-dokument online – PDF).

[7] Eurofound. (2018). *Employment and working conditions of selected types of platform work (Zamestnanosť a pracovné podmienky vybraných typov práce pre platformy),* p. 9.

[8] Európska komisia. (2016a). *Oznámenie Komisie Európskemu parlamentu, Rade, Európskemu hospodárskemu a sociálnemu výboru a výboru regiónov : Európska agenda pre kolaboratívne hospodárstvo.* Brusel. COM(2016) 356 final.

[9] Európsky parlament. (2018). Európska agenda pre kolaboratívne hospodárstvo : Uznesenie Európskeho parlamentu z 15. júna 2017 o Európskej agende pre kolaboratívne hospodárstva (2017/2003(INI)). 2018/ C 331/18.

[10] European Commission. (2016b). *Commission staff working document. European agenda for the collaborative economy – supporting analysis*. Brusel. COM(2016) 356 final.

[11] Európsky hospodársky a sociálny výbor. (2020). *Stanovisko Európskeho hospodárskeho a sociálneho výboru – Dôstojná práca v platformovom hospodárstve (prieskumné stanovisko na žiadosť nemeckého predsedníctva Rady EÚ). (2020/C 429/23).*

[12] Frenken, K. & Schor, J. (2017). Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions*, vol. 23, pp. 3-10.

[13] Görög, G. (2018). The Definitions of Sharing Economy: A Systematic Literature Review. *Management*, vol. 13, iss. 2, pp. 175-189.

[14] Harris, S. D. & Krueger, A. B. (2015). A Proposal for Modernizing Labor Laws for Twenty-First-Century Work: The "Independent Worker" [online]. [cit.2021-08-21]. Available at: https://www.hamiltonproject.org/assets/files/modernizing_labor_laws_for_twenty_first_century_work_krueger_harris.pdf.

[15] Horton, J. (2010). Online Labor Markets. *Internet and Network Economics*, 6484, pp. 515-522.

[16] Hučková, R. & Bonk, F. & Rózenfeldová, L. (2018). Zdieľané hospodárstvo – otvorené problémy a diskusia (najmä s prihliadnutím na obchodnoprávne a daňovoprávne súvislosti) = Collaborative economy – open problems and discussion (with regard to commercial and tax issues). *STUDIA IURIDICA Cassoviensia*, vol. 6, iss. 2, pp. 125-140.

[17] Jurčová, M. (2017). *Zdieľaná ekonomika a platformy / Sharing economy and platforms*. Právny pluralizmus a pojem práva. Bratislava : Slovak Academic Press, pp. 2445-253.

[18] Kilhoffer, Z. et. al. (2019). *Study to gather evidence on the working conditions of platform workers (Štúdia na získanie dôkazov o pracovných podmienkach pracovníkov platforiem).*

[19] Mastercard and Kaiser Associates. (2019). *The Global Gig Economy: Capitalizing on a ~$500B Opportunity*, Mastercard and Kaiser Associates [online]. [cit.2021-02-18]. Available at: https://newsroom.mastercard.com/wp-content/uploads/2019/05/Gig-Economy-White-Paper-May-2019.pdf.

[20] OECD. (2021). The Impact of the Growth of the Sharing and Gig Economy on VAT/GST Policy and Administration. https://doi.org/10.1787/51825505-en.

[21] OECD. (2019). Pracovné vyhliadky OECD na rok 2019 (*Employment Outlook 2019*), s. 55.

[22] Pesole, A. & Urzí Brancati, M. C. & Fernández-Macías, E. & Biagi, F. & González Vázquez, I. (2018). *JRC Science for policy report. Platform Workers in Europe : Evidence from the COLLEEM Survey. EUR 29275 EN*. Luxembourg: Publications Office of the European Union. ISBN 978-92-79-87996-8, doi:10.2760/742789, JRC112157.

[23] Petropoulos, G. (2017). An economic review of the collaborative economy. *Policy Contribution Issue*, no. 5 [online]. [cit.2021-08-21]. Available at: https://www.bruegel.org/wp-content/uploads/2017/02/PC-05-2017.pdf.

[24] Pouri, M.J. & Hilty, L.M. (2021). The digital sharing economy: A confluence of technical and social sharing. *Environmental Innovation and Societal Transitions*, iss. 38, pp. 127-139.

[25] PricewaterhouseCoopers. (2015). *The Sharing Economy: Sizing the Revenue Opportunity*. [online]. [cit.2021-08-21]. Available at: http://www.pwc.co.uk/issues/megatrends/collisions/sharingeconomy/the-sharing-economy-sizing-the -revenue-opportunity.html.

[26] Rinne, A. (2017). What Exactly is the Sharing Economy? In: *World Economic Forum, 13 December*. [online]. [cit.2021-08-21]. Available at: https://www.weforum.org/agenda/2017/12/when-is-sharing-not-really-sharing/.

[27] Schor, J. (2014). *Debating the Sharing Economy*. [online]. [cit.2021-08-21]. Available at: www.greattransition.org.

[28] Slovak Business Agency (SBA). (2018). *Analýza zdieľanej ekonomiky v prostredí malých a stredných podnikov.*

PROBLEMS OF TRAINING MANAGERIAL PERSONNEL TO ENSURE THE DIVERSIFICATION OF MILITARY INDUSTRIAL COMPLEX

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Abstract: *The departmental target program of the Ministry of Education and Science of the Russian Federation "Development of an integrated system for providing highly qualified personnel to organizations of military industrial complex of the Russian Federation in 2016-2020" has been developed and is operating. The work is devoted to the systematization of the problems of training and retraining of senior employees of military industrial complex during the period of diversification. Based on the analysis of domestic experience in this field, attention is focused on the problems of training and retraining of managerial personnel for peripheral enterprises. The costs of training and retraining are recouped, since the maximum amount of profit from investments in human capital is almost three times higher than the profit from investments in tangible assets, and "with an increase in the level of education by 10%, labor productivity increases by 8.6%".*

Keywords: *diversification, military industrial complex, management, personnel, problems.*

JEL Classification: *C82, A22, O15*

1. INTRODUCTION

The training of *new managerial personnel* for military industrial complex through the public education system is due to the fact that in the nineties the transformation of the Russian economy was often carried out thoughtlessly and arbitrarily, and the conversion of the defense industry, which was spontaneous, did not solve most of the tasks assigned to it, and the order of succession of generations was violated. In addition, as the director of the Center for Training and Development of Personnel of the ANO "Military Register" A. I. Derova notes, «Today we have older people in the personnel composition, there are a lot of young personnel, but the average age is a big deficit. According to statistics, the average age of the head is 56 years, 31% of the management staff are people over 60" (Djorova, 2018. p. 37).

2. LITERATURE REVIEW

It should be noted that in order to improve the training of personnel for military industrial complex, the departmental target program of the Ministry of Education and Science of the Russian Federation "Development of an integrated system for providing highly qualified personnel to organizations of military industrial complex of the Russian Federation in 2016-2020" has been developed and is operating (Garant. 2016). In addition, measures to develop human resources are implemented within the framework of the Federal Target Program "Development of the Defense Industry of the Russian Federation for 2011-2020" (Pravitel'stvo Rossiyskoy Federatsii, 2016).

The above-mentioned documents provide for: the creation of a multi-level continuing education system in the military industrial complex; the formation of a system of training,

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retraining, advanced training and strengthening of personnel potential; ensuring that the quality of researchers, specialists and workers meets modern technological requirements and international standards; the development of in-house training; the creation and modernization of the material and technical base for retraining, advanced training of specialists and workers in defense industry organizations; modernization of the system of advanced training and retraining of the teaching staff employed in the system of training specialists for defense industry organizations; increasing the share of extrabudgetary co-financing in the training of professional personnel for defense industry organizations (Kordos, Berkovic, 2020; Kordos, 2020).

"The adoption of the above set of measures at the state level is due to the fact that the defense industry organizations are in need of specialists of various profiles" (Ivanov, Kuznecov, 2015. p. 33), and during the "New Military Industrial Complex Personnel", not only the updating and development of new educational modules is carried out, but also joint initiatives of universities and defense industry organizations are implemented in the field of working with schoolchildren, conducting internships for teachers involved in the training of the defense industry personnel reserve.

"The program contributes to the overall increase in the quality of engineering personnel training, since most organizations require engineers of various specialties, mainly design engineers (the shortage is 22%, and process engineers-17%)" (Ivanov, Kuznecov, 2015. p. 34). In the course of the implementation of the Program until 2020, training for military industrial complex in modern technology.

In our point of view, the first problem is the above-mentioned set of measures is aimed the development of training engineer-technical personnel in general, unfortunately, does not affect management specialists.

And since the existing system of public education cannot yet meet the needs of military complex enterprises in managerial specialists *one-time and for a short period* and since only technical, economic knowledge and experience of previous managerial work are not enough for a modern manager, an organizer of management in the process of diversification, " corporate professional training systems are actively developing, providing retraining and advanced training of employees taking into account the requirements of "their" production (Nikitin, 2010. p. 4).

For example, the state corporations Rostec, Rosatom and others cultivate *both ordinary employees and top managers* in their corporate academy (Makurin, 2018). They train and retrain managers for the military industrial complex enterprises of the Bauman Moscow State Technical University, the Higher School of Economics and a number of other metropolitan universities. But all this is training and retraining of specialists mainly for the enterprises of the defense industry "of the capital region, where there are more than 500 enterprises and organizations of the military industrial complex, which is about 32% of the entire Complex of the country" (Ivushkin, 2007. p. 19).

The second problem is in the training of managerial specialists during diversification is that it is unclear who will train the right specialists for the rest of the 1,600 enterprises and organizations that produce military-defense products (Fedorov, et al. 2005. p. 158), " due to the historical reasons for the development of Russia, in particular, the specifics of the formation of the Russian industrial society, located in single-industry settlements (single-industry towns) or small towns" [9, c.80], as there is a tendency to *consistently closing of 38 training courses for specialists in peripheral technical universities that train technical personnel for the defense industry, taking into account the specifics of production, as a non-core direction***.**

The current situation requires the implementation of program measures aimed at improving the professional development and retraining of specialists" (Ivushkin, 2007. p. 16) of the market-type management profile *for peripheral defense industry enterprises*, as one of the main mechanisms for ensuring effective diversification of defense industry enterprises, since there are no trifles in the economy, and it pays cruelly for an incompetent approach to business. The solution to this situation is envisaged in two directions:

- training and retraining of specialists of management personnel of marketing type in *peripheral technical universities that train technical personnel for the defense industry,* taking into account the specifics of production;

- training and retraining of specialists of management personnel of marketing type *in branches of the largest universities in the places of concentration of military industrial complex enterprises.*

This is what concerns university graduates.

The next problem is *temporary*, the state system of personnel training will issue a ready-made specialist only in 3-5 years, and diversification should be implemented now.

In addition, it should be taken into account that «the training of economists-managers and other managerial personnel in higher educational institutions is still not close enough to market conditions and specific production. That is why young specialists are not too quickly involved in independent creative activities to improve and improve the economic indicators of enterprises" (Podkolzin, 2012. p. 61).

"The problem of the practice-oriented orientation of training specialists is very relevant" (Plotnikova, 2014 p. 139], since "in the training of a manager, it is necessary to pay more attention to the practice of management and master these skills right at work, since no one has yet managed to create a leader in the classroom. Managers should perceive things in their full life cycle, and not in separate "packages" (Mincberg, 2010).And here, in the conditions of diversification, the problem of training existing managers comes to the fore, since "old management schemes not only become less effective, but often harm the business" (Djorova, 2018. p. 37).

Therefore, it is not surprising that the Military-Industrial Commission has repeatedly raised the issue of the discrepancy between the level and profile of personnel education to the positions actually held and the need for retraining of the management staff of military industrial complex enterprises due to "insufficient knowledge in a narrow area when solving a wide range of practical tasks. A modern manager, at any level (federal, municipal or enterprise), absolutely needs systematic training in marketing, management, logistics and audit" (Uhov, 2020). An important problem that we have to face when training managers is that "Due to the high workload, it is difficult for them to find time for training" (Djorova, 2018. p. 39). "That is why the most popular format of classes for them are short-term courses, saturated with the necessary information" (Balina, Vinokurova, 2019. p. 80).

3. RESULTS

The systematized problems of training managerial personnel to ensure the diversification of military industrial complex enterprises are shown in Table 1.

Table 1. Problems of training managerial personnel to ensure the diversification of military industrial complex enterprises.

Problem	Consequence
Disruption of generational continuity because of conversion in the 1990s.	The necessity of covering personnel needs forces us to appoint people without special education in the field of management, who lack knowledge in the field of management, marketing, and psychology to very important positions.
The focus of the VCE "New personnel of the defense Industry" and the Federal Target Program "Development of the military-industrial complex of the Russian Federation for 2011-2020" on *the training of engineering personnel.*	
The inability of the public education system to meet the needs of agricultural enterprises in management specialists *one-time and for a short period*.	The necessity of development corporate professional training systems that provide retraining and advanced training of employees taking into account the requirements of "their" production.
A tendency to *consistently closing of 38 training courses for specialists in peripheral technical universities that train technical personnel for the defense industry, taking into account the specifics of production, as a non-core direction***.**	
"The problem of practice-oriented orientation of specialists' training" (Plotnikova, 2014. p. 139)	"The training of economists-managers and other managerial personnel in universities is still not close enough to market conditions and specific production" (Dmitrieva, Shalik, 2017. p. 134).
High workload of active executives.	Difficulties in finding time for training (retraining).

4. CONCLUSION

The costs of training and retraining are recouped, since the maximum amount of profit from investments in human capital is almost three times higher than the profit from investments in tangible assets, and "with an increase in the level of education by 10%, labor productivity increases by 8.6%" (Stjuart, 1998). This pattern "confirms the expediency of implementing organizational innovations in the economic activities of military industrial complex enterprises aimed at improving the level of training of managerial personnel" (Rodionova, 2013).

REFERENCES

[1] Balina, T.N. & Vinokurova, Ju.S. (2019). Reshenie voprosov kadrovogo obespechenija pri sodejstvii uchebno-proizvodstvennogo centra. *Vestnik Taganrogskogo IUiJe,* vol. 30, iss. 2, pp. 80-85.

[2] Djorova, A.I. (2018). Problemy kadrovogo obespechenija predprijatij OPK. Osobennosti obuchenija rukovodjashhego sostava. *Menedzhment. Vooruzhenie. Kachestvo,* vol. 55, iss 1, pp.35-39.

[3] Dmitrieva, L.I. & Shalik, K.K. (2017). Formirovanie professional'nyh kompetencij v processe obuchenija menedzhmentu. *Business, education, law*, vol. 41, iss. 4, pp. 134-140

[4] Fedorov, I. B., Baltjan, V. K., Krut'ko,. P. D., Matveev, V. I. & Savel'ev, A. Ja. (2005). Sovremennye tendencii podderzhanija i razvitija kadrovogo potenciala oboronno-promyshlennogo kompleksa Rossijskoj Federacii. In: Proceedings of the 2nd International Scientific Conference "*Rocket and Space Technology: Fundamental and Applied Problems*": at 4 h. h. 3: Section 6. Improving the training of scientific and engineering personnel for the rocket and space industry. Moscow, pp. 158-162.

[5] Garant. (2016). Order of the Ministry of Education and Science of the Russian Federation from February 29 2016 year N 170 "On the approval of the departmental target program" Development of an integrated system for providing highly qualified personnel to organizations

of the military-industrial complex of the Russian Federation in 2016-2020". [online]. [cit.2020-09-17]. Available at: garant.ru>products/ipo/prime/doc/71241796.

[6] Ivanov, A.V. & Kuznecov, O.V. (2015). O sovershenstvovanii podgotovki professional'nyh kadrov dlja OPK. *Vysshee obrazovanie v Rossii,* iss. 8-9, pp. 32-38.

[7] Ivushkin, K.A. (2007). *Vosstanovlenie i razvitie kadrovogo potenciala OPK: Autoref. dis. ... doctor of Economics:* 08.00.05: Moscow: Research Institute of Labor and Social Insurance, 21 p.

[8] Kordos, M. & Berkovic, V. (2020). Applying Automation in Slovak Tourism Industry - Benefits and Issues. *AD ALTA-Journal of Interdisciplinary Research*, vol. 10, iss. 1, pp. 132-138.

[9] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[10] Makurin, A. (2018). Konversija: popytka №2. *Argumenty i fakty,* vol. 49, iss. 1986, pp.10.

[11] Mincberg, G. (2010). *Trebujutsja upravlency, a ne vypuskniki MVA. Zhjostkij vzgljad na mjagkuju praktiku upravlenija i sistemu podgotovki menedzherov.* Moscow: Olymp-Business, 2010. 544 p.

[12] Nikitin, V.A. (2010). *Strategija integracii i diversifikacii v territorial'no-otraslevoj sisteme okazanija professional'nyh obrazovatel'nyh uslug.* Autoref. dis. ... doctor of Economics: 08.00.05: SPb., SPbGUJeiF. 43 p.

[13] Plotnikova, G.G. (2014). Podgotovka upravlencheskih kadrov v sisteme dopolnitel'nogo professional'nogo obrazovanija. *Obrazovanie i nauka,* vol. 115, iss. 6, pp.134-148.

[14] Podkolzin,. K.A. (2012). Problemy professional'noj perepodgotovki i povyshenija kvalifikacii rabotnikov organizacij v sovremennyh rynochnyh uslovijah. *Aktual'nye voprosy jekonomicheskih nauk,* vol. 12, iss. 2, pp. 60-64.

[15] Pravitel'stvo Rossiyskoy Federatsii. (2016). Resolution of the Government of the Russian Federation from 16.05.2016 No 425-8 "On the approval of the state program of the Russian Federation "Development of the military industrial complex".URL: [online]. [cit.2021-09-17]. Available at: http://government.ru/media/files/iZ4uqvL9mUDskW9PchNt043CW0AuuYQN.pdf

[16] Revenko, N.F., Chikurova, O.V. & Silivanova, O.A. (2017). Vlijanie gradoobrazujushhego VUZa na demograficheskuju situaciju v monogorode. *Vestnik IzhGTU imeni M.T. Kalashnikova,* vol. 20, iss. 3, pp. 80-85.

[17] Rodionova, E.Ju. (2013). *Sovershenstvovanie innovacionnoj dejatel'nosti predprijatija na osnove mehanizma organizacionnogo obespechenija.* Autoref. dis. ... doctor of Economics: 08.00.05; Voronezh: VGUIT, 170 p.

[18] Stjuart, T. (1998). *Bogatstvo ot uma.* Minsk: Paradoks, 1998.

[19] Uhov, V. (2020). O putjah reshenija problemy perepodgotovki i povyshenija kvalifikacii rukovodjashhih kadrov. Lobanov-Logist. [online]. [cit.2020-09-17]. Available at: https://www.lobanov-logist.ru/library/352/57352/

SYSTEM APPROACH TO FORMATION OF CONTROLLING TRAINING OF MANAGEMENT FOR DIVERSIFICATION OF THE MILITARY-INDUSTRIAL COMPLEX

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Abstract: *The purpose of the research was to form a cross-section of the problems of training and retraining of management personnel caused by the specific features of the advantages and disadvantages in the management of defense industry enterprises during the transition to the production of civilian products. The analysis of published works on this issue made it possible to systematize trends in the training and retraining of management personnel for the diversification of military-industrial complex, aimed at increasing the level of competence of organizations of the defense industrial complex to promote and increase demand for their high-tech civilian products. The results obtained can be used in terms of controlling the correspondence of the student's competence profile to the needs of the industry in the preparation and retraining of personnel for the diversification of military-industrial complex.*

Keywords: *diversification, industrial enterprises, military-industrial complex, personnel, training, retraining, competencies, controlling.*

JEL Classification: *A22, O15, O61*

1. INTRODUCTION

Currently, defense industry enterprises are faced with strategic tasks to increase the production of civilian products and enter new markets. In accordance with the instruction of the President of the Russian Federation, the share of high-tech civilian and dual-use products in the total production of defense enterprises "should reach 30% by 2025, and up to 50% by 2030" (Consultant, 2016). However, at a meeting of the Duma commission on the development of defense industry organizations, the head of the United Shipbuilding Corporation Alexei Rakhmanov admitted that “Not all industry is ready to work in the civilian market. The problem has two parts. The first part is related to the production infrastructure, the second is in the heads, and it is much more significant" (Profiok, 2015). At the same time, most researchers and practitioners note two main difficulties in fulfilling the tasks of diversifying defense enterprises - the lack of product thinking and an inverted cost pyramid (Berkutova, Revenko, Silivanova, 2019; Grigor'ev, Eleneva, 2015; Dmitrieva, Shalik, 2017; El'chaninov, 2020; Zverev, 2019; TASS, 2017; Pimenov, 2019). And, according to the head of Rosatom Alexey Likhachev, "The difficulty lies in the fact that the release of civilian products is" mentally a completely different job than fulfilling the state defense order” (TASS, 2017). Therefore, "in addition to the technical re-equipment of enterprises, the cost of acquiring licenses, patents for the production of products, differences in business culture, at the enterprises of the military-industrial complex in the implementation of the diversification of military production" (Dmitrieva, Shalik, 2017), they still lack competent specialists due to the lack of the necessary skills and competencies among employees, which requires training and retraining of management personnel.

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The main purpose of the study was an attempt to "assess the identification of controlling features of the correspondence of the learner's competence profile to the industry needs in the short, medium and long term" (Grigor'ev, Eleneva, 2015. p. 109) in the preparation and retraining of management personnel.

2. METHODOLOGY

The research methodology is determined by a set of scientific methods, as well as by the goal, objectives and principles of diversification of military-industrial complex. The theoretical basis of the study was scientific works in the field of introducing diversification and assessing its impact on the economic activity of the enterprise. In the course of the study, a systematic and competence-based approach, methods of comparative and factor analysis were used.

3. RESULTS

3.1. Analysis of the problems of training and retraining of management personnel caused by the specific features of the advantages and disadvantages in the management of defense industry enterprises to promote and increase demand for their high-tech civilian products

One of the main directions that ensure the effectiveness of diversification is *the professionalization of the management function*, which implies, first of all, the training and retraining of management personnel and the provision of appropriate conditions for their use in organizational, economic and socio-psychological relations, since a modern leader, organizer of management it is not enough only technical, economic knowledge and experience of previous managerial work, since "the civil market for the majority of managers and employees of defense industry enterprises in general is quite alien and incomprehensible" (Zverev, 2019). This is due to a number of problems caused by the specific features of the advantages and disadvantages in the management of the defense industry enterprises, despite the fact that the defense industry enterprises use the latest scientific achievements on the basis of which “it is possible and necessary to produce goods and systems, many of which Russia still imports and which can be exported by ourselves " from the following advantages (Makurin, 2018):

- the share of qualified scientists and engineers in the management is higher;
- more R&D opportunities;
- higher possibilities in complex production;
- a rigorous quality assurance system.

At the same time, as the experience of conversion in the 90s has shown, there are a number of shortcomings in the management of military-industrial complex:

- “For the defense industry, the main thing in production has always been and remains the tactical and technical characteristics of the product, while the production time and price are relegated to the background. In the civilian market, the price and timing of the product launch to the market are important, and the tactical and technical characteristics are set depending on these parameters " (El'chaninov, 2020);

- “Most companies do not understand how to market the civilian products they could manufacture. At the same time, more than 70 percent of companies do not know how to attract investment, and therefore they are sure that they will have to invest their own funds in diversification projects, that is, proceeds and advances. " (Myseldon, 2016);

- one-sided orientation of enterprises' activities - a low share of costs for marketing and organizational developments necessary to ensure high sales of dual-use and civilian products and, as a result, "lack of experience in marketing and promotion of civilian products in the markets" (Rostec, 2018);

- lack of experience in finding a market niche, experience in competition in civilian markets. *"If in the production of military products it is important to meet the previously known requirements of one state customer, then you have to understand what exactly the consumer wants. And not a consumer in general, but one who belongs to his own market niche, which also needs to be determined independently"* (Zverev, 2019);

- the inability of management to rationally manage activities when entering a competitive market for civilian products and, as a result, bringing products to the market for goods and services when the market is already oversaturated;

-insufficient attention to cost and profit;

- a system of cost reduction that is far from perfect, since, "unfortunately, the mentality of weapons manufacturers is aimed exactly at the fact that every penny we save reduces our profits and our revenue by exactly one penny. In this sense, you need to start with mentally preparing yourself" (Deloboy Kvadrat, 2019). When working in the civilian market, "unlike the production of military products, it is important to take into account market indicators and be able to" fit "into a given cost price" (Profiok, 2015);

- lack of inclination to cooperate and unite with companies that are not part of the defense industry complex.

These problems can be solved by specialists who understand not only design and technology, but also know how to play by the rules of civil markets, understand industrial engineering and branding, design, "lean manufacturing", marketing, sales, service, are able to establish a constant relationship with consumers, since the availability of special knowledge in the field of theory and applied issues of management organization makes the activities of a manager and a leader much more efficient, that is, "in conditions of diversification, defense industry enterprises need a number of new competencies and specializations; military government orders, to bring new products to a highly competitive market. Moreover, we need personnel who can work ahead of the curve: create the technologies of the future, and these are the tasks of scientific creativity, a specialized team and equipment " (Kuznetsov, 2019. p.5-6).

3.2. Trends in the organization of training and retraining of management personnel for the diversification of the military-industrial complex

The training of managers can be structured in different ways, but three options are of the greatest practical interest:

- in-depth training of students in educational programs of higher education and postgraduate studies based on the implementation of an adaptive system of targeted practice-oriented development of students' competencies within the framework of the integrated interaction of educational organizations with defense industry organizations, taking into account the industry and the specifics of production, accumulated experience and the current state of the management cycle (Federal State Statistics Service, 2017). "But it is necessary to form and scale such competencies in direct partnership with customers. As a rule, a university, receiving an order for specialists, works with the personnel department of the enterprise, but direct contacts are needed with chief specialists, chief designers and technologists, that is, with those who set these tasks " (Kuznetsov, 2019. p. 9). This system includes obtaining a second higher education in management;

- obtaining an education in economics and management, which, although it would not give the right to directly provide a leadership position, but would form the graduate's potential for successful managerial work in the future;

- studying at the university simultaneously in two specialties. One of which is economics and production management (Golovina, 1994. p. 99).

The existing system of public education cannot yet satisfy the needs of defense industry enterprises in specialists of this profile, and therefore State corporations Rostec, Rosatom and others raise such specialists according to the first option (*both ordinary employees and top managers*) in their corporate academy (Makurin, 2018). Thus, it can be stated that large Russian companies have already embarked on the path of developing a corporate training system for diversification. Bauman (Fedorov, et al. 2005), MSTU "STANKIN" (Grigor'ev, Eleneva, 2015), Higher School of Economics and a number of other Moscow universities.. This *trend in the organization of training and retraining of personnel for the military-industrial complex can be traced in the capital regions and large industrial centers.* But all this is training and retraining of specialists, mainly for the enterprises of the "defense industry complex of the capital region, in which there are more than 500 enterprises and organizations of the defense industry complex, which is about 32% of the entire complex of the country" (Ivushkin, & Blohina, 2007. p. 19).

However, "due to the historical reasons for the development of Russia and, in particular, the specifics of the formation of the Russian industrial society, many defense industry enterprises are located in single-industry settlements (monotowns) or small towns, of which there are more than five hundred - 71% of the total number of cities in modern Russia" (Revenko, Chikurova, Silivanova, 2017. p. 80), in which 1600 "enterprises and organizations producing military-defense products" are located (Fedorov, et al. 2005. p. 157).

At the same time, one should not lose sight of the fact that “among school graduates of small towns, tendencies *towards irrevocable immigration* prevail, the main vector is a larger city, which is explained by more attractive living conditions in the latter - the decisive and most important factor is employment, and the main motive is the lack of opportunities for obtaining higher education in their hometown, since they do not have branches of Universities and other institutions of higher education " (Revenko, Chikurova, Silivanova, 2017. p. 83).

"Irrevocable educational immigration of young people, in turn, entails a number of consequences in the socio-economic development of single-industry towns - it provokes a change in the age and sex structure of the population, an accelerated reduction and aging of the population and *problems with staffing of defense industry enterprises"* (Revenko, Chikurova, Silivanova, 2017. p. 84).

Therefore, in order to provide training and retraining of market-type personnel *for peripheral enterprises of the military-industrial complex*, as one of the main mechanisms for ensuring effective diversification, there is a *tendency for personnel training* in educational organizations, “geographically close to the main customers of personnel and using a common infrastructure (basic departments) " (Grigor'ev, Eleneva, 2015. p. 109) - *in regional educational clusters, which involve regional universities and defense industry enterprises* (Grigor'ev, Eleneva, 2015; Golubev, Kreshhenko, 2016; Airko, 2021; Perminova, 2014).

And in this case, it becomes necessary to assess the correspondence of the level of mastering by students of managerial functions and competencies to the needs of industry, especially “with public-private partnerships in training personnel for defense industry enterprises” (Golubev, Kreshhenko, 2016), for which it is advisable to use controlling tools.

3.3. A systematic approach to assessing the level of mastering by students of managerial functions and competencies

To increase the effectiveness of the application of controlling tools, the correspondence of the level of mastering by students of managerial functions and competencies of the profile to the needs of the industry, a methodology of the management system for this activity is necessary. A progressive and proven method is a systematic approach, which includes criteria - the levels of mastering by students of the required managerial functions and competencies, and the cycles of their formation, maintenance and coordination necessary for the implementation of the target trajectory of education (123-job, 2015).

The essence of a systematic approach to the formation of controlling the correspondence of the level of mastering by students of managerial functions and competencies to the needs of industry, according to S.N. Grigoriev. and Yeleneva Yu.Ya. is “to ensure a balance of interests and responsibilities of educational organizations and defense industry enterprises, which take into account both the modularity of educational programs and the individualization of preparation for the formation of adaptive educational programs on the basis of individual educational modules (the result of training for each of the modules - mastering a competence or a group of competencies), and practice-oriented training — participation of students in solving practical problems of enterprises and the implementation of real projects, starting from the "point of entry into the system" (Grigor'ev, Eleneva, 2015. p. 109).

The stages and methods of controlling the formation of mastering by students of managerial functions and competencies are determined based on the need to improve the quality of the educational process. Since the essence of the future leader's activities is to determine common goals and objectives, choose an algorithm for solving these problems, organize effective interaction between personnel, monitor the activities of the organization and personnel, in achieving the stated goals, then to form controlling the correspondence of the level of mastering by students of managerial functions and competencies to the needs of the industry, the preparedness of the student should be structured according to the following elements:

- for management functions - "goal setting, planning, organization, motivation and control" (Samarin, 2020a. p. 211);
- for competencies - the student's readiness to implement the function (responsibility), his goal, the strategy being implemented, the main means, the way of exercising control (Samarin, 2014; Perminova, 2012).

Samarin S.V. proposes “to establish the qualitative characteristics of five levels of preparation of a student for the implementation of management functions: starting, low, medium, high and record. The change in the content of such management functions as goal-setting and planning during the transition from the starting to the record level is due to the formation of students' ideas about technical and socio-economic transformations " (Samarin, 2020b. p. 36).

A qualitative change in the function of an organization is characterized by the transition from one-time transformations to systematic innovation. The methods of motivation, “applied at the starting level, are based on administrative influence, and at the record level - on the satisfaction of the employee's needs for self-realization (Kordos, 2020). The main qualitative characteristic of the control function at a record level is its advanced nature, that is, the prevention of possible deviations, and not elimination of the consequences of their occurrence, as at the starting level of mastering this function " (Samarin, 2020, p. 38).

The competence of the leader, as his readiness and ability to perform the above-mentioned management functions, can also be qualitatively characterized depending on the level of its assimilation. "The key element of the manager's competence, which determines the state of

everyone else, is responsibility, that is, the manager's perceived necessity and consequences of mastering innovations, and the readiness to provide the required conditions." (Samarin, 2020b, p. 42).

The assessment "is based on expert methods of correlating the actual characteristics of the assimilation of managerial functions and competencies with design characteristics" (Golubev, Zadornov, 2015).

“Experts evaluate each characteristic of the management function and competence for each student. The arithmetic mean is taken as the resulting estimate " (Samarin, 2020b, p. 42). "If the assimilation of management functions and competencies by students is assessed at low or medium levels, then this indicates the existing shortcomings in the training system" (Perminova, Abasheva, 2012).

To eliminate the identified deviations at this stage of the controlling league, corrective management decisions are made. So, for example, "to implement the identified reserves in the assimilation of managerial functions and competencies through a gradual transition to a higher level of education" (Samarin, 2020, p. 42), it is possible to use the "cycle of mastering the required managerial functions and competencies, which is called the cycle of controlling" (Samarin, 2014).

"The need to ensure the cyclicity of controlling is due to the fact that in order to achieve correspondence between the projected and actual trajectories of the learners' assimilation of managerial functions and competencies, it is necessary to implement a complete range of measures and managerial influences" (Samarin, 2017. p. 295).

4. CONCLUSION

Application of the proposed approach to the formation of controlling allows timely development of measures for the assimilation of the projected profile of management functions and competencies by students. The cycle of controlling concretizes the content of managerial influences to achieve the projected trajectory of the learners' assimilation of managerial functions and competencies and includes: determining its target trajectory of development; design of functions and competencies of management personnel: monitoring of compliance with the profile of functions and competencies of subjects of the development trajectory.

REFERENCES

[1] 123-job. (2015). Sistemnyj podhod k kontrollingu personala. [online]. [cit.2021-09-17]. Available at: https://123-job.ru/content/articles _179.

[2] Airko (2021). Educational cluster. [online]. [cit.2021-09-17]. Available at: www.airko.org/clusters/okno

[3] Berkutova, T.A., Revenko, N.F. & Silivanova, O.A. (2019). Problemy podgotovki i perepodgotovki menedzherov dlia predpriiatii OPK v predstoiashchei diversifikatsii: regional'nyi aspect. *Vestnik Akademii voennykh nauk,* vol. 45, iss. 3, pp. 32-43.

[4] Consultant. (2016). The President’s message of Russian Federation to Federal Assembly from 01.12.2016. [online]. [cit.2021-09-17]. Available at: www.consultant.ru/documtnt/cons_doc_LAW_207978/.

[5] Deloboy Kvadrat. (2019). Diversifikatsiia OPK: kak zakhvatit' rynok nerynochnymi metodami. [online]. [cit.2021-09-17]. Available at: www.d-kvadrat.ru/ekonomika/

[6] Dmitrieva, L.I. & Shalik, K.K. (2017). Diversifikatsiia OPK: sovremennoe sostoianie. *Arsenal Otechestva,* vol. 32, iss. 6, pp. 123-145.

[7] El'chaninov, A. (2020). Diversifikatsiia produktsii v aviastroenii, *Aviation EXhlorer*. [online]. [cit.2021-09-17]. Available at: https:www.aex.ru/docs/3/.

[8] Federal State Statistics Service. (2017). Podgotovka kadrov dlja organizacij OPK. [online]. [cit.2021-09-17]. Available at: http;//cadry-opk.ru

[9] Fedorov, I. B., Baltjan, V. K., Krut'ko, P. D., Matveev, V. I. & Savel'ev, A. Ja. (2005). Sovremennye tendencii podderzhanija i razvitija kadrovogo potenciala oboronno-promyshlennogo kompleksa Rossijskoj Federacii. In: Trudy 2-j Mezhdunar. nauch. konf. «*Raketno-kosmicheskaja tehnika: fundamental'nye i prikladnye problemy*»: 4 parts 3rd part: Section 6. Sovershenstvovanie podgotovki nauchnyh i inzhenernyh kadrov dlja raketno-kosmicheskoj promyshlennosti, pp. 158-162.

[10] Golovina, O.D. (1994). K voprosu podgotovki upravlencev. In: *Tez. dokl. nauch.-prakt. konf. «Konversija: jekonomika i organizacija». Izhevsk: Ob#edinenie «Poligrafija»,* pp. 97-99.

[11] Golubev, S.S. & Kreshhenko, M.A. (2016). Gosudarstvenno-chastnoe partnjorstvo pri podgotovke kadrov dlja predprijatij oboronno-promyshlennogo kompleksa Rossii. *Sovremennye naukoemkie tehnologii,* vol. 11, iss. 2, pp. 245-248.

[12] Golubev, S.S. & Zadornov, K.S. (2015). Integrirovannyj kontrolling na promyshlennyh predprijatijah Rossii, *Jekonomika i predprinimatel'stvo,* vol. 65-3, iss. 12-3, pp. 590-593.

[13] Grigor'ev, S.N. & Eleneva, Iu.Ia. (2015). Podgotovka kadrov dlia oboronno-promyshlennogo kompleksa Rossii: ot lokal'nykh proektov k sistemnomu podkhodu. *Stankoinstrument,* vol. 25, iss. 1, pp. 107-115.

[14] Ivushkin, K.A. & Blohina, T.K. (2007). Vosstanovlenie i razvitie kadrovogo potenciala OPK: regional'nye aspekty. *Regional'naja jekonomika: teorija i praktika,* vol. 19, iss. 3, pp. 24-35.

[15] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[16] Kuznetsov, A. L. (2019). O zadachakh vuza po podgotovke kadrov v usloviiakh iversifikatsii OPK//Sb. mater. XII Vseros. soveshchaniia «Novye kadry oboronno-promyshlennogo kompleksa: diversifikatsiia OPK i realizatsiia natsional'nykh proektov» [Electronic resource], In: Posviashchennogo 100-letiiu M. T. Kalashnikova (Izhevsk, 16–18 Oct. 2019). Izhevsk: Publishing House ISTU named M. T. Kalashnikov, pp. 5-8.

[17] Makurin, A. (2018). Konversiia: popytka №2. *Argumenty i fakty,* vol. 1986, iss. 46, pp. 10.

[18] Myseldon. (2016). Diversifikatsiia OPK: poluchitsia u togo, kto izmenitsia. [online]. [cit.2021-09-17]. Available at: https://news.myseldon.com/ru/news/index/2636620299.

[19] Perminova, O.M. & Abasheva, O.Ju. (2012). Ocenka urovnja innovacionno-obrazovatel'nogo potenciala rabotnika, *Vestnik ISTU,* vol. 54, iss. 2, pp. 62-64.

[20] Perminova, O.M. (2012). Infrastrukturnaja model' formirovanija professional'nyh kompetencij v innovacionnoj jekonomike, *Vestnik ISTU,* vol. 56, iss. 4, pp. 76-78.

[21] Perminova, O.M. (2014). Regional'nye osobennosti professional'noj podgotovki kadrov. *Problemy jekonomiki i menedzhmenta,* vol. 34, iss. 6, pp. 32-36.

[22] Pimenov, V.V. (2019). O smene biznes-modeli razvitiia predpriiatii OPK pri perekhode k novoi gosudarstvennoi programme vooruzhenii/Voenno-ekonomicheskoe razvitie v svete global'nykh transformatsii In*: Sb. mater. konf. Moscow: IMEMO,* pp. 60-63.

[23] Profiok. (2015). Diversifikatsiia OPK: initsiirovat' izmeneniia i meniat'sia samim. TsERS INES. [online]. [cit.2021-09-17]. Available at: https//profiok.com/news/detail.php?IO=7912].

[24] Revenko, N.F., Chikurova, O.V. & Silivanova, O.A. (2017). Vlijanie gradoobrazujushhego VUZa na demograficheskuju situaciju v monogorode. *Vestnik ISTU named M.T.Kalashnikov,* vol. 20, iss. 3, pp. 80-85.

[25] Rostec. (2018). Rostekh i «Sirius» zaimutsia podgotovkoi kadrov dlia diversifikatsii na predpriiatiiakh OPK. [online]. [cit.2021-09-17]. Available at: https://rostec.ru/news//rostekh.

[26] Samarin S.V. (2014). Metodicheskij podhod k ocenke funkcionirovanija upravlencheskogo personala ugledobyvajushhego predprijatija. *Ugol´*, vol. 34, iss. 10, pp. 79-82.

[27] Samarin, S.V. (2017). Upravlenie razvitiem ugledobyvajushhego predprijatija na osnove kontrollinga, *Mining information technology journal*, vol. 37, iss. 6, pp. 295-303.

[28] Samarin, S.V. (2020a). Kompetentnostnyj podhod kak osnova kontrollinga osvoenija innovacij na ugledobyvajushhem predprijatii. *Izvestija UGGU*, vol. 58, iss. 2, pp. 210-217.

[29] Samarin, S.V. (2020b). *Formirovanie kontrollinga osvoenija innovacii na ugledobyvajushhem predprijatii.* Dissertation of the candidate economich. sciences.: 08.00.05: Cheljabinsk: JuUrGU, 129 p.

[30] Zverev, Iu. (2019). Zhizn' posle gosoboronzakaza. *Sonar.* [online]. [cit.2021-09-17]. Available at: https;//www.Sonar 2050.org/publications/jizn-poste.

[31] TASS. (2017). Kak prokhodit diversifikatsiia OPK v Rossii. [online]. [cit.2021-09-17]. Available at: https//tass.ru/ekonomika/ 4710238.

ANALYSIS OF PERSONNEL COSTS AS A PERSONNEL MARKETING TOOL IN THE INTRA-FIRM LABOR MARKET

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Abstract: *The search for ways of efficiency in the management of human resources of the company is impossible without evaluating the effectiveness of personnel costs. Since the maintenance of personnel is one of the most expensive items of expenditure of many organizations, especially in the service sector. Therefore, at a modern enterprise, one of the most important strategic tasks in the development of the company is the management of personnel costs. Increasing competitive advantage in today's ever-changing world, requires the effective and cost-effective application of advanced technologies in the field of personnel management. The authors considered approaches to determining personnel costs, reviewed methods and indicators used in the analysis of personnel costs, proposed a methodology for estimating personnel costs for any organization. Research methods: literature review on the topic, analysis of indicators.*

Key words: *personnel costs, personnel cost efficiency, personnel cost estimation methodology.*

JEL Classification: *J01, J31, J32*

1. INTRODUCTION

Currently, in the conditions of instability of the modern economy, the topic of organizational changes is extremely relevant. An organization needs the ability to quickly adapt to a changing external environment, because this ability determines competitiveness in the market. Changes in the organization generate a constant need for cost-effectiveness analysis, including personnel costs.

Many managers are faced with the question: is it worth saving on personnel costs and how to evaluate their effectiveness. Undoubtedly, it is important for the organization to clearly understand the goals and benefits of the activities carried out, as well as to answer such important questions as: what needs to be done to obtain a given result, for what reasons this result was not obtained, and how to eliminate these reasons.

This article will consider: the definition of personnel costs, an overview of the methods and indicators used in the analysis of personnel costs, a methodology for evaluating the effectiveness of personnel costs for any organization is proposed.

Personnel costs play a critical role in the cost structure of modern enterprises and are increasingly viewed as an investment that brings returns over a long period of time.

The evaluation of the effectiveness of personnel costs involves obtaining results and achieving the goals of the organization. Many managers view employee costs as an investment.

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Table 1. Definition of the concept of personnel costs

The author of the concept	Definition of the concept
A.Ya. Kibanov	The organization's personnel costs are an integral indicator that characterizes the totality of expenses related to attracting, rewarding, stimulating, solving social problems, organizing work and improving the working conditions of personnel (Kibanov, Mitrofanova, Esaulova, 2013).
P.E. Shlender	Personnel expenses include payments of monetary benefits, additional expenses for the maintenance of personnel carried out in accordance with applicable laws and tariff agreements, or voluntary social services of the organization (Shlender, 2010).
Yu.N. Pavlyuchuk	Personnel costs as part of the newly created value in the process of social reproduction, forming a fund of vital resources necessary for the reproduction of labor in specific socio-economic and historical conditions (Pavlyuchuk, Kozlov, 2001).
Article 255 of the Tax Code of the Russian Federation	The taxpayer's expenses for labor remuneration include any accruals to employees in monetary and (or) in kind, incentive accruals and allowances, compensation accruals related to working hours or working conditions, bonuses and one-time incentive accruals, expenses related to the maintenance of these employees and provided for by the norms of the legislation of the Russian Federation, employment contracts (contracts) and (or) collective agreements (Article 255).

Source: Compiled by the authors

2. CONDUCTING ANALYSIS AND EVALUATION OF PERSONNEL COSTS

The evaluation of the effectiveness of personnel management can act as the main tool contributing to the growth of the effectiveness of the management process (Kuznetsov, Ermakov, 2019).

Conducting a qualitative analysis and evaluation of personnel costs, and obtaining appropriate conclusions, makes it possible to make a correct and balanced management decision with respect to human resources (Korableva, et al. 2018).

Information base of the analysis:

– accounting documents and reporting;

– documents in the field of personnel costs (budget of personnel costs, etc.);

– documents confirming personnel training costs (contracts with educational organizations, training center expenses, etc.)

– analytical reports on the dynamics of labor productivity for various categories of employees.

For analysis of the effectiveness of personnel costs, we will divide the indicators into the following groups:

– indicators of total costs;

– indicators of labor costs;

– indicators of professional training costs;

– labor productivity indicators.

Table 2. Personnel cost efficiency indicators

Indicator	Formula	The value of the indicator
Indicators of total costs		
The share of personnel costs in the volume of sales	Personnel costs/sales volume (revenue)× 100%	Characterizes the efficiency of labor costs. The growth of the indicator is a negative trend.

The share of personnel costs in the cost price (in total costs)	Personnel costs/ cost × 100	Reflects the share of personnel costs in the total cost structure
Personnel costs per employee	Personnel costs/average number of employees	Demonstrates how much an employee costs on average to the organization
Personnel costs per 1 rub. net profit (profitability of personnel)	Net profit/personnel costs	Reflects how many rubles of net profit the company receives when using one ruble spent on personnel costs
Indicators of labor costs		
The wage fund as a percentage of personnel costs	The wage fund/personnel costs × 100%	Reflects the share of employee compensation costs in the overall structure of personnel costs
The wage fund per employee	The wage fund /average number of employees	Characterizes the level of remuneration of personnel in the organization
The structure of the wage fund by categories of personnel	The share of the wage fund for each category of personnel in the total wage fund is considered	Reflects the share of remuneration costs for employees of certain categories in the total volume of wage fund
Salary output	Production volume/wage fund	Shows what revenue was received per ruble of salary costs
Salary capacity	The wage fund/production volume	Shows how many rubles of wages were spent to produce one ruble of products
Personnel training costs		
The share of personnel training costs in the volume of sales	Training costs/sales volume × 100	Determines how much funds are allocated for training in the company's revenue
Training costs as a percentage of personnel costs	Training costs/ personnel costs × 100	Reflects the share of employee training costs in the overall cost structure
Training costs as a percentage of the wage fund	Training costs /wage fund× 100	Characterizes the attention paid to the staff training function
Training costs per employee	Training costs / average number of employees	Reflects the average cost of training per employee
Training costs per trained employee	Training costs/number of trained employees	
The share of employees trained	Number of employees who have been trained/average number × 100	
Labor productivity indicators		
Production	Volume of products produced/total number of employees	Allows to judge the production potential of the staff
	The volume of products produced/the time spent on the production of this volume of products	Characterizes the efficiency of the use of working time for the production of products
Labor intensity	Labor costs for the production of a given volume of products/the volume of products produced	Characterizes the labor costs, working time for the production of a unit of production
The ratio of labor productivity and wage growth rates	Increase in labor productivity/increase in average wages	Allows to judge the accumulation or overspending of funds in the enterprise
The amount of profit before taxes per 1 employee, thousand rubles.	Profit before taxes / average number of employees	

Source: Compiled by the authors

The number of indicators in each group may vary (decrease or increase) depending on the following factors:

– goals and objectives set by the organization;

– the type and content of the organization's activities;

– organizational and legal form of the organization;

– organizational structure and culture of the organization;

– the degree of centralization, the scope of activities, the accepted management philosophy;

– organization of the system of accounting of costs and results of financial and economic activities of the organization;

– stages of the product life cycle;

– the criteria of efficiency of economic activity accepted in the organization;

– competence, in some cases;

– from the personal interests of the management;

– availability of specialists who are able to apply and develop this system of indicators in the interests of all users, the information embedded in these indicators;

– the development of the social partnership system and a number of other factors (Ryzhkova, Gorelova, 2014).

Thus, this system of indicators, the methodology of its formation and the methods of calculating individual indicators can be used as the basis for the development by each organization of its own system for estimating personnel costs, adapted specifically to the characteristics of this organization and its chosen development strategy.

3. ANALYSIS OF COSTS FOR PERSONNEL OF A CONSTRUCTION COMPANY

Thus, this system of indicators, the methodology of its formation and the methods of calculating individual indicators can be used as the basis for the development by each organization of its own system for estimating personnel costs, adapted specifically to the characteristics of this organization and its chosen development strategy.

Using the example of a construction company, we will try to consider the issue of personnel cost efficiency (Table 3).

Table 3. Efficiency of personnel costs in a construction company, for 2018 – 2020 y.

Indicator	2018	2019	2020	Deviation, %		
				2019/ 2018	2020/ 2019	2020/ 2018
By general indicators						
The share of personnel costs in the volume of sales, %	10,98	11,39	11,55	0,41	0,16	0,57
The share of personnel costs in total costs, %	10,29	5,21	9,04	-5,08	3,83	-1,25
Costs per employee, thousand rubles	792,50	1068,00	817,77	134,76	76,57	103,19
Personnel costs per 1 ruble of net profit	4,71	26,42	29,04	560,98	109,92	616,61
By wages						
Average annual salary, thousand rubles	465,47	314,60	411,09	67,59	130,67	88,32
Average monthly salary, thousand rubles	38,79	26,22	34,26	67,59	130,67	88,32
Salary output	10,01	19,26	11,12	192,40	57,74	111,08
Salary capacity	0,10	0,05	0,09	51,98	173,20	90,02

By training costs						
The share of personnel training costs in the volume of sales, % (Kzo)	0,04	0,03	0,04	-0,01	0,01	0,01
Training costs per 1 trainee, thousand rubles	9,70	7,67	9,44	79,04	123,19	97,37
Training costs per 1 employee, thousand rubles	2,69	2,88	3,04	106,70	105,59	112,67
Share of employees who have been trained, %	27,78	37,50	32,14	9,72	-5,36	4,37
By labor productivity						
Sales volume per 1 employee, thousand rubles	7215,47	9377,73	7078,80	129,97	75,49	98,11
The amount of profit before taxes per 1 employee, thousand rubles	210,36	189,33	31,61	90,00	16,69	15,03

Source: Compiled by the authors based on the organization's reporting data

Evaluation of the effectiveness of personnel costs by general indicators. During the analyzed period, the share of personnel costs in sales increased by 0.57%, this increase is due to an increase in personnel costs, as well as an increase in the number of the company. The growth of this indicator is a negative trend, as there is a reduction in funds that the company can spend to cover other types of costs and realize as profit.

The growth of average annual personnel costs amounted to 3.19% or 25.27 thousand rubles per year. This indicator reflects how much the company spends per employee per year. In this particular case, the increase in personnel costs per one employee is a negative factor, since there is an increase in the share of personnel costs in the volume of sales.

There was a significant increase in personnel costs per 1 ruble of net profit by 516.61%, which is due to a decrease in net profit for the analyzed period, as well as an increase in personnel costs due to an increase in the number of the company and the formation of an additional item of personnel costs associated with the global quarantine for the infectious disease Covid-19. So in 2018, in order to get 1 ruble of net profit, 4.71 rubles were spent on the maintenance of the company's personnel, then in 2020 this ratio was 29.04 rubles of costs to 1 ruble of net profit received, since the decrease in net profit was due to an increase in the cost of inert materials required for construction and installation work, and an increase in other materials, as well as the cost of the company's services, while the work was performed under previously concluded contracts and locally agreed estimates, the increase in prices for materials and services is due to the economic and social situation on the world market, the decline in the value of the ruble in the world. According to the authors, this growth indicator reflects a negative factor, as there is an increase in the share of costs in the volume of sales.

Evaluation of the effectiveness of personnel costs for remuneration. As can be seen from the table, the average salary for both the year and the month decreased by 11.68% or 54.38 thousand rubles per year, or by 4.53 thousand rubles per month, this decrease is due to the revision of personnel cost items, which led to an increase in costs in the article "compensation payments", did not affect employee satisfaction with the remuneration received, each employee receives the previously agreed income on hand.

Salary output increased by 11.08%, that is, by 1 thousand rubles of salary, 11.12 thousand rubles of the volume of work performed were finally received in 2020, while salary output shows a decrease.

Evaluation of the effectiveness of personnel costs by training costs. During the analyzed period, the share of training costs in the volume of sales decreased and remained at the level of 2018, while the costs per trained employee per year decreased by 2.63% or 0.26 thousand rubles per year during the analyzed period, while the costs per employee as a whole for the enterprise increased by 12.67% or 0.35 thousand rubles.

The share of trained employees also decreased by 4.37% during the analyzed period, that is, fewer employees required mandatory training than at the beginning of the analyzed period,

some employees also underwent advanced training a year earlier, and newly accepted ones did not need training to confirm their professional suitability.

Evaluation of the effectiveness of personnel costs in terms of labor productivity. The decrease in sales volume per 1 employee for the analyzed period amounted to 1.9% or 136.57 thousand rubles.

The volume of profit before taxes per employee decreased by 84.97% or by 178.75 thousand rubles, that is, there is a decrease in the overall efficiency of using the application of personnel costs, since if in 2018 an employee brought the company a profit before taxation, 210.36 thousand rubles, then in 2020 the profit before taxation was 31.61 thousand rubles per employee, which is associated with an increase in total costs for the enterprise, and with an increase in the total number of the company.

4. CONCLUSION

The reasons for the formation of negative factors in assessing the effectiveness of personnel costs are related to the current economic situation caused by the worldwide pandemic, which led to a general quarantine, as a result, the decline in the ruble exchange rate on the world stock market led to an increase in the cost of purchased materials required for the implementation of construction projects in the company, which led to an increase in material costs in the whole enterprise, as well as the postponement of the delivery of construction projects at the end of the study period led to a decrease in revenue received, as a result, there was a decrease in almost all economic indicators of the company.

REFERENCES

[1] Kibanov, A. Ya., Mitrofanova, E. A. & Esaulova, I. A. (2013). *Economics of personnel management.* Moscow: INFRA-M, p. 427 [online]. [cit.2021-10-14]. Available at: https://elibrary.ru/item.asp?id=22454903.

[2] Shlender, P. E. (2010). *Audit and control of personnel in the organization*: Textbook (2nd ed., reprint. and additional) - M.: University textbook.

[3] Pavlyuchuk, Yu. & N., Kozlov, A. A. (2001). Management of the formation and determination of the cost of personnel in the conditions of transition to market relations. *Management in Russia and abroad,* vol. 5, pp. 48-56.

[4] Article 255 of the Tax Code of the Russian Federation, paragraph 25 of Article 270 of the Tax Code of the Russian Federation.

[5] Kuznetsov, A. & Ermakov, Y. (2019). Industry 4.0 and Problems of Labor Migration. In: *International Conference The Impact of Industry 4.0 on Job Creation.* Trenčín: TnUAD pp. 254-259. [online]. [cit.2021-10-14]. Available at: https://fsev.tnuni.sk/konferencia2019/Zbornik.pdf.

[6] Korableva, G.B., Vershinin, S.E., Antonova, N.L. et al. (2018). *Urban Sociology. Designing of Social Change in the Urban Environment: a tutorial.* (Ser. 11 Universities of Russia), Moscow: "YURAYT Publishing House". p. 125.

[7] Ryzhkova, T. V. & Gorelova, L. V. (2014). Methodological approaches to the management of personnel costs of the organization. *Forest Bulletin/Forestry Bulletin.* Vol. 18. – №. 3 (103) [online]. [cit.2021-10-14]. Available at: https://cyberleninka.ru/article/n/metodologicheskie-podhody-k-upravleniyu - zatratami-na-personal-Organization, free.

KOOPERATIVIZMUS NA TRHU PRÁCE: VÝZVA, TREND ALEBO INŠPIRÁCIA?

COOPERATIVISM ON LABOUR MARKET: CHALLENGE, TREND OR INSPIRATION?

Andrej PORUBAN[113]

Abstrakt: *Príspevok sa zaoberá družstevníctvom z pohľadu pracovného práva a snaží sa podnietiť diskusiu o tejto marginalizovanej téme, pretože výrobné družstvá, ktoré sú riadené a vlastnené pracujucimi členmi, sú vhodnou alternatívou ku komerčným platformám. Takéto subjekty s kooperatívnym riadením majú demokratické rozhodovanie a sľubujú spravodlivé rozdelenie hodnôt medzi členov.*

Kľúčové slová: *cooperative pracovné právo, pracovný trh, výrobné družstvo*

Abstract: *This paper deals with cooperativism from labour law point of view and tries to encourage a discourse on this marginalized topic because workers cooperatives which are run and owned by worker-members are a proper alternative to commercial platforms. Such entities with cooperative governance have democratic decision-making and promise a fair distribution of values to members.*

Key words: *labour law, labour market, worker*

JEL Classification: *J08, J23, J68, J83, K31*

1. ÚVOD

Koncept družstevníctva (kooperativizmu) nie je nový a môžeme sa s ním stretávať už niekoľko storočí. Podľa *Oddelenia Organizácie spojených národov pre ekonomické a sociálne záležitosti* (DESA) je približne jedna miliarda ľudí na celom svete členmi družstiev a družstvá zamestnávajú najmenej 100 miliónov ľudí (Smith, S., 2014. s. 22). I keď ide o pomerne malý podiel na celkovej zamestnanosti, neznamená to, že družstvá sú bezvýznamné.

Pri vymedzení pojmu družstvo môžeme vychádzať z Čl. I ods. 2 *Odporúčania Medzinárodnej organizácie práce o podpore družstiev č. 193 z roku 2002*, v zmysle ktorého ide o „*nezávislé spoločenstvo osôb, ktoré sa dobrovoľne spojili za účelom naplnenia svojich spoločných hospodárskych, sociálnych a kultúrnych potrieb a ambícií prostredníctvom spoločne vlastneného a demokraticky kontrolovaného podniku*“. Definícia je platná pre všetky druhy družstiev, ktoré sa pre svoju pestrosť nezmestia do jednej kategórie.

2. VÝROBNÉ DRUŽSTVÁ

Podľa zamerania môžeme rozlišovať družstvá spotrebiteľské, bytové, či družstevné záložne. Ak sa činnosťou vytvárajú určité hodnoty, ku ktorým je potrebné uplatnenie ľudskej práce, ide o družstvá výrobné. Na rozdiel od slovenčiny, angličtina používa označenie *worker cooperative*, ktoré lepšie odráža skutočnosť, že ide o právnickú osobu zloženú pracujúcimi členomi, ktorí nemusia iba manuálne niečo zhotoviť, utvoriť, ale môžu dávať k dispozícií aj svoje tvorivé duševné schopnosti.

Tieto družstvá sú typické členským vzťahom, ktorý - okrem vkladovej povinnosti a práva účasti na riadení - obsahuje aj pracovnú zložku, ktorá sa nepovažuje za vklad. Pracovná

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aktivita členov síce má znaky hlavného pracovnoprávneho vzťahu, ale jeho obsah má aj iné vlastnosti. Základom je užšia väzba medzi členom a družstvom ako subjektom odlišným od svojich členov, ktorá sa prejavuje v spoločnom cieli dosiahnuť lepšie hospodárske výsledky. Vďaka tejto symbióze sú pracujúci členovia dostatočne motivovaní participatívne rozhodovať o základných vnútorných záležitostiach: od smerovania družstva až po rozdelenie prípadného prebytku.

2.1 Princípy a hodnoty družstevníctva

Základy položil už v 19. storočí historik, sociológ a politik Philippe Buchez z kolísky výrobného družstevníctva Fracúzska: i/ demokratické práv voliť predstaviteľov družstva; ii/ rovnaká odmena za rovnakú prácu; iii/ dobročinné prerozdelenie čistého majetku; iv/ nevyhnutné zastrenie rozdielu medzi postavením člena a užívateľa, t.j. všetci členovia družstva musia byť jeho členmi (Tchami, G., 2007, s. 6-7).

Vo všeobecnosti je charakter výrobných družstiev definovaný hodnotami, ktoré sú uznávané medzinárodným spoločenstvom: svojpomoc, samostatná zodpovednosť, demokracia, rovnosť, spravodlivosť a solidarita; a etické hodnoty ako čestnosť, otvorenosť, sociálna zodpovednosť a starostlivosť o druhých. Do praxe sú uvádzané prostredníctvom kľúčových princípov ako i/ dobrovoľné a otvorené členstvo; ii/ demokratické riadenie členmi; iii/ majetková účasť členov; iv/ samostatnosť a nezávislosť; v/ vzdelávanie, odborná príprava a informácie; vi/ spolupráca medzi družstvami; a vii/ angažovanosť pre komunitu (Čl. I ods. 3 písm. a/ a b/ *Odporúčania MOP o podpore družstiev č. 193 z roku 2002*).

Princípy sú bližšie interpretované v *Deklarácii o družstevnej identite* prijatej *Medzinárodnou družstevnou alianciou* (ICA) v roku 1995, z ktorej je možné vydestilovať základnú charakteristiku:

<u>Dobrovoľné a otvorené členstvo</u>

Družstvá sú organizácie založené na dobrovoľnosti a otvorené všetkým osobám schopným využívať ich služby a akceptujúcim členské povinnosti bez diskriminácie na základe rodu, sociálneho pôvodu, rasy, politickej príslušnosti alebo náboženstva.

<u>Demokratické riadenie členmi</u>

Družstvá sú demokratické organizácie riadené členmi, ktorí sa aktívne podieľajú na vytváraní politík a na prijímaní rozhodnutí. Muži a ženy zvolení za zástupcov členov sa zodpovedajú členom. V základných družstvách majú členovia rovné hlasovacie právo (podľa zásady - jeden člen, jeden hlas) a aj družstvá na ďalších stupňoch sú organizované demokratickým spôsobom.

<u>Majetková účasť členov</u>

Členovia spravodlivo prispievajú ku kapitálu svojich družstiev, ktorý demokraticky riadia. Najmenej časť takéhoto kapitálu je zvyčajne v spoločnom vlastníctve družstva. Členovia zvyčajne dostávajú obmedzené vyrovnanie z kapitálu, ak existuje, upísaného ako podmienku členstva. Prebytky členovia prideľujú na všetky alebo na časť z týchto účelov: rozvoj družstva, prípadné vytváranie rezerv, z ktorých je najmenej časť nedeliteľná, prispievanie členom v podieloch podľa ich zmlúv s družstvom a podpora iných aktivít schválených členmi.

<u>Samostatnosť a nezávislosť</u>

Družstvá sú samostatné svojpomocné organizácie riadené členmi. Ak uzatvárajú dohody s inými organizáciami vrátane vlád, alebo navyšujú kapitál z vonkajších zdrojov, robia tak za podmienok, že je zaistená demokratická kontrola členmi a zachovaná družstevná samostatnosť.

Vzdelávanie, odborná príprava a informovanie

Družstvá poskytujú svojim členom, zvoleným predstaviteľom, vedúcim pracovníkom a zamestnancom vzdelanie a odbornú prípravu potrebnú na to, aby mohli efektívne prispievať k rozvoju svojho družstva. Družstvá tiež informujú verejnosť, najmä mladých ľudí a mienkotvorné osobnosti o povahe a výhodách spolupráce.

Spolupráca medzi družstvami

Družstvá najefektívnejšie slúžia svojím členom a posilňujú družstevné hnutie spoločnou prácou prostredníctvom miestnych, celoštátnych a medzinárodných štruktúr.

Angažovanosť pre komunitu

Družstvá pôsobia pre udržateľný rozvoj svojich spoločenstiev prostredníctvom politík schválenými členmi.

2.2 Výhody a nevýhody výrobných družstiev

V porovnaní s inými formami organizácie práce možno badať plusy vo vytváraní a trvalejšom zachovávaní pracovných miest, posilňovaní práv pracujúcich členov a zabezpečovaní spravodlivého odmeňovania. Výrobné družstvá tiež *„generujú väčšiu efektivitu a produktivitu, nižšiu mieru absencií a väčšie uspokojenie z práce zo strany pracovníkov, zníženú potrebu dohľadu nad riadením a najnižšie náklady na vytvorenie pracovného miesto, rovnako ako demokratickú kontrolu pracoviska*“ (Axworthy, Ch. - Perry, D. S., 1989, s. 686). Pozitívne treba tiež vnímať aj ochranu životného prostredia, ekologickú udržateľnosť, či spoločenskú zodpovednosť výrobných družstiev, ktoré zohrávajú dôležitú úlohu aj pri znižovaní chudoby a prispievaní k rodovej rovnosti tým, že rozširujú príležitosti žien zúčastňovať sa pracovného procesu. K tomu môžeme pridať aj lepšie dodržiavanie zásady rovného zaobchádzania a možnosť flexibilnejšieho usporiadania pracovného času s dôrazom na zosúlaďovanie rodinného a pracovného života pracujúcich členov. V neposlednom rade pracovné miesta vo výrobných družstvách sú spravidla menej negatívne ovplyvnené cyklickými poklesmi hospodárstva a sú odolnejšie voči výkyvom trhu.

To všetko platí, ak nejde o falošné družstevníctvo, kedy dochádza k outsourcingu činnosti na umelo založené výrobné družstvo. Podnik neuzatvára tradičné pracovné pomery so všetkými povinnosťami vyplývajúcimi zo zákonníka práce a ďalších právnych predpisov, ale využíva obchodnoprávny vzťah s externým subjektom - družstvom, v ktorom sú 'zamestnanci' povinne združení. Takto nastavený mechanizmus znamená, že členovia družstva nie sú formálne integrovaní do organizačnej štruktúry 'zamestnávateľa', ktorý tak nemá povinnosť prideľovať prácu v zmysle pracovnej zmluvy, ale disponuje s pracovnou silou podľa potreby. Flexibilita sa prejavuje najmä v neistote pracujúcich členov družstva, pretože nemajú garantovanú pravidelnú prácu, ale sú stále v režime na zavolanie. Takéto obchádzanie pravidiel má svoju históriu napr. v mäsospracujúcom priemysle v Španielsku, kde funguje okolo 300 fiktívnych družstiev, ktoré prideľujú približne 20% zo všetkých zamestnaných v tomto odvetví (Riesco-Sanz, A., 2021, s. 65).

3. PRÁVNY ZÁKLAD PRACOVNÝCH VZŤAHOV ČLENOV DRUŽTVA

Regulácia pracovných vzťahov členov k družstvu je dlhodobo zakotvená aj v slovenskej právnej úprave. Paradoxne, nie v pracovnoprávnom kódexe, ale v § 226 ods. 2 Obchodného zákonníku č. 513/1991 Zb.: „*Ak podľa stanov je podmienkou členstva tiež pracovný vzťah člena k družstvu, môžu stanovy obsahovať úpravu tohto vzťahu. Táto úprava nesmie odporovať pracovnoprávnym predpisom, ibaže úprava je pre člena výhodnejšia. Ak nie je osobitná úprava v stanovách, platia pracovnoprávne predpisy.*“ Ak členovia družstva

fakultatívnu možnosť vo svojom základnom korporačnom dokumente využijú, nesmie úprava odporovať pracovnoprávnym predpisom, pokiaľ nie je pre pracujúceho člena výhodnejšia. Obe požiadavky ('úprava nesmie odporovať pracovnoprávnym predpisom' a 'nesmie byť menej výhodná pre člena') musia byť splnené kumulatívne.

Stručný text už od svojho prijatia slúžil na prelamovanie rigídnosti prvého Zákonníka práce č. 65/1965 Zb. S postupným uvoľňovaním pracovnoprávnej legislatívy sa výhoda alternatívnej družstevnej regulácie oslabovala, až v podstate stratila svoje špecifické postavenie. Právna náuka tomu príliš veľkú pozornosť nikdy nevenovala. Iba v českej učebnici bolo skonštatované, že „*možnosti odchylných úprav od pracovněprávních předpisů družstva příliš nevyužívají, na druhé straně je však skutečností, že při posuzování těchto vztahů je nutné mít na zřeteli, že obsah těchto vztahů může být pestrý (může se lišit ‚družstvo od družstva')*“ (Pichrt, J. in Bělina, M. a kol., 2010, s. 137). Citované ustanovenie stojí aj mimo záujmu teórie obchodného práva. Napriek tomu je možné naraziť na staršiu kritiku, že ide o rezíduum socialistického pracovného práva upravujúceho vzťahy v štátnom sektore, pričom družstevný sektor mal úpravu vlastnú. Údajne nejestvuje „*žádný důvod pro podobnou úpravu, protože mezi členem družstva a družstvem může být uzavřena naprosto stejná pracovní smlouva jako mezi jakýmkoli jiným zaměstnavatelem a zaměstnancem. Míra dispozitivnosti pracovněprávních předpisů by měla být stejná pro obchodní společnosti, družstva i jiné zaměstnavatelské subjekty*“ (Pelikánová, I., 1995).

4. ZÁVER

S vyššie uvedeným tvrdením o jednotnej forme organizácie práce naprieč pracovnoprávnymi i družstevnými vzťami namožno súhlasiť. Naopak, skôr je tu priestor na reštart družstevnej formy fungovania. V súčasnosti neexistujú žiadne zákonné prekážky, pričom štát by mohol prispieť k akcelerácií alternatívneho pracovného zapojenia napr. revíziou daňových zákonov zvýhodňujúcich výrobné družstvá, ktoré nemusia byť aktívne len v remeselnej sfére, malosériovej výrobe či jednoduchých službách, ale nič nebráni ich vstupu aj na sofistikovanejšie trhy práce ovládané novými technológiami. Táto prastará myšlienka sa dá prispôsobiť aj aktuálnym podmienkam digitálneho veku. Svedčia o tom príklady dobrej praxe, keď s družstvami, v ktorých majú majetkovú spoluúčasť samotní pracujúci členovia, sa môžeme stretnúť aj v oblastiach zdieľanej ekonomiky. Napr. sa možno inšpirovať v New York City, kde s gigantmi ako *Uber* súperí družstvo *The Drivers Cooperative*, ktorého pracujúcimi členmi sú vodiči využívajúci vlastné motorové vozidlá na prepravu osob s potrebou premiestniť sa po území mesta, keďže vytvoriť softvér či aplikáciu pre smartfón nie je žiadna veda, najmä ak družstvo je poháňané demokratickou kultúrou a rýchlym prijímaním rozhodnutí.

LITERATÚRA

[1] Axworthy, Ch. - Perry, D. S. (1989). The Law of Worker Ownership. *Osgoode Hall Law Journal*, iss.. 3, pp. 647-686.

[2] Bělina, M. a kol. (2010). *Pracovní právo. 4. vyd.* Praha : C.H.Beck, 2010. 624 s.

[3] Pelikánová, I. (1995). Komentář k obchodnímu zákoníku : 2. část : § 56-260 (s přihlédnutím k evropskému právu). Praha : Linde, 1995. 767 s.

[4] Riesco-Sanz, A. (2021). Bogus cooperatives and bogus self-employment in the subcontracting chain of the Spanish meat industry. Insecuring workers' rights in subcontracting chains. Brusssels : ETUC, 2021, 120 s.

[5] Smith, S. (2014). *Promoting cooperatives: an information guide to ILO Recommendation No.193*. Geneva: ILO, 2014. 52 s.

[6] Tchami, G. (2004). *Handbook on cooperatives for use of Workers' Organizations*. Geneva : International Labour Office, 2007, s. 6-7.

PRISPIEVA SYSTÉM SOCIÁLNEHO ZABEZPEČENIA NA ZVYŠOVANIE ÚROVNE ZAMESTNANOSTI ZNEVÝHODNENÝCH SKUPÍN OBYVATEĽSTVA?

DOES THE SOCIAL SECURITY SYSTEM INFLUENCE THE LEVEL OF EMPLOYMENT OF DISADVANTAGED GROUPS?

***Natália POZSONYIOVÁ*[114]**
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Abstrakt: *Cieľom príspevku je analýza opatrení sociálneho zabezpečenia na úroveň zamestnanosti znevýhodnených skupín v kontexte trendov a požiadaviek trhu práce. Rozoberieme prekážky na strane zamestnanca ako aj na strane zamestnávateľa pri manažmente ľudských zdrojov s vyústením do odporúčaní pre decíznu scénu. Znevýhodnené skupiny obyvateľov sa obvykle stretávajú s viacerými prekážkami, ktoré musia prekonať v snahe nájsť si vhodné zamestnanie, ktoré by zlepšilo ich životnú úroveň. Skomparujeme vybrané nástroje podpory zamestnanosti znevýhodnených skupín obyvateľstva vo vybranej krajine EÚ s možnosťou aplikácie pre slovenský trh práce. Výsledkom bude zhodnotenie nástrojov sociálneho systému a jeho úroveň digitalizácie pri eliminovaní prekážok uplatniteľnosti znevýhodnených skupín na trhu práce.*

Kľúčové slová: *sociálne zabezpečenie, znevýhodnené skupiny obyvateľov, trh práce*

Abstract: *This paper aimes to find a link between the Social Security benefits and employment of the disadvantaged groups from the view of the trends and requirements of the labour market. We will analyse the barriers on the employee side and the employers' side when managing human resources to form recommendations for the political scene. Disadvantaged groups often encounter many problems while trying to find suitable employment, which would improve their quality of life. We will compare the chosen tools that will help to find a job for disadvantaged groups with a chosen country from the EU and will try to adapt them for the labour market in Slovakia. The resulting evaluation of the Social Security benefits forms a line between the level of provided digital services aiming to eliminate barriers in finding suitable employment for these groups.*

Key words: *Social Security benefits, disadvantaged people, labour market*

JEL Classification: *H55, J68, O15*

1. ÚVOD

Cieľom systému sociálneho zabezpečenia je zmierňovanie následkov a dopadov rôznych životných situácii na životnú úroveň obyvateľstva. Medzi takéto môže patriť choroba, úraz, invalidita, materstvo, rodičovstvo a pod. Sociálne zabezpečenie sa realizuje prostredníctvom podsystémov, medzi ktoré zaraďujeme sociálne poistenie, štátnu sociálnu podporu a sociálnu pomoc. Účel každého podsystému je odlišný a presne vymedzený na určité sociálne a životné situácie. Sociálne zabezpečenie plní v živote znevýhodnených skupín obyvateľstva nenahraditeľnú úlohu. Prepojenosť alebo vplyv sociálneho zabezpečenia na zamestnanosť znevýhodnených skupín sa môže uskutočňovať prostredníctvom rôznej formy pomoci, či už je to vo forme finančnej, poradenskej alebo materiálnej. Všetky tieto formy pomoci môžeme považovať, že prispievajú k zlepšeniu životnej situácie celého obyvateľstva s čím môže súvisieť aj jednoduchšie začlenenie znevýhodnených skupín obyvateľstva na trh práce.

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Znevýhodnené skupiny obyvateľstva v porovnaní s bežnou populáciou majú určité znevýhodnenie buď v podobe zdravotného stavu, rodinnej situácie, a pod. Celkovo môžeme hľadať prepojenosť medzi zamestnanosťou a fungujúcim systémom podpory v ťažkých životných situáciách v tom, že prispieva k zvyšovaniu životnej úrovne obyvateľstva a spokojnosti obyvateľov v každej krajine, čím sa dosahuje celospoločenský prospech. Nastavenie úrovne a rozsahu systému sociálneho zabezpečenia ako aj jednotlivých dávok je nevyhnutné uskutočňovať s veľkou obozretnosťou, aby nespôsobil nežiadúce účinky. Ak sú príspevky zo sociálneho systému na príliš vysokej úrovni, môže to pôsobiť demotivačne pre ľudí poberajúcich príspevky a spôsobiť nežiadúci efekt, ktorý povedie k zníženiu úrovne zamestnanosti a rastu výdavkov na sociálne zabezpečenie (Siepr.Stanford, 2021). Neúmerný a nežiadúci rast výdavkov sociálneho systému vyvoláva neochotu ekonomicky aktívneho obyvateľstva prispievať na jednotlivé dávky sociálneho zabezpečenia. Podľa Fondu sociálneho rozvoja (2009, s. 50), čím je subjektívne vnímaná alebo objektívna socio-ekonomická situácia v určitom regióne horšia, tým je menšia ochota ľudí pomáhať najslabším (Vláda SR, 2021).

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je analyzovať a odhaliť prepojenie medzi systémom sociálneho zabezpečenia a zamestnanosťou v danej krajine. Parciálnym cieľom bude snaha o komparáciu vybraných dávok systému sociálneho zabezpečenia na Slovensku s vybranou krajinou Európskej únie. Budeme sa snažiť kvantifikovať všetky formy pomoci ktoré daný systém poskytuje a následne z toho vyvodiť záver či dané príspevky sú v súčasnej dobe dostatočne efektívne a motivujúce pre obyvateľov. Dané príspevky budeme analyzovať z pohľadu potrieb znevýhodnených obyvateľov a snažiť sa zhodnotiť či odrážajú nároky, ktoré daná skupina potrebuje pri snahe sa začleniť na trh práce so všetkými prekážkami ktorým čelia. Upriamime pozornosť na formálnu stránku poskytovania príspevkov a to v nadväznosti na súčasnú dobu a dostupnosť IKT prostriedkov.

Vyústením príspevku bude komparácia systému sociálneho zabezpečenia a úrovne poskytovaných služieb s vybranou krajinou Európskej únie a zhodnotenie aspektov zlepšenie slovenské systému sociálneho zabezpečenia.

Údajová základňa bude čerpaná zo stránok Ústredia práce, sociálnych vecí a rodiny, zo štatistického úradu, zo stránky ministerstva práce, sociálnych vecí a rodiny a zo zahraničných úradov práce.

3. RIEŠENIE PROBLÉMU A DISKUSIA

Jednotná terminológia znevýhodnených alebo zraniteľných osôb v slovenskom sociálnom systéme absentuje. Ústredie práce, sociálnych vecí a rodiny Slovenskej republiky uvádza pod kategóriou znevýhodnených uchádzačov o zamestnanie momentálne 15 kategórii osôb. Ministerstvo práce, sociálnych vecí a rodiny Slovenskej republiky v Správe o sociálnej situácii obyvateľstva (2020), považuje za zraniteľnú alebo znevýhodnenú osobu fyzickú osobu, ktorá buď v predchádzajúcich šiestich mesiacoch nebola zamestnaná, okrem zamestnania v pracovnoprávnom vzťahu, ktorého trvanie nepresiahlo v úhrne 40 dní v kalendárnom roku a ak mesačná mzda alebo odmena nepresiahla v úhrne sumu životného minima pre jednu plnoletú fyzickú osobu, alebo je osobou so zdravotným postihnutím.

Do tejto skupiny patria napríklad osoby staršie ako 50 rokov, osoby, ktoré dosiahli nižšie ako stredné odborné vzdelanie, osoby, ktoré patria k národnostnej menšine alebo etnickej menšine, osoby ktoré potrebujú nadobúdať pracovné skúsenosti na účely získania trvalého

zamestnania, osoby mladšie ako 26 rokov veku s ukončenou sústavnou prípravou na povolanie v dennej forme pred menej ako 2 rokmi a ďalšie skupiny znevýhodnených osôb.

Osoby so zdravotným znevýhodnením sú nielen osoby, ktoré sú uznané za invalidné podľa §71 zákona č. 461/2003 Z.z. o sociálnom poistení, ale zahŕňa aj osoby, ktoré nie sú uznané za invalidné, avšak majú dlhodobé zdravotné postihnutie znižujúce ich telesné, duševné a zmyslové schopnosti, ktoré bránia ich plnohodnotnému a účinnému zapojeniu sa do pracovného prostredia v porovnaní so zdravou fyzickou osobou.

Rovnako obsiahla je i definícia zraniteľných osôb, medzi ktorými sú napr. fyzické osoby v nepriaznivej sociálnej situácii, ohrozená sociálnym vylúčením alebo obmedzením jej schopnosti sa spoločensky začleniť a samostatne riešiť svoje problémy pre ťažké zdravotné postihnutie alebo nepriaznivý zdravotný stav, fyzické osoby po prepustení z výkonu trestu odňatia slobody, výkonu väzby alebo z výkonu ochrannej výchovy, azylanti či cudzinci, ktorým sa poskytuje doplnková ochrana, poberateľ starobného dôchodku, fyzická osoba odkázaná na pomoc inej fyzickej osoby (osobnú asistenciu, opatrovanie alebo sociálnu službu).

Tabuľka 1. Priemerný počet znevýhodnených uchádzačov v roku 2020 podľa regiónov SR (v osobách)

	Znevýhodnení UoZ podľa § 8 zák. č. 5/2004 Zb.							
Územie	**písm. a)**	**písm. b)**	**písm. c)**	**písm. d)**	**písm. e)**	**písm. f)**	**písm. g)**	**písm. h)**
Bratislavský kraj	704	3 690	2 592	1 596	6 920	0	251	284
Trnavský kraj	798	3 711	1 851	2 582	6 167	0	64	572
Trenčiansky kraj	914	4 912	2 763	1 910	7 192	0	179	856
Nitriansky kraj	1 048	6 202	3 829	3 696	9 513	0	193	611
Žilinský kraj	1 437	6 526	5 007	3 053	11 298	0	57	938
Banskobystrický kraj	1 254	10 381	13 698	12 692	20 837	0	296	1 183
Prešovský kraj	2 262	11 963	19 469	20 142	31 172	0	168	1 728
Košický kraj	1 684	11 808	17 913	16 991	26 984	1	231	1 122
Slovensko	**10 101**	**59 193**	**67 121**	**62 662**	**120 084**	**1**	**1 439**	**7 294**

Legenda:

a) občan mladší ako 26 rokov veku, ktorý ukončil príslušným stupňom vzdelania sústavnú prípravu na povolanie v dennej forme štúdia pred menej ako dvoma rokmi a od jej ukončenia nemal pravidelné platené zamestnanie (tzv. absolvent školy),
b) občan starší ako 50 rokov veku,
c) občan vedený v evidencii uchádzačov o zamestnanie najmenej 12 po sebe nasledujúcich mesiacov (tzv. dlhodobo nezamestnaný občan),
d) občan, ktorý dosiahol vzdelanie nižšie ako stredné odborné vzdelanie,
e) občan, ktorý najmenej 12 po sebe nasledujúcich kalendárnych mesiacov pred zaradením do evidencie uchádzačov o zamestnanie nemal pravidelné platené zamestnanie,
f) štátny príslušník tretej krajiny, ktorému bol udelený azyl alebo ktorému bola poskytnutá doplnková ochrana,
g) občan, ktorý žije ako osamelá dospelá osoba s jednou alebo viacerými osobami odkázanými na jeho starostlivosť alebo starajúca sa aspoň o jedno dieťa pred skončením povinnej školskej dochádzky,
h) občan so zdravotným postihnutím.

Zdroj: Ústredie práce, sociálnych vecí a rodiny Slovenskej republiky

Ako je možné vidieť z definície, prekážok, ktoré týmto osobám bránia v zamestnaní je niekoľko. Všetky skupiny znevýhodnených a zraniteľných ľudí čelia rôznym životným

situáciám, ktoré bez pomoci zvonka by ťažko prekonali. Otázkou je v akej miere dokážu príspevky zo sociálneho systému zmierniť tieto problémy natoľko, aby sa dané skupiny zaradili medzi bežnú populáciu. Zoznam príspevkov pre skúmané skupiny a výdavky na vyplácanie príspevkov uvádzame v tabuľke 2.

Tabuľka 2. Čerpanie finančných prostriedkov na dávky a príspevky za mesiac September 2021 s doplatkami za predchádzajúce mesiace (v Eurách)

	Čerpanie výdavkového účtu v €	
	SEPTEMBER 2021	**Od začiatku roka**
Pomoc v hmotnej núdzi	**11 738 978,60**	**169 823 774,67**
Podpora rodiny	**90 260 345,33**	**800 234 195,48**
Peňažné príspevky na kompenzáciu ŤZP	**43 380 958,18**	**363 406 979,60**
Spolu	**145 380 282,11**	**1 333 464 949,75**

Zdroj: ÚPSVaR, spracovanie autorov

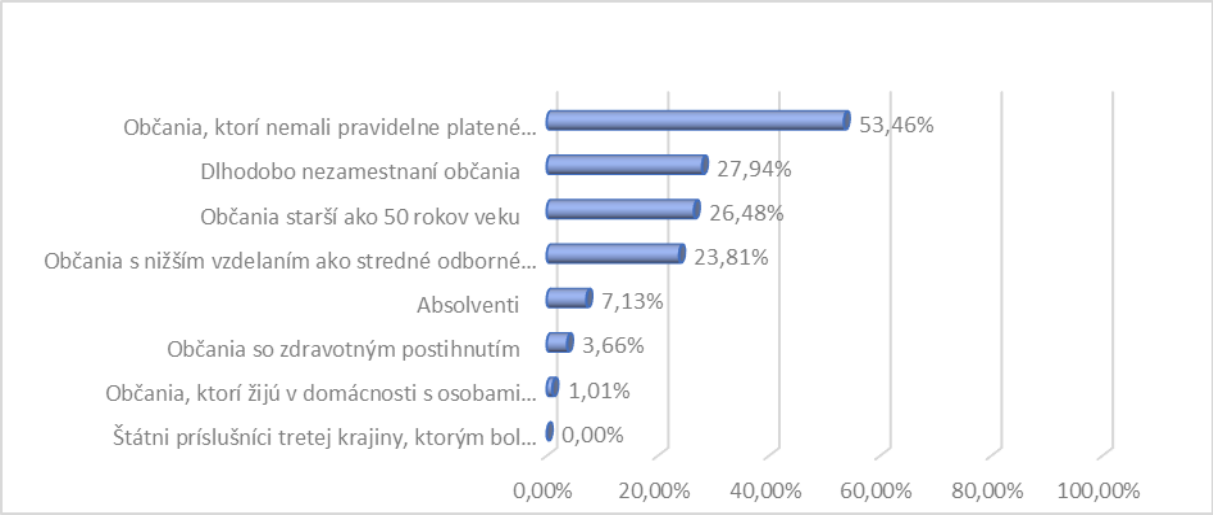
Ako je možné vidieť z tabuľky 2 najväčšia podpora smeruje na pomoc rodinám s deťmi. Rodiny s deťmi predstavujú významnú skupinu ohrozenú rizikom chudoby alebo sociálnym vylúčením. Najviac ohrozené boli v roku 2019 neúplné rodiny s deťmi (40,1 %), viacpočetné rodiny s viac ako tromi deťmi (38,0 %). Z hľadiska vekového rozdelenia sú najrizikovejšou skupinou práve deti vo veku 0 - 17 rokov (22,0 %). Práve tu vidieť význam správne nastaveného systému sociálneho zabezpečenia, nakoľko jeho výdavky významnou mierou znižujú riziko chudoby. V prípade neposkytovania sociálnych transferov by sa miera rizika chudoby na Slovensku zvyšovala.

Okrem finančnej pomoci však je daným znevýhodneným skupinám poskytovaná aj iná forma pomoci. Napríklad odborné poradenské služby (OPS) podľa §43 zákona o službách zamestnanosti. Cieľom daných poradenských služieb je poskytovanie poradenskej podpory pre uchádzačov o zamestnanie (UoZ) a znevýhodnených uchádzačov o zamestnanie (ZoZ) využívaním metód kariérového poradenstva, ktoré posilňuje motiváciu, ovplyvňujú postoje a rozvíjajú zručnosti pre riadenie vlastnej kariéry. OPS sú zamerané na riešenie problémov spojených s pracovným uplatnením UoZ, na vytváranie súladu medzi jeho osobnostnými predpokladmi a požiadavkami na vykonávanie určitého zamestnania, na ovplyvňovanie rozhodovania a správania sa UoZ, ako aj na jeho sociálnu a pracovnú adaptáciu (ÚPSVaR, 2021).

OPS môžu byť realizované prostredníctvom §43 zákona o službách zamestnanosti, ale aj prostredníctvom národných projektov (NP) realizovaných v zmysle §54 zákona o službách zamestnanosti. OPS poskytované v zmysle §43 zákona o službách zamestnanosti (ďalej neprojektové OPS) sú zabezpečované prostredníctvom odborných poradcov, ktorí sú kmeňovými zamestnancami úradov. Charakter neprojektových OPS je rôznorodý čo sa týka formy, rozsahu ale aj obsahu. Patria sem napr. individuálny akčný plán, výbery do projektov a programov, výbery na vzdelávanie, bilancia kompetencií UoZ realizovaná výlučne individuálnou formou a hodnotiace a rozvojové centrum.

Prehľad poskytovaných neprojektových odborných poradenských služieb pre znevýhodnených uchádzačov o zamestnanie za rok 2020 je znázornený v grafe 1.

Graf 1. Štruktúra znevýhodnených UoZ, ktorým boli v roku 2020 poskytnuté neprojektové OPS



Zdroj: Aktívne opatrenia trhu práce 2020 > ÚPSVaR (gov.sk), spracovanie autorov

Jednostranné nastavenie podpôr sociálneho systému môže spôsobovať jeho deformity. Z toho dôvodu sú poskytované aj príspevky zamestnávateľom na zamestnávanie znevýhodnených uchádzačov o zamestnanie. Tieto príspevky sú poskytované z dvoch zdrojov a to z (MPSVaR, 2021):

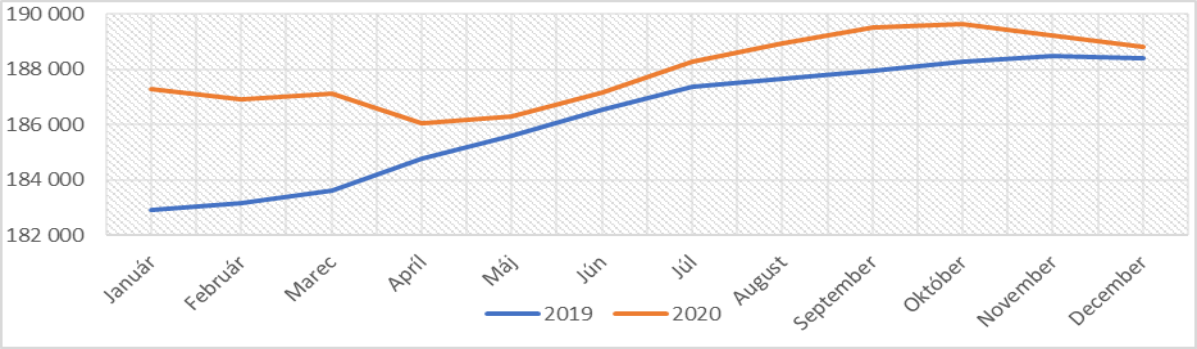
1. európskych fondov alebo
2. štátneho rozpočtu.

Príspevky poskytované primárne z európskych fondov sa poskytujú cez tzv. národné projekty, čo sú osobitné typy projektov financovaných z Európskeho sociálneho fondu, ktorý realizuje vybraný prijímateľ za účelom dosiahnutia cieľov v oblasti aktívnej politiky zamestnanosti a vzdelávania. Sú popísané v jednotlivých oznámeniach o možnosti predkladania žiadosti o poskytnutie finančného príspevku zverejnených na stránkach Ústredia práce, sociálnych vecí a rodiny. Príspevky poskytované zo štátneho rozpočtu sú upravené v samotnom zákone č. 5/2004 Z.z. o službách zamestnanosti.

Všeobecný príspevok na zamestnávanie ktoréhokoľvek znevýhodneného uchádzača o zamestnanie je určený pre tých zamestnávateľov, ktorí na vytvorené pracovné miesto prijmú do pracovného pomeru znevýhodneného uchádzača o zamestnanie vedeného v evidencii uchádzačov o zamestnanie najmenej tri mesiace. U zamestnávateľa teda musí dôjsť k zvýšeniu pracovných miest – musí vytvoriť nové pracovné miesto a zamestnávať viac zamestnancov ako pred poberaním príspevku. V prípade, ak nedošlo k zvýšeniu počtu pracovných miest, zamestnávateľ musí preukázať, že k tomuto zvýšeniu nedošlo v dôsledku zrušenia pracovných miest z dôvodu nadbytočnosti.

V roku 2020 Sociálna poisťovňa evidovala priemerne mesačne 187 946 zamestnávateľov, ktorí zamestnávali zamestnancov priemerne mesačne v 1 921 870 právnych vzťahoch s pravidelným mesačným príjmom a v 59 043 právnych vzťahoch s nepravidelným príjmom. Priemerný mesačný počet zamestnávateľov v roku 2020 medziročne vzrástol o 1 718, priemerný mesačný počet zamestnancov v právnom vzťahu s pravidelným mesačným príjmom klesol o 43 120. Priemerný mesačný počet zamestnancov v právnom vzťahu s nepravidelným príjmom zaznamenal nárast o 1 166. Vývoj počtu zamestnávateľov je znázornený v grafe 2.

Graf 2. Počet zamestnávateľov evidovaných v Sociálnej poisťovni v rokoch 2019 a 2020



Zdroj: Sociálna poisťovňa

Úrad práce príspevok na podporu zamestnávania ktoréhokoľvek znevýhodneného uchádzača o zamestnanie zamestnávateľovi poskytuje najdlhšie počas 12 kalendárnych mesiacov.

Jednou z podmienkou je aj to, že pracovný pomer s týmto zamestnancom musí byť dohodnutý najmenej v rozsahu polovice ustanoveného týždenného pracovného času (najmenej na polovičný pracovný úväzok).

Je logické aj podporiť tento príspevok skutočnosťou, resp. opodstatnením príspevkov pre zamestnávanie znevýhodnených uchádzačov o zamestnanie tým, že znevýhodnení uchádzači o zamestnanie tvoria významnú časť celkového počtu uchádzačov o zamestnávanie a pre zamestnávateľov, ktorí si hľadajú nových zamestnancov môžu byť dané príspevky zaujímavé a motivujúce na zamestnanie znevýhodneného uchádzača o zamestnanie.

V tabuľke 3 je uvedený prehľad podielu znevýhodnených uchádzačov o zamestnanie za rok 2020 na celkovom počte uchádzačov o zamestnanie evidovaných na úradoch práce v SR. Priemerný počet nezamestnaných za rok 2020 predstavoval 181,4 tisíc osôb.

Tabuľka 3. Podiel priemerného počtu vybraných znevýhodnených uchádzačov o zamestnanie na celkovom priemernom počte uchádzačov o zamestnanie (v %)

Znevýhodnení uchádzači o zamestnanie	2019	2020	Medziročný rast/pokles (p.b.)
Absolventi škôl	4,87	4,82	-0,05
UoZ starší ako 50 rokov	28,98	28,24	-0,74
Dlhodobo nezamestnaní občania	36,63	32,02	-4,61
Občania so vzdelaním nižším ako stredné odborné	33,15	29,89	-3,26
UoZ, ktorí 12 mesiacov pred zaradením nemali pravidelne platené zamestnanie	61,09	57,28	-3,81
UoZ so zdravotným postihnutím	3,46	3,48	0,02

Zdroj: Správa o sociálnej situácii obyvateľstva 2020, spracovanie autorov

Existujú však aj ďalšie formy podpory pre znevýhodnených uchádzačov o zamestnanie. V programovom období 2014-2020 sa realizoval Operačný program ľudské zdroje, v rámci ktorého sa poskytovala podpora v oblasti rozvoja ľudských zdrojov, zvyšovania zamestnanosti osobitne so zreteľom na zamestnanosť mladých ľudí po skončení školy do 29 rokov veku, v oblasti integrácie marginalizovaných rómskych komunít. Hlavným cieľom programu pre oblasť vzdelávania, zamestnanosti a sociálnej inklúzie bolo aj v roku 2020 podporiť rozvoj ľudských zdrojov, celoživotného vzdelávania, plnohodnotné začlenenie

nezamestnaných na trh práce a zlepšenie ich sociálnej situácie. Tieto tzv. mäkké opatrenia sa realizujú pomocou Európskeho sociálneho fondu (ESF) a investičné opatrenia sa realizujú pomocou Európskeho fondu regionálneho rozvoja, prostredníctvom ktorých sa realizuje zlepšenie technickej vybavenosti v obciach s prítomnosťou marginalizovaných skupín.

Prostredníctvom týchto fondov bol v danom programovom období poskytovaný aj príspevok Reštart pre mladých ľudí do 29 rokov. Cieľom tohoto príspevku bolo lepšie uplatnenie mladých ľudí do 29 rokov na trhu práce, rozvoju potrebných zručností pre uplatnenie na trhu práce a taktiež posilnenie motivácie si nájsť zamestnanie. Cieľom bola aj podpora miestnej zamestnanosti a prispenie k zníženiu regionálnych disparít na trhu práce (ÚPSVaR, 2021).

Finančný príspevok sa poskytoval všetkým mladým do 29 rokov, ktorí boli vyradení z evidencie na úrade práce z dôvodu vzniku pracovného pomeru a preukázaného nástupu na zamestnanie. Finančný príspevok sa poskytoval počas trvania pracovného pomeru a to v rozsahu 12 mesiacov mesačne vo výške 126,14 eur prvých 6 mesiacov a po zvyšné obdobie vo výške 50 % z danej sumy. Prostredníctvom tohto podporného nástroja sa podarilo v roku 2020 podporiť 3 602 zamestnancov (predtým UoZ), čo si vyžadovalo finančné prostriedky v objeme 9 406 386 eur.

Príspevok sa začal poskytovať od augusta 2018 a hneď sa ukázal vysoký záujem o toto opatrenie. Zdroje vynaložené na tento príspevok prispeli k zníženiu nezamestnanosti mladých uchádzačov o zamestnanie, keďže boli motivovaní si udržať pracovné miesta práve prostredníctvom daného príspevku. V súčasnosti sa však zdroje na financovanie daného príspevku takmer vyčerpali, preto je namieste otázka ďalšieho financovania príspevku pre mladých, ktorý je preukázateľne prínosom pri snahe o zlepšenie situácie zamestnávania mladých.

Na jednotlivých úradoch práce však na efektívne využívanie zdrojov, ktoré poskytujú aj dané dva fondy alebo aj prostriedky zo štátneho rozpočtu, je častokrát viditeľná chýbajúca motivácia zamestnancov úradov práce sa aktívne podieľať na riešeniach pre problematické skupiny ako sú znevýhodnení uchádzači o zamestnanie. Problémom, ktorému v našich podmienkach čelia zamestnanci je vysoký počet uchádzačov o zamestnanie na jedného zamestnanca - napríklad v roku 2018 na jedného zamestnanca pripadalo 2275 uchádzačov, čo neumožňuje efektívne poskytovanie individualizovaných poradenských služieb. Častokrát je prekážkou aj zastarané riešenie služieb zamestnanosti osobnými návštevami na úradoch práce a chýbajúca prehľadnosť poskytovaných príspevkov alebo možnej pomoci na stránkach Ústredia práce. Riešením by mohla byť inšpirácia zo zahraničných úradov práce. V zahraničí sa na zlepšení služieb zamestnanosti podieľajú totiž aj samotní zamestnanci a to konkrétne sú finančne motivovaní príspevkom založeným na výsledkoch inštitúcii služieb zamestnanosti a ich zamestnancov (napríklad Bulharsko, Estónsko, Fínsko, Nemecko, Rakúsko) (MFSR, 2016).

V Nemecku sa napríklad odmeňovanie odvíja od dosiahnutých cieľov. Ciele regionálnych pobočiek služieb zamestnanosti sa vopred definujú a porovnávajú sa s národnými indikátormi. Pri ich dosiahnutí získavajú manažéri všetkých úrovní nárok na malý podiel z platu a výsledky zároveň ovplyvňujú ich kariérne prospekty. V Rakúsku sa na základe pravidelného ročného benchmarkingu a poradia pobočiek prerozdeľujú výkonnostné príplatky zamestnancom až do výšky 50% platu. Manažéri pobočiek sa môžu autonómne rozhodovať o individuálnom prerozdelení zamestnancom na vlastnej pobočke. Samotné meranie výkonov zamestnancov sa zbiera v podobe dát, formálne sa však pre individuálne hodnotenie nepoužíva. Finančné zdroje sa rozdeľujú na základe cieľov a výsledkov lokálnych pobočiek. Lepšie výsledky môžu pobočky pretaviť do optimistickejších cieľov a následne do navýšenia finančných zdrojov v rozpočtovom procese na národnej úrovni.

Tieto príklady zo zahraničia by bolo možné uplatniť aj na motiváciu pracovníkov na domácich úradoch práce, ktorí by boli ohodnotení za snahu znižovať mieru evidovaných

uchádzačov o zamestnanie a aktívnym riešením ich problémov resp. vyhľadávaním vhodných zamestnaní pre všetkých v ich evidencii, nakoľko Slovenská republika disponuje v priemere 16 063 voľnými pracovnými miestami. Prekážkou je však fakt, že prevažná väčšina voľných pracovných miest je v regióne hlavného mesta a región východného Slovenska dlhodobo bojuje s nedostatkom pracovných miest z dôvodu chýbajúcej infraštruktúry.

4. ZÁVER

Slovenský trh práce musí v súčasnosti čeliť viacerým výzvam v snahe zlepšiť stav zamestnávania znevýhodnených uchádzačov o zamestnanie a celkovo aj všetkých vedených v evidencii na úradoch práce. Príklady ktoré boli spomenuté v predchádzajúcej časti by mohli byť motivujúce na zlepšenie situácie na trhu práce. Hlavne by sa mohli služby zamestnanosti a takisto aj samotní zamestnanci úradov práce efektívnejšie podieľať na snahe znížiť úroveň evidovaných znevýhodnených uchádzačov o zamestnanie, keďže tvoria významnú časť zo všetkých uchádzačov evidovaných na úradoch. Príspevky, ktoré sú poskytované aj samotným zamestnávateľom daných skupín môžu byť pre nich zaujímavými no častokrát chýba dlhodobá podpora zo strany štátu na riešenie situácie daných znevýhodnených uchádzačov o zamestnanie. Tieto príspevky, ktoré sa im poskytujú sa ukazujú ako účinné, ale skôr v kratšom časovom úseku, keďže sú častokrát ohraničené určitým obdobím. Celkovo by bolo možné zhodnotiť opatrenia zo strany štátu ako čiastkové a nie komplexné.

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LITERATÚRA

[1] MFSR.(2016). *Veľa práce na úradoch práce: Efektivita a účinnosť služieb zamestnanosti (2016).* [citované 31.10.2021]. Dostupné na: Sluzby-zamestnanosti_final_20161010.pdf (mfsr.sk).

[2] MPSVaR - MINISTERSTVO PRÁCE, SOCIÁLNYCH VECÍ A RODINY. (2021). *Správa o sociálnej situácii obyvateľstva SR za rok 2020*. [online]. [citované 31.10.2021]. Dostupné na: www.employment.gov.sk.

[3] Podnikajte.sk. (2020). Príspevky na zamestnávanie znevýhodnených uchádzačov o zamestnanie v roku 2020. [online]. [citované 30.10.2021]. Dostupné na< Príspevky na zamestnávanie znevýhodnených uchádzačov o zamestnanie v roku 2020 | Podnikajte.sk.

[4] Siepr.Stanford. (2021). The employment effects of the social security earning test. [online]. [cit.: 29.10.2021]. Dostupné na: 20-005_1.pdf (stanford.edu).

[5] ÚPSVaR. (2021). *Aktívne opatrenia trhu práce 2020.* [online]. [citované 30.10.2021]. Dostupné na: Aktívne opatrenia trhu práce 2020 ÚPSVaR (gov.sk).

[6] ÚPSVaR. (2021). *Národný projekt-reštart pre mladých UoZ*. [online]. [citované 31.10.2021]. Dostupné na: Opis_NP_Restart_pre_mladych_UoZ.pdf (gov.sk).

[7] ÚPSVaR. (2021). Štatistiky. [online]. [citované 29.10.2021]. Dostupné na: Sociálne veci - štatistiky - ÚPSVaR (gov.sk).

[8] Vláda SR. (2021). *Sociálne začleňovanie znevýhodnených skupín obyvateľstva*. [citované 29.10.2021]. Dostupné na: 1 Sektorový operačný program Ľudské zdroje (gov.sk).

[9] Zákon č. 5/2004 Z.z. o službách zamestnanosti

PRISPIEVA ONLINE KOMUNIKÁCIA NA ÚRADOCH PRÁCE K ZVYŠOVANIU EFEKTIVITY POSKYTOVANÝCH SLUŽIEB?

DOES THE ELECTRONIC FORM OF COMMUNICATION IN EMPLOYMENT OFFICES INCREASE THE EFFECTIVENESS OF THEIR SERVICES?

Natália POZSONYIOVÁ [116]
Eva RIEVAJOVÁ [117]

Abstrakt: *Cieľom príspevku je zhodnotenie a porovnanie efektivity poskytovaných služieb prostredníctvom úradov práce, a to online formou komunikácie a prezenčnou formou komunikácie. V súčasnej dobe, keď sa čoraz väčší dôraz kladie na elektronickú formu komunikácie na mnohých úradoch v štátnej správe, vzniká otázka či súčasná forma komunikácie na úradoch práce s klientmi je dostatočne efektívna vzhľadom na vývoj komunikačných technológii, ktoré by dokázali odbremeniť jednotlivé úrady práce od prezenčnej návštevy klientov a nahradiť ich rôznymi dostupnými formami elektronickej komunikácie. Zmena v spôsobe, akým klienti komunikujú s pracovníkmi úradov práce, by mohla zlepšiť efektivitu poskytovaných služieb tým, že by v prvom rade prispela k časovej úspore. Prínos by mohol byť aj v podobe zvýšenia digitálnej gramotnosti klientov pobočiek úradov práce, čo by mohlo viesť tiež k zvyšovaniu kvalifikačnej úrovne zamestnancov aj klientov.*

Kľúčové slová: *efektivita služieb zamestnanosti, úrady práce, klienti úradov práce, komunikácia s klientmi*

Abstract: *This paper aims to assess and compare the effectiveness of provided services in the employment offices through either online form of communication with clients and the old-fashioned form of attending the visit to the employment office in person. Today when the electronic form of communication is more preferred at many institutions in public offices, the question is if the current form of communication at employment offices that still prefers the old fashioned visit in person is enough compared to the possibilities that offer the electronic forms of communication. The most visible positive effect of the electronic way of communication would be minimizing the workload for the employees of the offices in terms of better time management because the formal visit of the employment offices is time demanding for both sides. The second not less important positive effect would be of increasing the digital knowledge of the employees and also the clients.*

Keywords: *efficiency of employment services, labor offices, clients of labor offices, communication with clients*

JEL Classification: *J68, J88, O38*

1. ÚVOD

V súčasnej dobe čelí súkromný aj verejný sektor zmenám nielen v súvislosti s technologickým vývojom ale aj z dôvodu pandémie, ktorá spôsobila, že doteraz zaužívané spôsoby práce ale aj komunikácie so zákazníkmi sa dosť výrazne zmenili. Zaviedli sa, kde to bolo možné, práca z domu a namiesto uprednostnenia osobného stretnutia s klientmi spoločnosti v obidvoch sektoroch uprednostnili elektronickú formu komunikácie prostredníctvom rôznych IKT prostriedkov. Tieto udalosti prispeli k uvedomeniu si, že

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viaceré situácie, ktoré si doteraz vyžadovali osobný kontakt boli možné a častokrát aj jednoduchšie riešené cez elektronickú komunikáciu. Čas, ktorý zamestnanci strávili osobnými stretnutiami mohli využiť na efektívnejšie vynaloženie pracovného času a na zvyšovanie celkovej úrovne poskytovaných služieb. Úrady práce sú špecifické resp. boli známe vyžadovanými osobnými návštevami pred vypuknutím pandémie. Ale aj daná pandémia prispela k tomu, že osobné návštevy nie sú nevyhnutnou podmienkou na efektívnu spoluprácu klientov s pracovníkmi úradov práce a že daný čas je možné využiť efektívnejšie jednak zamestnancami ale aj klientmi, ktorí neraz museli dochádzať za návštevou úradov práce na väčšie vzdialenosti. Online komunikácia šetrí jednak rozpočet klientov, ich čas, ale môžeme spomenúť dokonca aj fakt, že do určitej miery šetrí aj životné prostredie z dôvodu dochádzania osobnou dopravou alebo autobusmi. Viaceré štúdie poukázali na to, že práca home-office spôsobuje zvyšovanie efektivity práce oproti práci v kancelárii (Bueromoebel-experte, 2021).

Podobne ako v súkromnom sektore tak aj vo verejnom sektore bol značný posun v spôsobe výkonu práce zmenený všade kde to charakter práce umožňoval z osobnej (návšteva kancelárie, klientov a pod) na online resp. prácu z domu s použitím elektronických prostriedkov.

2. CIEĽ A METODOLÓGIA

Cieľom daného príspevku je porovnanie a zhodnotenie akým spôsobom prispela online komunikácia na úradoch práce zamestnancom i klientom. Identifikovať a kvantifikovať služby, ktoré je v súčasnosti možné poskytovať online a služby, ktoré sú ešte stále poskytované cez osobnú návštevu. Výsledkom by malo byť porovnanie služieb a ich vývoj v čase.

Dáta budeme čerpať prevažne zo stránok Ministerstvá práce, sociálnych vecí a rodiny, zo stránok ústredia práce sociálnych vecí a rodiny a zo stránky www.slovensko.sk cez ktorú sa dané služby poskytujú. Budeme analyzovať ako sa vyvíjali elektronické služby zamestnanosti prostredníctvom údajov z danej stránky. Nájdene informácie o poskytovaní služieb zo stránok Ústredia práce na Slovensku porovnáme so stránkou úradu práce vo vybranej zahraničnej krajine, a to konkrétne vo Veľkej Británii a poukážeme na možnosti zlepšenia služieb u nás.

Na záver poukážeme na možnosti ako zlepšiť služby úradov práce jednak prostredníctvom elektronickej komunikácie na stránkach ústredia práce, ale i celkovo ako možno odbremeniť úrady práce od opakujúcej sa rutinnej práce, ktorú by bolo možné nahradiť jednoduchým riešením na stránkach ústredia práce.

3. RIEŠENIE PROBLÉMU A DISKUSIA

Úrady práce vo všeobecnosti poskytujú široké množstvo služieb týkajúcich sa zamestnávania a sociálnych vecí a rodiny. Klientmi úradov práce je široké spektrum ľudí s rôznym stupňom vzdelania, veku, národnosti. Preto je nepochybne dôležité aby poskytované služby boli prehľadné a zodpovedali úrovni požadovanej v súčasnej dobe. Trh práce v súčasnosti prechádza viacerými zmenami a to nielen technologickými ale aj v dôsledku pandémie COVID-19, ktorá preverila flexibilitu zamestnávateľov ale aj zamestnancov a ich ochotu sa prispôsobiť týmto zmeneným podmienkam.

V súčasnosti je možné využívať služby poskytované cez úrady práce a podávať žiadosti štyrmi spôsobmi:

- Poštou
- Osobne

- Elektornicky – cez www.slovensko.sk – vyžaduje sa kvalifikovaný elektronický podpis
- E -mailom – na e-mailovú adresu úradu práce.

Počet elektronických služieb poskytovaných cez portál slovensko.sk ako uvádza Ministerstvo práce je 20 (MPSVaR SR, 2021). Prehľad poskytovaných elektronických služieb je uvedený v tabuľke 1.

Tabuľka 1. Prehľad poskytovaných elektronických služieb cez www.slovensko.sk

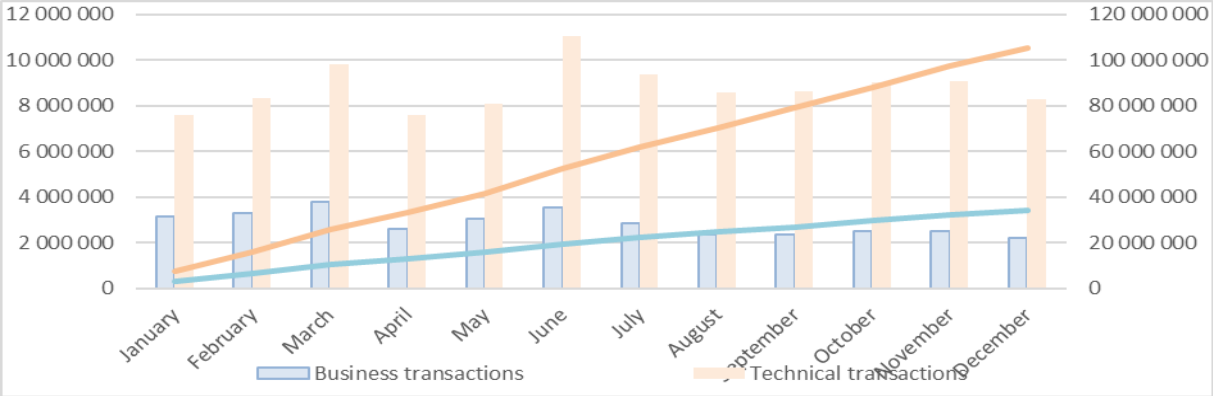
Zoznam elektronických služieb	1. Vyhotovenie parkovacieho preukazu fyzickej osoby so zdravotným postihnutím
	2. Vyhotovenie preukazu fyzickej osoby ZŤP
	3. Rozhodovanie o náhradnom výživnom
	4. Rozhodovanie o jednorazovom príspevku pri zverení do náhradnej starostlivosti
	5. Rozhodovanie o jednorazovom príspevku pri zániku náhradnej starostlivosti
	6. Rozhodovanie o opakovanom príspevku pri dieťaťu zverenému do náhradnej starostlivosti
	7. Rozhodovanie o opakovanom príspevku náhradnému rodičovi
	8. Rozhodovanie o osobitnom opakovanom príspevku náhradnému rodičovi
	9. Rozhodovanie o príspevku na pohreb
	10. Rozhodovanie o príspevku na starostlivosť o dieťa
	11. Rozhodovanie o príspevku pri narodení dieťaťa
	12. Rozhodovanie o príspevku rodičom, ktorým sa súčasne narodili tri deti alebo viac alebo ktorým sa v priebehu dvoch rokov opakovane narodili dvojčatá
	13. Rozhodovanie o rodičovskom príspevku pre vlastné dieťa, zverené dieťa
	14. Rozhodovanie o peňažnom príspevku na opatrovanie
	15. Rozhodovanie o peňažnom príspevku pre ZŤP (rôzne účely)
	16. Rozhodovanie o pomoci v hmotnej núdzi
	17. Rozhodovanie o prídavku na dieťa
	18. Vydávanie potvrdení o sociálnych dávkach
	19. Podávanie informácii o príjme fyzickej osoby ZŤP
	20. Poskytovanie informácii o podaných žiadostiach

Zdroj: Používateľská príručka elektronických služieb MPSVaR. www.employment.gov.sk.

Napriek tomu, že existujú alternatívy k podávaniu žiadostí online, tieto žiadosti sú takisto naviazané aj na úroveň technologických zručností klientov úradov práce. Kým medzi mladšími ročníkmi je počítačová gramotnosť na vyššej úrovni, staršie ročníky preferujú skôr osobnú komunikáciu resp. prostredníctvom pošty. Problémom je aj fakt, že nie všetky domácnosti na Slovensku majú dostupnosť PC a internetu. Podľa štatistického úradu malo v roku 2020 85,8% zo všetkých domácností na Slovensku pripojenie na internet (Štatistický úrad SR, 2021).

Otázkou, ktorá tu vystáva v súvislosti aj s prebiehajúcou pandémiou COVID-19 a mala za následok, že sa podstatne znížila osobná komunikácia, je efektívnosť takýchto osobných stretnutí s klientmi. Ako môžeme vidieť na grafe 1, tak počet žiadostí, ktoré boli odoslané cez stránku slovensko.sk mal v minulom roku rastúcu tendenciu.

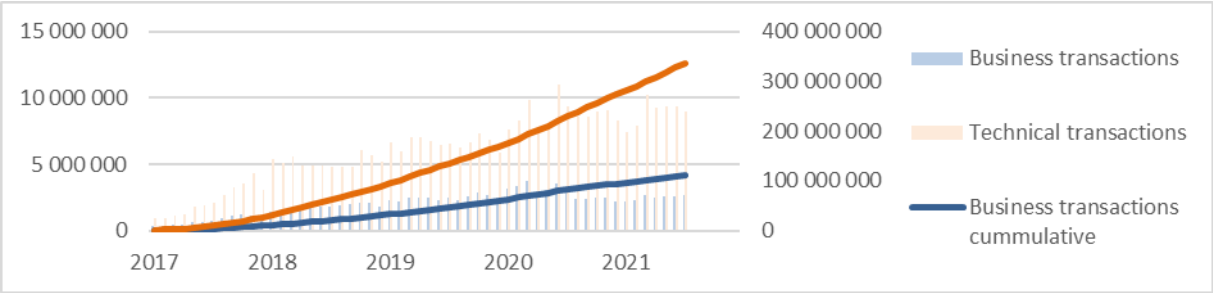
Graf 2. Prehľad vývoja počtu elektronických žiadostí cez www.slovensko.sk za rok 2020



Zdroj: Počet rozhodnutí, podaní a notifikácii zaslaných cez ÚPVS, https://data.gov.sk/dataset/pocet-rozhodnuti-podani-a-notifikacii-zaslanych-cez-upvs, spracovanie autorov

Keď sa pozrieme na vývoj transakcií na portáli slovensko.sk tak môžeme vidieť, že za posledné 4 roky sa zvyšoval neustále počet transakcii.

Graf 3. Prehľad počtu transakcií na www.slovensko.sk počas rokov 2017-2021

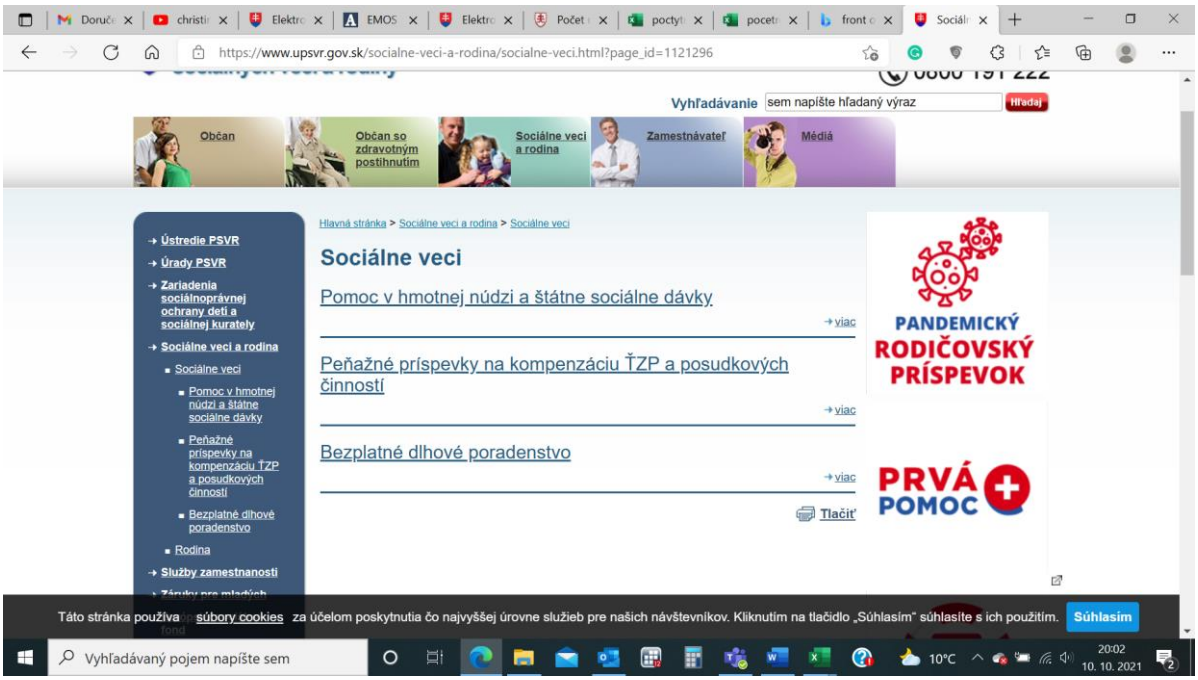


Zdroj: Počet rozhodnutí, podaní a notifikácii zaslaných cez ÚPVS, https://data.gov.sk/dataset/pocet-rozhodnuti-podani-a-notifikacii-zaslanych-cez-upvs, spracovanie autorov

Logicky je možné vyvodiť, že počet návštev na úradoch práce resp. osobných podaní sa cez pandémiu znížil. Náplň práce však zostala na úradoch práce rovnaká aj keď počas pandémie fungovali v obmedzenom režime. Momentálne sa aj znížil počet vyžiadaných osobných návštev uchádzačov na úradoch – tzv. povinné chodenie sa „hlásiť“. Otázne je, či sa presunom na elektronickú formu komunikácie s úradmi darí zvyšovať ich efektivitu. Riešením by bolo zmeniť zameranie náplne práce zamestnancov z tzv „front office“ čiže komunikácia s klientmi na „back office“ čiže aktívne hľadanie ponúk práce alebo zvyšovanie možnosti uplatnenia pre uchádzačov o zamestnanie.

Problémom pri daných elektronických službách sú mnohokrát aj chýbajúce alebo nekompletné formuláre na stránkach úradov práce resp. Ústredia práce, ktoré majú za následok opäť ako jediné východisko osobnú návštevu úradov práce. Ako problém možno uviesť aj ťažšiu orientáciu a neprehľadnosť poskytovaných služieb na stránke ústredia práce. Mínusom je, že nie je prehľad o službách, ktoré poskytujú úrady práce podľa životnej situácie resp. na aké všetky služby má občan alebo uchádzač o zamestnanie nárok. Všetky služby sú na danej stránke www.upsvar.gov.sk v podstate vymenované a nie sú naviazané na rôzne životné situácie.

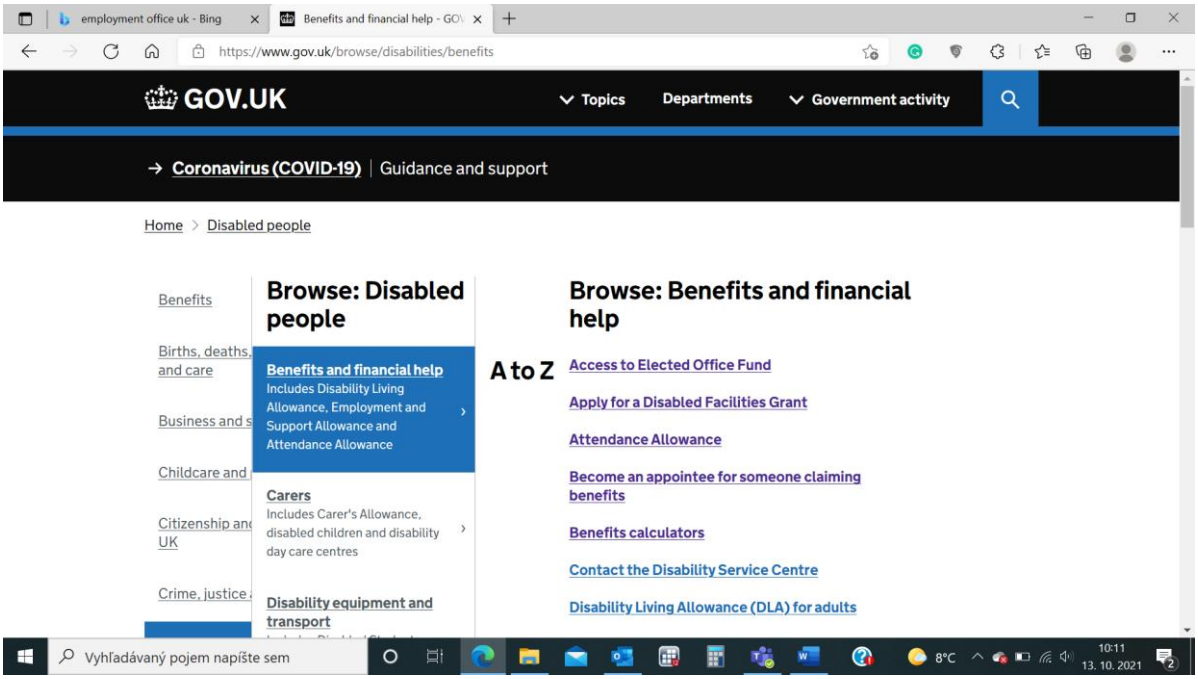
Obrázok 1. Zoznam poskytovaných príspevkov pre znevýhodnené osoby na stránke Ústredia práce na Slovensku



Zdroj : www.upsvar.gov.sk

Keď to porovnáme so stránkou na zahraničnom úrade práce, napr. Veľká Británia, je tam viditeľné, že ku každej životnej situácii sú podrobne rozpísané, aká forma pomoci občanovi náleží a rovnako je tam možnosť sa na lokálny úrad práce registrovať online (Contact Jobcentre Plus, 2021).

Obrázok 2. Zoznam benefitov pre zdravotne znevýhodnené osoby na stránke úradu práce vo Veľkej Británii



Zdroj: www.gov.uk

V dôsledku toho má určitú výhodu osobná návšteva úradu práce podľa možností, pretože zamestnanec úradu vie napomôcť rýchlejšej orientácii klienta pri rozličnej životnej situácii. Jednoduchým riešením by mohol byť u nás tzv. komerčný chatbot ktorý by mohol byť nápomocný hlavne v prípadoch, keď nie je možná osobná návšteva úradu práce ako napríklad počas pandémie. Vtedy bolo jediným riešením využiť telefonickú resp. e-mailovú komunikáciu. Hlavným mínusom daných elektronických služieb je menšia interaktivita s klientmi, keďže nie vždy sa klienti vedia zorientovať alebo nájsť čo potrebujú na daných stránkach. Jedným z ďalších návrhov by boli možnosti zefektívnenia súčasného modelu služieb ktoré poskytujú úrady práce – ako napríklad si dohodnúť osobnú návštevu cez internetovú stránku na nejaký konkrétny voľný termín. Takýmto spôsobom by si aj návštevníci úradov práce mohli vybrať termín, ktorý by im vyhovoval, namiesto pevne stanoveného termínu.

Všetky vyššie spomenuté návrhy sa týkajú skôr služieb „front office“, ktoré by na stránkach ústredia/úradov a slovensko.sk v podstate mali nahradiť face-to-face čiže osobnú návštevu na úradoch. Ako následok spomenutých návrhov by bol logický presun zamestnancov do tzv. „back office“ keďže väčšinu služieb, ktoré poskytovali klientom, by bolo riešené cez online stránky a ďalšie formy elektronickej formy komunikácie. S tým by súviselo aj nahradenie času, ktorý zamestnanci úradov práce venovali osobným návštevám na aktívne vyhľadávanie ponúk práce pre uchádzačov a to aj s pomocou agentúr sprostredkujúcich zamestnanie. Zjednodušenie aj podávanie žiadosti a prehľadu na internetových stránkach, by napomohlo k celkovému zníženiu množstva návštev na úradoch.

Inšpiráciou by mohli byť postupy na zahraničných úradoch práce napr. v Nemecku, kde klient po registrovaní sa je kontaktovaný spolupracujúcou agentúrou sprostredkujúcou zamestnania a je s klientom uskutočnený pohovor napríklad o akú prácu má záujem, aké má vzdelanie a skúsenosti a na základe toho je mu poskytnutý zoznam voľných pozícii. Zároveň sú na stránkach nemeckého úradu práce detailne rozpísané možnosti a ďalšie postupy ako si nájsť zamestnanie vrátane porady ako sa pripraviť na pohovor, ďalšie možnosti vzdelávania a milióny zverejnených ponúk práce (Bewerbungstraining, 2021).

4. ZÁVER

Pandémia COVID-19 spôsobila, že sa čoraz viac venuje pozornosť efektivite poskytovaných služieb online namiesto osobných stretnutí, a to vo viacerých sférach. Viac sa venuje pozornosť funkčnosti IKT prostriedkov, prehľadnosti internetových stránok inštitúcií a schopnosti sa prispôsobiť na túto radikálnu zmenu prechodom z tzv. reálneho na online svet. Daná pandémia preverila aj pripravenosť verejných inštitúcií na riešenie bežných životných situácii klientov nie osobnými návštevami, ale za použitia informačných technológii. Je zrejmé, že získané skúsenosti môžu napomôcť k zlepšovaniu služieb klientov úradov práce aj cez online komunikáciu. V súčasnosti je možné už viaceré služby poskytované úradmi práce klientom realizovať online formou, otázkou ktorá vystáva však je, či sú poskytované online služby dostatočne prehľadné a dostupné každému klientovi úradu práce.

Napriek viacerým nedostatkom, ktoré aj v súčasnosti existujú pri používaní informačných prostriedkov a na niektoré z nich sme v texte poukázali, je možné zo strany zainteresovaných očakávať, že kvalita online služieb na úradoch práce sa bude zlepšovať a prispeje tak k celkovej vyššej úrovní poskytovaných služieb.

Dodatok

Príspevok je výsledkom riešenia výskumného projektu VEGA č. 1/0037/20 „Nové výzvy a riešenia pre rast zamestnanosti v meniacich sa sociálno-ekonomických podmienkach“ a

projektu VEGA č. 1/0851/21 "Sociálna ekonomika ako moderný nástroj budovania inkluzívnej spoločnosti v kontexte globálnych zmien a výziev Agendy OSN 2030 pre udržateľný rozvoj"

LITERATÚRA

[1] Bewerbungstraining. (2021). *Bewerbungstraining: Stellen finden und erfolgreich bewerben.* [online]. [citované 12.10.2021] Dostupné na: Bewerbungstraining - Bundesagentur für Arbeit (arbeitsagentur.de).

[2] Bueromoebel. (2021). *Home office – was beachten?* [online]. [citované 8.10.2021]. Dostupné na Home Office: Test, 10 Tipps, Fakten, Pro und Contra (bueromoebel-experte.de).

[3] Contact Jobcentre Plus. (2021). [online]. [citované 11.10.2021] Dostupné na: Contact Jobcentre Plus - GOV.UK (www.gov.uk).

[4] MPSVaR SR. (2021). *Používateľská príručka elektronických služieb MPSVaR*. [online]. [citované 9.10.2021]. Dostupné na: priloha-c_3_pouzivatelska-prirucka_e-sluzby.pdf (gov.sk).

[5] Štatistický úrad SR. (2021). *Štatistický úrad SR – Vybavenie domácnosti informačnými technológiami*. [online]. [citované 10.10.2021] Dostupné na: Vybavenie domácností informačnými technológiami [is1009rs] - DATAcube. (statistics.sk).

[6] ÚPSVaR. (2021). [online]. [citované 10.10.2021] Dostupné na: www.upsvar.gov.sk.

[7] Vláda SR. (2021). *Počet rozhodnutí, podaní a notifikácii zaslaných cez ÚPVS – Datasety*. [online]. [citované 12.10.2021]. Dostupné na: Počet rozhodnutí, podaní a notifikácii zaslaných cez ÚPVS - Datasety -data.gov.sk.

RODOVÁ ROVNOSŤ A EKONOMICKÝ RAST – EMPÍRIA V KRAJINÁCH V4

GENDER EQUALITY AND ECONOMIC GROWTH – EVIDENCE FROM V4 COUNTRIES

***Eva RIEVAJOVÁ*[118]**
***Jakub HARMAN*[119]**

Abstrakt: *Príspevok sa zaoberá vplyvom rodovej rovnosti vo vzdelávaní a v prístupe na trh práce na ekonomický rast v krajinách Vyšehradskej štvorky. Sledované dáta pokrývajú obdobie rokov 1990 – 2019. Nástroje použité v príspevku sú korelačná a regresná analýza. Pomocou metódy najmenších štvorcov, ako nástroja regresnej analýzy, je identifikovaný vzťah medzi rodovou rovnosťou vo vzdelaní a ekonomickým rastom. Výsledky analýzy naznačujú pozitívny a štatisticky významný vplyv rodovej rovnosti v prístupe k vzdelávaniu (GPI index) na ekonomický rast. Zvýšenie GPI o jedno percento vedie k zvýšeniu ekonomického rastu o 0,46 – 1,79 %. V prípade participácie pohlaví na trhu práce prináša vyššie zapojenie mužov nárast ekonomického rastu o 0,8 – 7,3 %. Vyššie zapojenie žien naopak znižuje ekonomický rast. Výskum berie do úvahy aj ďalšie dôležité makroekonomické ukazovatele, ktoré slúžia ako kontrolné premenné.*

Kľúčové slová: *ekonomický rast, index rodovej parity, rodová rovnosť*

Abstract: *The paper deals with the impact of gender inequality in education and access to the labor market on economic growth in the Visegrad Four countries. The monitored data cover the period of years 1990 - 2019. The techniques used in the analysis are correlation and regression analysis. Using the ordinary least squares method as a tool for regression analysis, the relationship between gender equality in education and economic growth is identified. The results of the analysis suggest a positive and statistically significant impact of gender inequality in access to education (GPI index) on economic growth. An increase in GPI by one percent leads to an increase in economic growth by 0.46 - 1.79%. In the case of gender participation in the labour market, a higher involvement of men leads to increase of economic growth by 0.8 - 7.3%. On the contrary, higher female participation reduces economic growth. The research also considers other important macroeconomic indicators that serve as control variables.*

Key words: *economic growth, gender equality, gender parity index,*

JEL Classification: *J16, J21, I24*

1. ÚVOD

Rodová rovnosť je témou, ktorá sa stala významnou súčasťou ekonomických diskusií. Diskriminácia žien na trhu práce či v rovnosti príležitostí je vážnym socio-ekonomickým problémom. Jedným z hnacích motorov ekonomiky a teda aj ekonomického rastu je práve väčšie zapojenie žien na trhu práce. Aby boli ženy schopné konkurovať mužskému pohlaviu na trhu práce je potrebné, aby mali zabezpečený rovnaký prístup k vzdelávaniu. Mnohé štúdie poukázali na to, že nevyužitý potenciál žien je plytvaním výrobného faktora práca ako aj kapitálu vo forme ľudského kapitálu (Egbelonu a Eleonu, 2018; Martín a Garvi, 2009). Vyššie zapojenie žien na trhu práce, najmä v rozvojových krajinách, vedie k významnému zvýšeniu ekonomického rastu (Ali, 2015). Príspevok sa venuje prioritne rodovej rovnosti vo vzdelávaní a participácii žien na trhu práce a ich vplyvom na ekonomický rast v krajinách V4. Aj napriek

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tomu, že krajiny V4 patria k rozvinutým krajinám, rodová rovnosť na trhu práce stále nedosiahla úroveň najrozvinutejších krajín Západu. Z legislatívneho hľadiska je rodová rovnosť zakotvená oficiálnymi dokumentmi na národnej úrovni aj na úrovni Európskej únie vo forme Stratégie rodovej rovnosti 2020 – 2025 (Európska komisia, 2020). Jedným z troch hlavných cieľov tohto dokumentu je zníženie rozdielov medzi pohlaviami na trhu práce. S cieľom umožniť ženám prosperovať na trhu práce Európska komisia zdvojnásobí úsilie o presadzovanie noriem v oblasti rovnováhy medzi pracovným a súkromným životom, aby umožnila ženám a mužom rovnaký osobný a profesionálny rozvoj. Rodová rovnosť v kontexte trhu práce, sociálneho začlenenia a rozmerov vzdelávania bude monitorovaná počas európskeho semestra.

Výskumná časť príspevku sa zameriava na efekt rodovej rovnosti a participácie žien na trhu práce na ekonomický rast. Druhá kapitola sa venuje prehľadu literatúry na danú tému. Tretia časť sa zaoberá použitými dátami a metodológiou využitou vo výskumnej časti príspevku. Nasledujúca kapitola s názvom Výsledky interpretuje výsledky korelačnej a regresnej analýzy. Kapitola Záver sumarizuje závery a odporúčania z výskumu.

2. PREHĽAD LITERATÚRY

Témou rodovej rovnosti sa zaoberá nespočetné množstvo štúdií, ktoré poukazujú na rôzne korelácie medzi rodovou rovnosťou a ekonomickým rastom. Mishra a Mishra (2016) empiricky poukázali na pozitívny a štatisticky významný vzťah medzi indikátormi rodovej rovnosti a ekonomickým rastom v krajinách Ázie. Ich výsledky naznačujú, že orientácia krajín a tvorcov hospodárskej politiky by sa mala zamerať na vyššie zrovnoprávnenie žien a snahu o ich vyššie zapojenie na trhu práce, nakoľko to vedie k zvýšeniu produktivity práce a následne k vyššiemu ekonomickému rastu.

Brummet (2008) využíva panelové dáta za 72 krajín v období rokov 1960 - 1985. Vo svojom výskume využíva pomerové ukazovatele rodovej rovnosti, aby sa vyhol možnej multikolinearite medzi separátnymi premennými pre ženy a mužov. Výsledky štúdie potvrdzujú očakávané predpoklady o tom, že vysoké rodové nerovnosti znižujú ekonomický rast a sú navyše robustné voči zmenám v špecifikácii využitých premenných.

Mimoriadne dôležitý výskum uskutočnili ekonómovia Barro a Lee (1994), v ktorom na vzorke 138 krajín identifikovali efekty jednotlivých determinantov ekonomického rastu vrátane vzdelania mužov a žien. Ich výsledky naznačujú, že vzdelanie žien negatívne koreluje s ekonomickým rastom v sledovaných krajinách. Autori to pripisujú faktu, že vo vzorke sú zahrnuté aj rozvojové krajiny, v ktorých vysoké hodnoty ekonomického rastu produkuje najmä vyššia produktivita práce mužov a konvergenčný mechanizmus. Ich výsledky sa neskôr stali terčom kritiky z rady mnohých ekonómov (Stokey, 1994; Dollar a Gatti, 1999; Klasen, 2002).

Knowles, Lorgelly a Owen (2002) vo svojej analýze využívajú prístup Solow-Swanovho modelu ekonomického rastu, do ktorého zabudovali rodovú nerovnosť ako explicitnú premennú. Výsledky ich výskumu naznačujú, že krajiny s vyššou rodovou nerovnosťou dosahujú nižšie hodnoty výstupu na pracovníka v stálom stave, čo podporuje zistenia predchádzajúcich štúdií.

Zaujímavé zistenia prináša príspevok od Kharoui a Feki (2018), ktorí skúmajú efekt rodovej nerovnosti vo vzdelaní na ekonomický rast v Tunisku. Autori identifikujú viacero potenciálnych efektov vyššieho vzdelania žien na socio-ekonomické ukazovatele v krajine. Prvým je ten, že zvýšenie úrovne ľudského kapitálu žien môže viesť k zníženiu miery pôrodnosti žien, nakoľko sa ženy zamerajú viac na budovanie svojho pracovného života a zakladanie rodiny sa stane sekundárnym cieľom. Druhým argumentom je, že detská úmrtnosť by sa mohla znížiť znížením pôrodnosti žien. Po tretie, zvýšenie úrovne vzdelania

žien môže pozitívne ovplyvniť úroveň vzdelania nasledujúcich generácií, keďže existuje predpoklad, že vzdelanejšie ženy budú môcť vďaka vyšším príjmom zabezpečiť kvalitnejšie vzdelanie aj svojim potomkom. Empíria navyše potvrdila existenciu dlhodobého vzťahu medzi sledovanými premennými.

Autori Bertay, Dordevic a Sever (2020) sa zaoberajú rodovou nerovnosťou naprieč odvetviami. Vo svojom výskume predpokladajú, že alokácia práce žien v odvetviach, kde má vyššiu produktivitu zvýhodňuje jednotlivé odvetvia oproti ostatným. Autori empiricky testujú, či odvetvia, ktoré zamestnávajú viac žien ako mužov rastú relatívne rýchlejšie v krajinách s nižšou rodovou nerovnosťou. Ich výsledky naznačujú, že rodová rovnosť naozaj významne ovplyvňuje ekonomické ukazovatele krajín.

Amin, Kuntchev a Schmidt (2015) identifikovali negatívny vzťah medzi rodovou nerovnosťou a ekonomickým rastom na vzorke 107 krajín. Autori poukazujú na to, že takýto vzťah však platí iba v prípade chudobných krajín. V bohatých krajinách, podľa ich výsledkov, neexistuje významný vzťah medzi rodovou nerovnosťou a ekonomickým rastom.

Pervaiz a kol. (2011) využívajú časové rady za obdobie rokov 1972 – 2009 za krajinu Pakistan. Ich výsledky poukazujú na pozitívny vplyv otvorenosti ekonomiky, investícií ako aj rastu populácie na ekonomický rast. Rodová nerovnosť, podľa očakávaní, pôsobí na ekonomický rast negatívne a teda ho znižuje.

3. DÁTA A METODOLÓGIA

Príspevok sa zaoberá vzťahom rodovej rovnosti vo vzdelávaní a participácii pohlaví na trhu práce a ekonomického rastu. Dáta pokrývajú krajiny Vyšehradskej štvorky v období rokov 1990 – 2019. Vďaka vytvoreniu časových radov za jednotlivé krajiny je možné vytvoriť panelové dáta, čo umožňuje využiť metódu fixných efektov a odstrániť tak nepozorované javy, ktoré sa nemenia v čase. Dáta sú zozbierané z World Development Indicators databázy Svetovej Banky.

Tabuľka 1. Deskriptívna štatistika

Premenné (log)	Priemer	Št. odchýlka	Min	Max	Šikmosť	Špicatosť
Ypc	9,457	0,348	8,614	10,097	-0,383	2,527
GPI	0,18	0,125	-0,240	0,316	-1,345	4,406
Ženy	4,105	0,076	3,883	4,260	-0,707	3,460
Muži	4,317	0,063	4,188	4,425	-0,467	2,055
Investície	24,288	0,641	23,154	25,623	0,220	2,093
Otvorenosť	4,687	0,372	3,778	5,250	-0,469	2,288
Inflácia	1,55	1,295	-2,922	6,342	-0,066	5,108
Pop_dep	-2,129	1,194	-5,605	-0,129	-1,071	3,859

Zdroj: Svetová banka, vlastné výpočty

Z metodologického hľadiska analýza využíva modifikovaný Solow-Swanov model ekonomického rastu. Model uvedený do praxe Robertom Solowom a Trevorom Swanom v roku 1956 je jedným z najpoužívanejších modelov ekonomického rastu vôbec. Model využíva neoklasickú produkčnú funkciu, pomocou ktorej vysvetľuje dlhodobý ekonomický rast ako funkciu akumulácie kapitálu, produktivity a rastu populácie. Odhadovaný model v našej analýze je rozšírený o premenné kontrolujúce mužskú a ženskú pracovnú silu a taktiež rodovú rovnosť vo vzdelaní vo forme Indexu rodovej parity. Index rodovej parity je ukazovateľ, ktorý meria relatívny prístup k vzdelávaniu podľa pohlavia. Počíta sa ako podiel počtu žien k počtu mužov zapísaných na danom stupni vzdelávania. GPI rovný 1 označuje rovnováhu medzi oboma pohlaviami. V analýze využívame Index rodovej parity na úrovni

terciárneho vzdelávania, nakoľko predpokladáme, že práve terciárne vzdelávanie má najvyšší efekt na ekonomický rast.

Odhadnutý model má tvar

$$Ypc_{it} = \beta_0 + \beta_1 GPI_{it} + \beta_2 Ženy_{it} + \beta_3 Muži_{it} + \beta_4 Investície_{it} + \beta_5 Otvorenosť_{it} + \beta_6 Inflácia_{it} + \beta_7 Pop_dep_{it} + \psi_i + \varepsilon_{it} \qquad (1)$$

kde:

- *Ypc*: hrubý domáci produkt na obyvateľa v krajine *i* v čase *t*
- *GPI*: Index rodovej parity v krajine *i* v čase *t*
- *Ženy*: Miera ekonomickej aktivity žien v krajine *i* v čase *t*
- *Muži*: Miera ekonomickej aktivity mužov v krajine *i* v čase *t*
- *Investície*: Tvorba hrubého fixného kapitálu v krajine *i* v čase *t*
- *Otvorenosť*: Otvorenosť ekonomiky v krajine *i* v čase *t*
- *Inflácia*: Miera inflácie v krajine *i* v čase *t*
- *Pop_dep*: Miera rastu populácie a 5 % depreciácie kapitálu v krajine *i* v čase *t*
- *Ψ*: Fixný efekt krajiny *i*
- *ε*: Chyba modelu

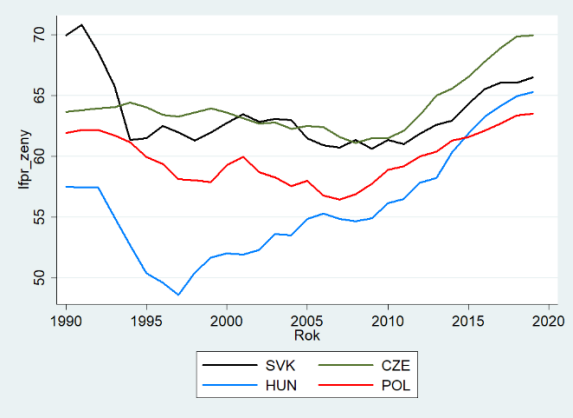
Všetky premenné sú odhadované v logaritmickom tvare. Predmetom záujmu našej analýzy sú koeficienty β_1, β_2 a β_3.

Závislou premennou nášho modelu je hrubý domáci produkt na obyvateľa. Keďže sú všetky premenné odhadované v logaritmickom tvare, tak výsledky regresného modelu zobrazujú elasticitu medzi premennými (percentuálnu zmenu). Týmto spôsobom dokážeme odmerať efekt rodovej rovnosti a participácie žien na trhu práce na ekonomický rast. V modeli sú zahrnuté aj kontrolné premenné. *Otvorenosť* je premenná vyjadrujúca otvorenosť ekonomiky meranú ako podiel súčtu importu a exportu na hrubom domácom produkte danej krajiny. *Inflácia* zohľadňuje výšku cenovej hladiny v danej krajine v danom roku. Premenná *Pop_dep* berie do úvahy rast populácie v danej krajine a depreciáciu kapitálu vo výške 5 %. Pri tejto premennej očakávame záporné znamienko, nakoľko pri raste populácie ako aj pri opotrebovaní kapitálu sa produkt na obyvateľa znižuje.

4. VÝSLEDKY

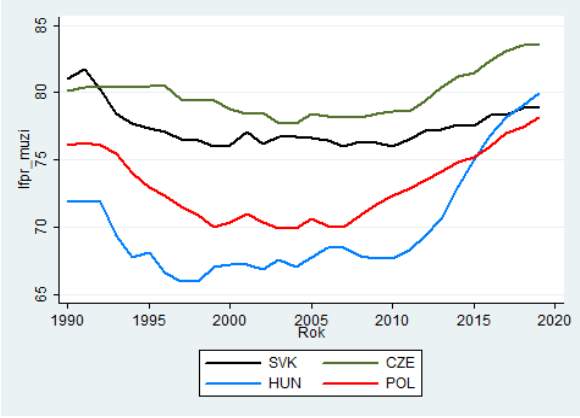
Grafy 1 a 2 znázorňujú vývoji miery ekonomickej aktivity žien a mužov v krajinách Vyšehradskej štvorky. Podobné trendy pozorujeme vo všetkých krajinách. Začiatkom 90. rokov následkom zmeny politického režimu pozorujeme poklesy v prípade oboch pohlaví. Tento trend sa stabilizoval v období rokov 2000 – 2005 s miernym poklesom vplyvom finančnej krízy v rokoch 2008 – 2009. Od tohto obdobia sledujeme výrazne rastúci trend vo všetkých krajinách, čo naznačuje, že vysoký počet mužov aj žien sa zapojili na trh práce. Pokrízová snaha o oživenie ekonomík krajín V4 vytvorila priestor na tvorbu nových pracovných miest, čo sa premietlo do rastúceho trendu kriviek.

Graf 1. Miera ekonomickej aktivity žien



Zdroj: Svetová banka

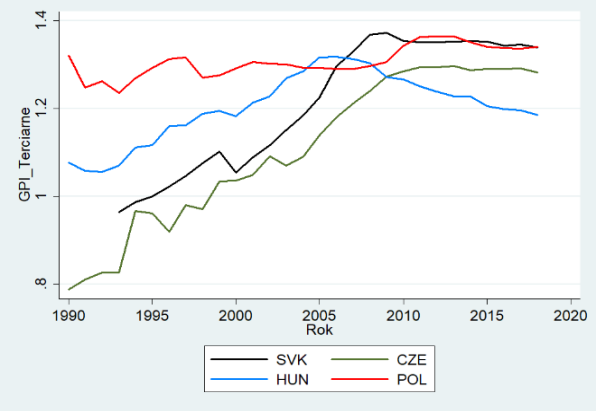
Graf 2. Miera ekonomickej aktivity mužov



Zdroj: Svetová banka

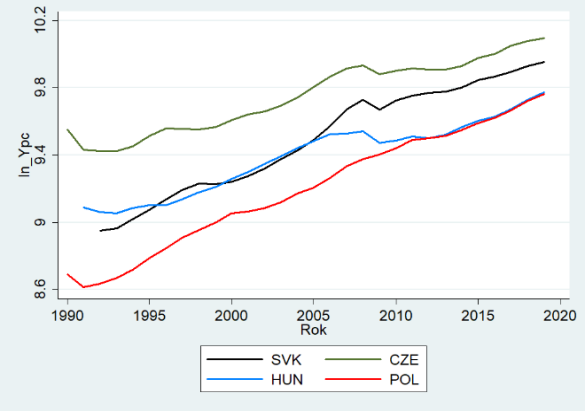
Vývoj hodnôt Indexu rodovej parity v terciárnom vzdelávaní poskytuje Graf 3. Hodnoty vyššie ako 1 naznačujú, že sa terciárneho vzdelávania zúčastnilo viac žien ako mužov. V prípade Poľska a Maďarska pozorujeme takéto hodnoty počas celého sledovaného obdobia. Výrazný rast počtu žien zapojených do terciárneho vzdelávania zaznamenalo Slovensko v druhej polovici 90. rokov až do roku 2010, kedy sa trend stabilizoval. Rastúca krivka naznačuje, že motivácia žien získať akademický titul a tým zvýšiť svoje celoživotné príjmy sa v tomto období výrazne zvýšila. Podobne je na tom aj Česká republika, kde je však pomer žien a mužov v terciárnom vzdelávaní o niečo nižší.

Graf 3. Index rodovej parity



Zdroj: Svetová banka

Graf 4. HDP na obyvateľa



Zdroj: Svetová banka

Tabuľka 2 zobrazuje výsledky korelačnej analýzy. V tabuľke sú zobrazené párové korelačné koeficienty medzi sledovanými premennými. Predmetom záujmu našej analýzy sú koeficienty vyjadrujúce vzťah medzi Indexom rodovej parity (GPI), mierou ekonomickej aktivity žien (Ženy) a mužov (Muži) a hrubým domácim produktom na obyvateľa (Ypc). Korelačný koeficient medzi rodovou rovnosťou a ekonomickým rastom zaznamenal hodnotu 0,168, čo naznačuje slabý ale pozitívny vzťah medzi premennými. Z daného vyplýva, že rodová rovnosť vo vzdelávaní posilňuje ekonomický rast. Podobný výsledok vyplýva aj z Grafu 4, ktorý zobrazuje vzťah rozdelený na krajiny V4. Z grafu vidíme, že najväčší efekt na ekonomický rast má rodová rovnosť v Poľsku. Dôležitým zistením je, že vo všetkých krajinách V4 je tento vzťah pozitívny. Silnejšiu koreláciu pozorujeme medzi ekonomickým rastom a participáciou žien (0,438) a mužov (0,496) na trhu práce. Obe premenné majú podľa

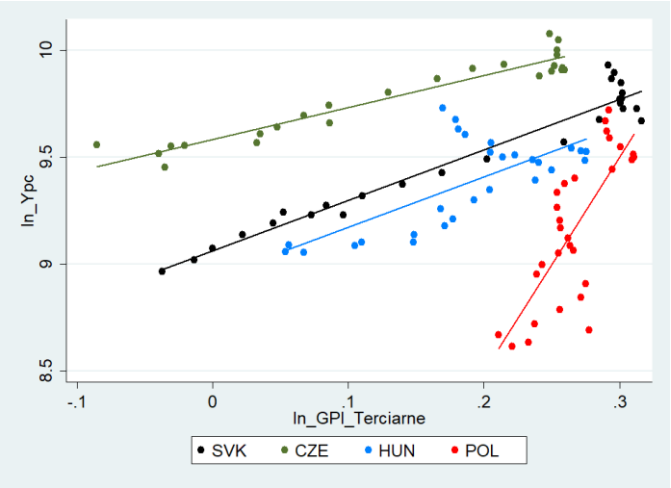
očakávaní pozitívny efekt na výšku ekonomického rastu. Investície a otvorenosť ekonomiky taktiež. Inflácia naopak výrazne podkopáva ekonomický rast. Zaujímavú hodnotu nadobudol koeficient pri vzťahu ekonomického rastu a rastu obyvateľstva. Vyšší počet obyvateľov by mal podľa našich očakávaní znižovať výstup na obyvateľa, hodnota koeficientu je však kladná (0,112), čo svedčí o presnom opaku. Kredibilitu tohto zistenia sa pokúsime overiť regresnou analýzou.

Tabuľka 2. Korelačná matica

Premenná	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Ypc	1,000							
(2) GPI	0,168*	1,000						
	(0,077)							
(3) Ženy	0,438***	-0,148	1,000					
	(0,000)	(0,117)						
(4) Muži	0,496***	-0,289***	0,942***	1,000				
	(0,000)	(0,002)	(0,000)					
(5) Investície	0,306***	0,380***	0,141	0,088	1,000			
	(0,001)	(0,000)	(0,138)	(0,354)				
(6) Otvorenosť	0,688***	0,324***	0,225**	0,233**	-0,235**	1,000		
	(0,000)	(0,001)	(0,016)	(0,013)	(0,013)			
(7) Inflácia	-0,695***	-0,321*	-0,293*	-0,260***	-0,480***	-0,398***	1,000	
	(0,000)	(0,001)	(0,002)	(0,006)	(0,000)	(0,000)		
(8) Pop_dep	0,112	-0,056	0,322***	0,446***	-0,161	0,303**	0,165	1,000
	(0,361)	(0,662)	(0,006)	(0,000)	(0,203)	(0,013)	(0,188)	

*** p<0,01, ** p<0,05, * p<0,1
Všetky premenné sú v logaritmickom tvare. V zátvorke je uvedená p-value.
Zdroj: vlastné výpočty

Graf 4. Vzťah medzi ekonomickým rastom a Indexom rodovej rovnosti



Zdroj: Svetová banka, vlastné výpočty

Výsledky regresnej analýzy sú zobrazené v Tabuľke 3. Všetky odhadnuté koeficienty vypovedajú o elasticite vysvetľujúcej premennej a ekonomického rastu nakoľko sú dané premenné v logaritmickom tvare. Modely 1 – 3 sú odhadované na celkových dátach ako prierezových. Tieto modely nezohľadňujú fixné efekty jednotlivých krajín. Model 1 odhaduje efekt rodovej rovnosti vo vzdelávaní ako jedinej premennej vysvetľujúcej ekonomický rast. Hodnota koeficientu hovorí, že zvýšenie indexu o 1 % vedie k zvýšeniu ekonomického rastu o 0,46 %. Koeficient je štatisticky významný na úrovni 90 %. Z daného vyplýva, že rodová rovnosť podporuje ekonomický rast a čím viac žien sa zapája do terciárneho vzdelávacieho procesu, tým sa ekonomika z hľadiska výkonnosti stáva vyspelejšou. Hodnota koeficientu sa

zvýšila po pridaní premenných kontrolujúcich participáciu žien a mužov na trhu práce (Model 2). V modeli 3 sa nachádzajú všetky kontrolné premenné, ktoré majú vplyv na ekonomický rast. Investície a medzinárodný obchod majú podľa očakávaní pozitívny vplyv na ekonomický rast. Naopak inflácia a rast populácie znižuje príjem na obyvateľa. Hodnota GPI ostala konzistentná aj po zavedení kontrolných premenných, podobne aj aktivita žien a mužov na trhu práce. V prípade žien je koeficient záporný, čo naznačuje, že vyššie zapojenie žien na trhu práce má negatívny dopad na príjem na obyvateľa. To môže byť zapríčinené tým, že ženy sa z veľkej časti zamestnávajú v profesiách, ktoré podliehajú rodovým stereotypom a neprinášajú vyššiu pridanú hodnotu ako profesie mužské. V prípade mužov na trhu práce je znamienko kladné, štatisticky významné, a má výrazný vplyv na ekonomický rast. Z dôvodu pochybností o presnosti odhadnutých koeficientov sme sa rozhodli vykonať regresnú analýzu aj na panelových dátach s kontrolovaním fixných efektov.

Tabuľka 3. Regresná analýza

	OLS			Fixné efekty		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
GPI	0,456*	1,203***	0,516**	1,787***	1,768***	0,570***
	(0,256)	(0,230)	(0,226)	(0,171)	(0,164)	(0,170)
Ženy		-3,471***	-3,595***		0,887	-0,963
		(1,134)	(0,901)		(0,875)	(0,758)
Muži		7,229***	7,292***		0,840	2,513*
		(1,365)	(1,369)		(1,251)	(1,329)
Investície			0,192***			0,401***
			(0,036)			(0,098)
Otvorenosť			0,468***			0,363**
			(0,094)			(0,136)
Inflácia			-0,018			-0,001
			(0,022)			(0,017)
Pop_dep			-0,040**			-0,026
			(0,020)			(0,016)
Konštanta	9,363***	-7,721***	-14,285***	9,122***	1,866	-9,013**
	(0,056)	(2,095)	(3,077)	(0,036)	(2,645)	(4,114)
Počet pozorovaní	112	112	55	112	112	55
R^2	0,028	0,400	0,922	0,506	0,568	0,929

Závislá premenná je HDP na obyvateľa. Všetky premenné sú v logaritmickom tvare.
V zátvorkách sú uvedené štandardné chyby.
*** p<0,01; ** p<0,05; * p<0,1
Zdroj: vlastné výpočty

Stĺpec 4 – 6 zobrazuje odhadnuté modely ako panelové dáta s kontrolovaním fixných efektov. Fixné efekty sú také, ktoré sa nemenia v čase (napr. rozloha krajiny), a preto je možné ich veľmi jednoducho do modelu zahrnúť a kontrolovať ich. Takéto odhady by mali byť presnejšie ako odhady na prierezových údajoch. Model 4 napodobňuje tvar z modelu 1. Efekt rodovej rovnosti vo vzdelávaní na ekonomický rast je opäť výrazne pozitívny. Jedno percentné zvýšenie Indexu rodovej parity vedie k zvýšeniu ekonomického rastu o 1,78 %. Efekt ostáva rovnaký aj po zavedení kontrolných premenných pre zapojenie žien a mužov na trhu práce. Koeficienty týchto premenných sú síce kladné (0,887 resp. 0,840), chýba im však štatistická významnosť. Koeficient determinácie tohto modelu je na úrovni 57 %, čo značí, že existuje ešte relatívne veľká variabilita, ktorá nie je vysvetlená. Model 6 zahŕňa všetky kontrolné premenné ovplyvňujúce príjem na obyvateľa. Efekt rodovej rovnosti sa znížil na 0,57 avšak zostal kladný a štatisticky významný. Môžeme teda tvrdiť, že vyššia rodová rovnosť naozaj vedie k vyššiemu ekonomickému rastu. Štatistickú významnosť nadobudol aj odhadnutý koeficient pri miere ekonomickej aktivity mužov. Zvýšenie participácie mužov na trhu práce o jedno percento vedie k zvýšeniu ekonomického rastu o 2,5 %. Investície aj

medzinárodný obchod si zachovali kladný charakter podporujúci ekonomický rast. Efekt inflácie, rastu populácie a depreciácie je zanedbateľný a štatisticky nevýznamný. Koeficient determinácie hovorí, že model vysvetľuje až 93 % variability závislej premennej.

Z daných výsledkov môžeme usúdiť, že v krajinách V4 stále existuje predpoklad toho, že vyššie zapojenie žien do terciárneho vzdelávacieho procesu vedie k výraznému zvýšeniu výkonnosti ekonomiky. Preto by sa mali tvorcovia verejných politík usilovať práve o vyššie motivovanie žien k akademickému vzdelaniu.

5. ZÁVER

Rodová rovnosť sa už dlho považuje za dôležitý pilier rozvoja národa ako celku. Z toho dôvodu je možné usúdiť, že vysoká rodová nerovnosť má negatívny vplyv na ekonomický rast. Rodová rovnosť vo vzdelávaní prispieva k ekonomickému rastu zvyšovaním zásob ľudského kapitálu v spoločnosti a zlepšovaním distribúcie ľudských zdrojov na trhu práce. Príspevok identifikuje efekt rodovej rovnosti v terciárnom vzdelávaní a participácii pohlaví na trhu práce na ekonomický rast v krajinách Vyšehradskej štvorky v období rokov 1990 – 2019. Výsledky analýzy identifikovali pozitívny vplyv rodovej rovnosti na ekonomický rast. V priebehu sledovaného obdobia sa vyšší počet žien zúčastňuje terciárneho vzdelávania v pomere k mužom, čo vplýva aj na vzťah ponuky a dopytu po práci. Zvyšuje sa aj participácia žien na trhu práce, čo potvrdila aj naša analýza. Od roku 2010 pozorujeme výrazný nárast miery ekonomickej aktivity žien aj mužov. Regresná analýza, pomocou metódy najmenších štvorcov ale taktiež panelových odhadov s fixnými efektmi, odhalila výrazne pozitívny a štatisticky významný vplyv rodovej rovnosti vo vzdelávaní na ekonomický rast. Využitie potenciálu žien zabezpečením vyššieho vzdelania má vplyv na ľudský kapitál a vyšší ekonomický rast, čo sa následne na trhu práce prejavuje vyššou produktivitou práce. V súvislosti s uvedeným by sa mali tvorcovia politík ale taktiež mimovládne či súkromné organizácie vo väčšej miere zamerať na programy a stratégie, ktoré zabezpečujú rodovú rovnosť vo vzdelávaní a uľahčujú prístup žien na trh práce.

Dodatok

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LITERATÚRA

[1] Ali, M. (2015). Effect of Gender Inequality on Economic Growth (Case of Pakistan). *Journal of Economics and Sustainable Development*, 6(9), pp. 125-133.

[2] Amin, M., Kuntchev, V. & Schmidt, M. (2015). Gender Inequality and Growth: The Case of Rich vs. Poor Countries. *World Bank Policy Research Working Paper No. 7172*.

[3] Barro, R. & Lee, J. W. (1994). Sources of economic growth. *Carnegie-Rochester Conference Series Public Policy*, 40(1), pp. 1–46.

[4] Bertay, A. C., Dordevic, L. & Sever, C. (2020). Gender Inequality and Economic Growth: Evidence from Industry-Level Data. *IMF Working Paper*. No. 20/119.

[5] Brummet, Q. (2008). The effect of gender inequality on growth: A cross-country empirical study. *The Park Place Economist*, 46(1), pp. 13–23.

[6] Dollar, D. & Gatti, R. (1999). Gender inequality, income and Growth: Are good time good for women? Policy Research Report on Gender and Development working paper No. 1. *Washington: World Bank*.

[7] Egbulonu, K. D. & Eleonu, I. S. (2018). Gender inequality and economic growth in Nigeria (1960–2016). *International Journal of Gender and Women's Studies*, 6(1), pp. 159–167.

[8] European Commission. (2020). Gender Equality Strategy: Striving for a Union of equality. Dostupné na: https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52020DC0152.

[9] Karoui, K. & Feki, R. (2018). The impacts of gender inequality in education on economic growth in Tunisia: an empirical analysis. *Quality and Quantity*, vol. 52, pp. 1-9. doi.org/10.1007/s11135-017-0518-3.

[10] Klasen, S. (2002). Low Schooling for Girls, Slower Growth for All? Cross-Country Evidence on the Effect of Gender Inequality in Education on Economic Development. *The World Bank Economic Review*, 16(3), pp. 345-373.

[11] Knowles, S., Loergelly, P. & Owen, P. (2002). Are educational gender gaps a brake on economic development? Some cross-country empirical evidence. *Oxford Economic Papers*, 54(1), pp. 118-249.

[12] Martin, R. & Garví, M. (2009). Gender Inequality and Economic Growth in Spain: An Exploratory Analysis. *Review of Regional Studies*, vol. 39. DOI: 10.52324/001c.8199.

[13] Mishra, S. K. & Mishra, P. K. (2016). Gender parity in education and economic growth: Empirical evidence from select Asian countries. Pedagogy of Learning: *An International Journal of Education*, 2(4), pp. 35–46.

[14] Pervaiz, Z. & Chani, M. I. & Jan, S. A. & Chaudhary, A. R. (2011). Gender inequality and economic growth: A time series analysis for Pakistan. *Middle East Journal of Scientific Research*. 10(4), pp. 434–439.

[15] Solow, R.M. & Swan, T.W. (1956). Economic Growth and Capital Accumulation. *Economic Record*, vol. 32, pp. 334-361. https://doi.org/10.1111/j.1475-4932.1956.tb00434.x.

[16] Stokey, N. (1994). Comments on Barro and Lee. Carnegie-Rochester Conference Series on Public Policy, vol. 40, pp. 47-57. doi.org/10.1016/0167-2231(94)90003-5.

DEALING WITH EMPLOYEE SHORTAGE. EMPLOYER ATTRACTIVENESS FROM THE PERSPECTIVE OF GENERATION Z: THE CASE OF LITHUANIA

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Abstract. *Lately, employers have been increasingly focusing on the employee shortage issue. The demographic trends and changing work nature, characterised by work intensification and the necessity for new skills while working with smart technologies (Industry 4.0), lead to the situation when organisations constantly compete for employees. There are currently five generations in the labour market. Two of them are in transition: the Traditionalists or the Silent Generation are already of retirement age, but some of them are still working, and the Generation Z has only relatively recently begun entering the labour market. Consequently, Generation Z poses new challenges and requirements for businesses to address if they want to attract the employees. Usually, an employer's attractiveness is defined by the benefits a person receives from working for a particular organisation. Earlier literature confirmed the fact that there is no consensus on the choices of Generation Z and the aspects that are important to them regarding a particular employer. As the existing evidence lacks explicitness, the paper tries to close this gap and aims to reveal the relevant components of employer attractiveness from the perspective of Generation Z. In doing this, quantitative data were collected in Lithuania (pilot study). According to the results, for the Generation Z, an attractive employer is one that provides economic value, social benefits, and improvement opportunities. The paper has strong practical implications seeing that the results are in line with the idea that organisations should create and implement policies and practices for increasing employer attractiveness for Generation Z.*

Key words: *Generation Z, employer attractiveness, employee shortage*

JEL Classification: *M54, M51, J2, J21*

1. INTRODUCTION

The context of generations in the labour market is a relevant research topic because knowledge of the characteristics of different generations makes it easier to organise work and improve intergenerational cooperation in the organisation. There are currently five generations participating in the labour market, and two of them are in a transition period: the Traditionalist generation that is already of retirement age, but some of them are still working, and the Generation Z which is increasingly entering the labour market, bringing with it new needs and formulating challenges for organisations (Schroth, 2019; Peres, 2018). As the Generation Z enters the labour market, it is noticeable that knowledge about them is limited, there is still no consensus on the characteristics, values, and working methods of these potential employees (Šakytė-Statnickė, 2020). The lack of research on this topic does not allow for making generalised conclusions about which characteristics of employers are more or less attractive for the representatives of Generation Z (Schwieger, 2018).

Competition for employees (not only for the best ones) in the labour market is constantly increasing. The need to attract and retain the best employees only grows over time, and the importance of human capital overshadows tangible assets, especially in terms of understanding the value that employees create for business efficiency (Arachchige, 2013). Therefore, employers have started using the principles and practices of attractiveness development in the field of human resource management, and accordingly investing more in attractiveness (Alnıacik, 2012; Moroko, 2005). Employer attractiveness can be understood as

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a subjective assessment of an employer's brand attractiveness and is determined by several traits that can be grouped structurally (Lievens, 2007; Berthon, 2005). Attractiveness reflects ongoing human resource development activities and provides an additional competitive advantage in the marketplace (Rampl, 2014).

The aim of the paper is to reveal the relevant dimensions of employer attractiveness from the perspective of Generation Z. To achieve this, the paper examines: a) the dimensions of employer attractiveness, in terms of Interest value, Social value, Economic value, Development value, and Application value, that are more important for the Generation Z; b) whether there are some differences in preferences according to gender, working experience and future work expectations. The survey was conducted during the COVID-19 lockdown in April-May, 2021.

The paper contributes to the literature in several ways. First, it responds to the call that employer and work preferences of Generation Z still remain empirically underexplored and provides some empirical evidence (Kirchmayer, Fratričová, 2020). Second, as the paper analyses employer attractiveness, literature on this phenomenon is extended. Third, the paper contributes to the literature of crisis situations, as the survey was conducted in the period of the COVID-19 lockdown.

The remainder of the paper proceeds as follows: at the beginning, a literature review and proposed hypotheses are presented; further, methodology is explained; then, the paper presents the empirical results, followed by the discussion and conclusions with some important implications.

2. THEORETICAL BACKGOUND

2.1 Generation Z and its features

Mannheim (1952) described generations as social constructions whereby those of a particular age or set of ages are defined by historical and social events. The analysis of literature reveals that a generation is made up of people of similar age who have experienced the same historical, cultural, social, economic, technological and other events (Šakytė-Statnickė, 2020; Mencl, Lester, 2014). Currently, active generations in the labour market are: Mature / Traditional / Silent / Veterans (retirement age but still working), Baby Boom Generation, Generation X, Generation Y, and Generation Z (Costanza, et al. 2012). The current paper addresses exclusively Generation Z. Although some disagreement exists among researchers with respect to generation cut-offs, the paper follows the attitude of Williams (2010) and Bencsik (2016) arguing that Generation Z is generally viewed as individuals who were born starting with 1995.

Generation Z has not lived in the world without the Internet, and the use of technology has become a way of life for them (Ozkan, 2015). This generation is considered to be the first truly global generation that is very different from its predecessors (Bolser, 2015), and their digital attachment is one of the most distinctive features of the cohort (Singh, 2016). Generation Z is characterised by individual informal and sometimes straightforward communication, with social networking being an integral part of their daily lives; however, despite their active involvement in social networks, their involvement in civic life is lower than that of other generations (Addor, 2011). According to (Adecco, 2015), Generation Z values individual work and, compared to Generation X, is more prone to work in small, well-known teams. Some authors believe that this fact was determined by the cohort's tendency to communicate in a virtual environment, the promotion of individuality and independence, and the tendency to use abbreviations for socialisation (Addor, 2011; Tulgan, 2013).

It is observed that the representatives of Generation Z tend to have no doubts about their opportunities and future career prospects (Adecco, 2015); compared to other generations, they are more entrepreneurial, and more self-motivating (Black, 2017). However, even seeing a bright future they realize that there will be difficulties on the career path that will encourage one to move forward and try again (Schwieger, 2018). This means that Generation Z looks at the career path pragmatically. Since relatively young age, the representatives of Generation Z have taken care of their competencies, they do not shy away from choosing activities that would expand their knowledge, help them become more productive, and achieve their goals. Some people born between 1995 and 2010 would develop their business better than others (Schwieger, 2018); for this purpose Generation Z improves their knowledge of programming, business, and design to have the opportunity to create value and perform tasks independently of others.

Generation Z is more confident in self-service tools and is reluctant to seek help from experts. This habit was driven by the growing access to search tools, which led to autonomy in this area (Schwieger, 2018). They seek personalised experiences which they believe to be not impossible as well to satisfy the emerging needs, such as shopping, virtually. Generation Z values online shopping because it is convenient, more efficient, and often cheaper, while the experience is expected to be smooth, simple, and intuitive. As employers are willing to attract Generation Z, the characteristics and features of these employees should be taken seriously while dealing with employer attractiveness (Merriman, 2015; Merriman, 2016).

2.2 Employer attractiveness

Employer attractiveness can be defined as the benefits employees could get by working for a particular company (Berthon, 2005). Attractiveness is revealed when people effectively seek an opportunity to participate in the selection processes in a specific organisation (Reis, Braga, 2016). There is an abundance of definitions, however almost all of them: a) mention features or benefits gained by the employee while working in a particular organisation (Berthon, 2005; Rampl, 2014) b) underline exclusively positive attitude towards the organisation (Singh, 2011; Seitz, 2018), c) highlight an advantage of the organisation over competitors (Rampl, 2014); d) underline that attractiveness is a condition of willingness to work in a particular organisation (Berthon, 2005; Seitz, 2018; Reis, Braga, 2016).

It is worth mentioning that the attractiveness of an employer is highly dependent on the employees themselves or assessment of their beliefs, values, different attributes of the organisation (Reis, Braga, 2016). Employer attractiveness has been operationalised in the previous literature through the attractiveness attributes, i.e. dimensions considered by potential candidates when choosing an employer (Berthon et al. 2005).

Lievens and Highhouse (2003) proposed two types of attributes, namely instrumental and symbolic attributes. Instrumental attributes refer to what the organisation actually offers that is useful for the current or potential employees (salary package, flexible working time, work location, etc.). In turn, symbolic attributes represent subjective and intangible aspects (culture, prestige, etc.). Srivastava and Bhatnagar (2010) identified eight attributes reflecting the characteristics of what an organisation “offers” as an employer (career opportunities, development, etc.) and what it “is” (flexible and ethical, reliable and fair, etc.). Berthon et al. (2005) developed the Employer Attractiveness Scale, by integrating five dimensions, namely Interest value, Social value, Economic value, Development value and Application value. As the focus of the current paper is placed on the mentioned 5 dimensions, further they are briefly explained.

The Interest value captures an exciting working environment and novel work practices and makes use of its employees’ creativity to produce high-quality, innovative products and

services. The Social value refers to a working environment that is fun, happy, provides good peer relationships and a team atmosphere. The Economic value relies on higher than average wages, a compensation package; moreover, job security and career opportunities are included. Development value is about providing recognition, self-worth and confidence, coupled with a career-enhancing experience and a good background to future employment. Application value refers to possibility of employees to apply what they have previously learned and to teach other colleagues, in an environment that is both humanitarian and customer-orientated (Berthon et al. 2005).

3. METHODOLOGY

Sample and data collection. Keeping in mind the objective of the research, data were collected by using a convenience sampling type only from the Generation Z respondents in Lithuania. Convenience sampling is a type of non-probability sampling where members of the target population that meet certain practical criteria, such as easy accessibility, availability at a given time, geographical proximity, or the willingness to participate, are included for the purpose of the study (Etikan, Musa, Alkassim, 2016).

The questionnaires were distributed via LinkedIn, Facebook, and other social networks. Due to the way of questionnaire dissemination, it is impossible to estimate the number of persons the questionnaires were sent to and the response rate. While distributing the questionnaires, the information about the purpose of the survey and a link to a survey were enclosed. The first question was related to the age of the respondents. The possibility to continue with the survey was provided only in case of answering that they were born in 1995 and later. Data collection took place during the COVID-19 lockdown period, in April-May, 2021. At the end of the research, 215 questionnaires were collected. The profile of respondents, including gender, working experience and future work expectations, is presented in Table 1.

Table 1. Respondents' profile

Characteristics	Frequency (n)	Percentage (%)
Gender		
Female	125	58.1
Male	90	41.9
Working experience		
I have working experience	82	94.6
I do not have working experience	18	8.4
Future work expectations		
I will work in an organisation, but not in a managerial position	94	43.7
I will work in an organisation in a managerial position	77	35.8
I will have my own business	27	12.6
Other	17	7.9

Instrument. A self-reported questionnaire with questions to be answered on a five-point Likert scale was used in the study where 1 indicated "strongly disagree", and 5 indicated "strongly agree". All items were translated into the Lithuanian language using a back translation procedure, ensuring translation accuracy (Brislin, 1970).

Measures. All five dimensions of employer attractiveness were measured using a scale developed by Berthon et al. (2005). All items started with the phrase: "For me it is important…. ". The Interest value was measured using a five-item scale. Sample item is: "The organisation both values and makes use of my creativity". Social value was measured using a

four-item scale and a sample item is: "I have a good relationship with my colleagues". The Application value was also measured on a four-item scale. The sample of item is "Opportunity to apply what was learned at a tertiary institution". The Economic value was measured using a three-item scale. A sample item is: "An above-average basic salary". The Development value was measured using a three-item scale and sample item is: "Gaining career-enhancing experience".

4. RESULTS

As already identified, the aim of this paper was to reveal the employer attractiveness factors important for Generation Z.

The means, standard deviations for the scales and correlation matrix are provided in Table 2.

Table 2. Means, standard deviations and correlations

Variable	Mean	SD	1	2	3	4	5	6
1. Gender	1.58	.494						
2. Interest value	3.86	.58289	.109					
3. Social value	4.21	.47070	.024	.689**				
4. Application value	3.71	.61995	.057	.750**	.633**			
5. Economic value	4.36	.43641	.113	.241**	.344**	.230**		
6. Development value	4.18	.52127	.048	.672**	.796**	.620**	.473**	

*Source: compiled by the authors, **p<0.01. *p<0.05*

Table 2 shows the results obtained for the entire sample. It was noted that Economic value (M = 4.36) and Social value (M = 4.21) had the highest mean scores, followed by Development value (M = 4.18), Interest value (M = 3.86), and Application Value (M = 3.71). The results also indicate correlations between dimensions, and the highest ones are those between the Interest value and Application value, and Social Value and Interest Value.

Next, mean scores were determined on each attribute of Generation Z, namely on gender, working experience and future work expectations (Table 3).

Table 3. Means and standard deviations according attributes of Generation Z

Variable	Interest value		Social value		Application value		Economic value		Development value	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender										
Female	3.91	.59971	4.22	.47264	3.74	.63963	4.40	.41044	4.20	.54526
Male	3.78	.55335	4.20	.47032	3.66	.59256	4.30	.46621	4.15	.48745
Working experience										
I have working experience	3.86	.57467	4.23	.46027	3.72	.60532	4.36	.43743	4.20	.51103
I do not have working experience	3.54	.59727	4.03	.55498	3.58	.77174	4.31	.43495	3.93	.57798
Future work expectations										
Employee, non-managerial	3.76	.57986	4.10	.47408	3.67	.63820	4.28	.42700	4.08	.46414

position										
Employee, managerial position	4.04	.54263	4.37	.38604	3.77	.53061	4.47	.42354	4.38	.43039
Self-employed	3.94	.52276	4.37	.38211	3.85	.64770	4.49	.41726	4.34	.51042
Other	3.45	.59483	3.85	.58000	3.38	.76095	4.06	.35815	3.63	.67580

As can be seen from Table 3, females rated all five types of values higher when determining employer attractiveness. This notwithstanding, both females (M = 4.40) and males (M = 4.30) rated the Economic value the highest. Representatives of Generation Z who had working experience tended to appreciate Economic value more (M = 4.36), followed by Social value (M = 4.23) when addressing employer attractiveness. The same tendency held true for those who did not have any working experience at all. Turning to expectations of Generation Z concerning the future work (Table 3), when thinking about the features of attractive employer respondents who planned to be self-employed rated Economic value the highest (M = 4.49).

Albeit the data in Table 3 indicated that females gave a slightly higher rating of all aspects regarding employer attractiveness, the Mann-Whitney U test (Table 4) did not reveal any statistically significant differences between genders.

Table 4. Gender differences in assessing employer attractiveness dimensions (Mann – Whitney test)

	Females mean rank	**Males mean rank**	**Mann - Whitney U test**	**Z**	**Sig.**
Interest value	114.44	99.06	4820.000	-1.805	.071
Social value	109.51	105.90	5436.000	-.427	.669
Application value	110.34	104.74	5332.000	-.657	.511
Economic value	112.43	101.85	5071.500	-1.267	.205
Development value	110.12	105.05	5359.500	-.606	.544

As it is seen from Table 5, the Mann-Whitney U test revealed a statistically significant difference between groups of respondents with and without working experience as regarded Interest value and Development value importance.

Table 5. Working experience differences in assessing employer attractiveness dimensions (Mann – Whitney test)

	I have working experience	**I do not have working experience**	**Mann - Whitney U test**	**Z**	**Sig.**
Interest value	110.69	78.61	1,244.000	-2.113	.035
Social value	11.010	85.00	1,359.000	-1.667	.096
Application value	109.25	94.33	1,527.000	-.982	.326
Economic value	108.398	103.69	1,695.500	-.316	.752
Development value	110.69	78.53	1,242.500	-2.158	.031

As it is seen from Table 6, the Kruskal-Wallis test showed a statistically significant difference in groups of respondents with different future work expectations regarding all value dimensions, except for Application value.

Table 6. Future work expectations in assessing employer attractiveness (Kruskal-Wallis H test)

	Employee, non-managerial position	Employee, managerial position	Self-employed	Other	Kruskal-Wallis H test	Df.	Sig.
Interest value	96.56	126.97	119.83	66.50	19.2226	3	.000
Social value	92.51	128.79	128.56	66.88	25.663	3	.000
Application value	101.73	115.75	124.65	81.15	7.374	3	.061
Economic value	96.67	124.25	128.83	63.97	21.134	3	.000
Development value	91.97	132.55	127.85	53.94	35.709	3	.000

5. DISCUSSION AND CONCLUSION

This paper aims to reveal the most relevant components shaping the employer attractiveness for Generation Z. Based on study of Berthon et al. (2005), five dimensions of employer attractiveness were chosen, namely Interest value, Social value, Application value Economic value, and Development value. Generation Z respondents were asked to rate the importance of these dimensions for them. The results pointed out that all the attractiveness dimensions seemed to be relevant for Generation Z, taking into account that Economic value received the highest score (4.36) and Application value was rated the lowest with 3.71.

As Economic value involves such aspects as above-average salary, compensation package, security, and promotion opportunities [30], it seems that organisations willing to attract and retain the Generation Z have to focus more on the economic aspects of work place. Earlier studies demonstrated controversial findings. In a study conducted by Schawbel (2014), Generation Z tended to be less motivated by money than Generation Y. However, when faced with economic recession, Generation Z put money and job security at the top of the list [36]. Hence, the current research supports the idea that job security, money and career opportunities serve for Generation Z as determinants of employer attractiveness. Regarding Social value, the current research demonstrated that it was highly relevant for Generation Z (M =4.21) when making the decision about the employer attractiveness. Such results are in line with the research of Kirchmayer and Fratričová (2020) where quality of relationships with co-workers was proved to be a motivational factor for Generation Z.

Turning to Development value, the findings supported the notion that learning and development mattered for Generation Z when making the decision about employer attractiveness (M = 4.18). Such findings are consistent with earlier conclusions. For instance, according to the results of research conducted by Meret et al. (2018), when choosing a job, one the most important factors for Generation Z was the possibility of learning and development. In case of Sidorcuka and Chesnovicka's (2017) research, a platform for education and promotional advancement was relevant for the employees of Generation Z.

As regards Interest value, Generation Z appreciates innovative working practices, products and services (M = 3.86). Such findings fit with the research of Sidorcuka and Chesnovicka (2017) on perception of existing methods of attracting and retaining the employees in Latvia which indicated that employees of Generation Z were attracted by company reputation, innovation, and speed of change.

Finaly, the research revealed that Generation Z appreciated the opportunity to apply expertise and convey knowledge to others, in a customer-oriented and humanitarian workplace (M = 3.71). Thus, possibility to share and apply knowledge in sustainable surroundings might serve as a factor for attracting Generation Z.

Based on the results of the research, several practical implications can be discerned. For organisations willing to become an attractive employer for the Generation Z, it is suggested to

offer them above-average wages, compensation package, and promotion opportunities while assuring job security. Further, the creation of a positive and pleasant social and interpersonal environment could serve as a signal that Generation Z is welcome. Finally, recognition of the Generation Z employees and providing them opportunities to develop skills and career-enhancing experiences while increasing their confidence, could make an employer attractive for employees who were born in 1995 and later.

This research has some shortcomings that might be addressed in future studies. The first concern refers to the sample. The study was conducted in one country. This makes it difficult to generalise the findings. Moreover, the research was conducted during the COVID-19 lockdown and this in turn might also prevent from generalising. The second concern deals with the comparative nature of study. For further research, it would be worthwhile to compare the findings from a sample encompassing three generations: Generation X, Generation Y and Generation Z. The third concern refers to the demographic characteristics of Generation Z. Such aspects as the length of working experience, sector of employment, or financial obligations were not included when evaluating employer attractiveness from the perspective of Generation Z.

Summing up, this paper calls the researchers and managers to move towards exploring the preferences of Generation Z when choosing an employer. Given the labour force shortage, the attraction and retention of the Generation Z employees in the labour market is extremely relevant.

REFERENCES

[1] Addor, M. (2011). Generation Z: What is the Future of Stakeholder Engagement? *Institute for Emerging Issues–NC State University*, pp. 1-7.

[2] Adecco. (2015). Generation Z vs. Millennials: Adecco 2015 Way to Work Survey. Adecco.

[3] Alnıacik, E. A. (2012). Identifying Dimensions of Attractiveness in Employer Branding: Efects of Age, Gender, and Current Employment Status. *Procedia-Social and Behavioral Sciences*, pp. 1336–1343.

[4] Arachchige, B. J. (2013). Employer attractiveness: Comparative perceptions of undergraduate and postgraduate students. *Sri Lankan Journal of Human Resource Management*, pp. 33-48.

[5] Bencsik, A. H.-C. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness*, pp. 90-106.

[6] Berthon, P. E. (2005). Captivating company: Dimensions of attractiveness in employer branding. *International Journal of Advertising*, pp. 151-172.

[7] Berthon, P., Ewing, M., & Hah, L. L. (2005). Captivating company: dimensions of attractiveness in employer branding. *International journal of advertising*, 24(2), pp. 151-172.

[8] Black, A. A. (2017). 8 Key Truths About Generation Z. *Research World*, pp. 12-14.

[9] Bolser, K. G. (2015). Milennials: Multi-Generational Leaders Staying Connected. *Journal of Practical Consulting*, pp. 1-9.

[10] Brislin, R. W. (1970). Back-translation for cross-cultural research. J. Cross Cult. Psychol. 1, 185–216. doi: 10.1177/135910457000100301.

[11] Costanza, D. P., Badger, J. M., Fraser, R. L., Severt, J. B. & Gade, P. A. (2012). Generational differences in work-related attitudes: A meta-analysis. *Journal of Business and Psychology*, 27(4), pp. 375-394.

[12] Etikan, I., Musa, S. A. & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), pp. 1-4.

[13] Kirchmayer, Z., & Fratričová, J. (2020). What motivates generation Z at work? Insights into motivation drivers of business students in Slovakia. In: *Proceedings of the Innovation management and education excellence through vision*, pp. 6019-6030.

[14] Lievens, F. & Highhouse, S. (2003). The relation of instrumental and symbolic attributes to a company's attractiveness as an employer, *Personnel Psychology*, 56(1), pp. 75-102. doi:10.1111/j.1744-6570.2003.tb00144.x.

[15] Lievens, F. (2007). Employer branding in the Belgian army: The importance of instrumental and symbolic beliefs for potential applicants, actual applicants, and military employees. *Human Resource Management*, pp. 51-69.

[16] Mannheim, K. (1952). The problem of generations. In K. Mannheim (Ed.), *Essays on the sociology of knowledge* (pp. 276–22).

[17] Mencl, J. & Lester, S. W. (2014). More alike than different: What generations value and how the values affect employee workplace perceptions. *Journal of Leadership & Organizational Studies*, 21(3), pp. 257-272.

[18] Meret, C., Fioravanti, S., Iannotta, M. & Gatti, M. (2018). The digital employee experience: Discovering generation Z. *Digital technology and organizational change*, pp. 241-256.

[19] Merriman, M. (2015). What if the next big disruptor isn'ta what but a who. Gen Z is connected, informed and ready for business. *Ernst & Young Report*.

[20] Merriman, M. (2016). One tough customer: How Gen Z is challenging the competitive landscape and redefining omnichannel. *Ernst & Young Report*.

[21] Moroko, L. (2005). Employer branding-the case for a multidisciplinary process related empirical investigation. *ANZMAC 2005 Conference: Branding*, pp. 52-57.

[22] Ozkan, M. S. (2015). The changing face of the employees: generation Z and their perceptions of work (a study applied to university students). *Procedia Economics and Finance*, pp. 476-483.

[23] Peres, P. (2018). Characteristics and learning needs of generation Z. *European Conference on e-Learning* (p. 464-473).

[24] Rampl, V. L. (2014). Employer Brand Trust and Affect: Linking Brand Personality to Employer Brand Attractiveness. *European Journal of Marketing*, pp. 218–236.

[25] Reis, G. G., & Braga, B. M. (2016). Employer attractiveness from a generational perspective: Implications for employer branding. *Revista de Administração* (São Paulo), vol. 51, pp. 103-116.

[26] Šakytė-Statnickė, G. (2020). The impact of work environment factors on work engagement and organisational engagement of employees of different generations (Doctoral dissertation, Kauno technologijos universitetas).

[27] Schroth, H. (2019). Are you ready for gen Z in the workplace? *California Management Review*, pp. 5-18.

[28] Schwabel, D. (2014), Gen Y and Gen Z Global Workplace Expectations Study. [Online], [Retrieved March 20, 2018], http://millennialbranding.com/2014/geny-genz-global-workplace-expectations-study/.

[29] Schwieger, D. (2018). Reaching and retaining the next generation: Adapting to the expectations of Gen Z in the classroom. *Information Systems Education Journal*, pp. 45-54.

[30] Schwieger, D. (2018). Reaching and retaining the next generation: Adapting to the expectations of Gen Z in the classroom. *Information Systems Education Journal*, pp. 45-54.

[31] Seitz, L. (2018). The influence of intangible incentives on Generation Z: a self-concept based approach (Doctoral dissertation). LIsbon: Catolika Lisbon.

[32] Sidorcuka, I. & Chesnovicka, A. (2017). Methods of attraction and retention of generation Z staff. *In CBU International Conference Proceedings* (Vol. 5, pp. 807-814).

[33] Singh, A. (2011). Signaling theory and applicant attraction outcomes. *Personnel Review*, pp. 222-238.

[34] Singh, A. P. (2016). Understanding the generation Z: the future workforce. *South-Asian Journal of Multidisciplinary Studies*, pp. 1-5.

[35] Srivastava, P., & Bhatnagar, J. (2010). Employer brand for talent acquisition: An exploration towards its measurement, *The Journal of Business Perspective*, 14(1e2), pp. 25-34. doi:10.1777/097226291001400103.

[36] Stillman, D. & Stillman, J. (2017). Move over Millennials, Genera-tion Z is in charge. Retrieved from http://www.forbes.com/sites/lauraheller/2015/08/14/move-over-millennials-generation-z-is-in-charge.

[37] Tulgan, B. (2013). Meet Generation Z: The second generation within the giant" Millennial" cohort. *Rainmaker Thinking*, p. 125.

[38] Williams, K. C. (2010). Multi-Generational Marketing: Descriptions, Characteristics, Lifestyles, and Attitudes. *Journal of Applied Business and Economics*, pp. 1-17.

REMOTE WORKING CHALLENGES FROM EMPLOYEES' PERSPECTIVE

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Abstract: *The global outbreak of the coronavirus pandemic in early 2020 has accelerated the shift of remote working from an alternative to a standard working arrangement. Due to lockdowns, many employees have experienced various challenges of working outside the employer's workplace, often without previous experience. Based on the authors' survey, the paper analysis employees' perspective on their employment and remote working during the coronavirus pandemic to make suggestions for improved self-management of remote working beyond the coronavirus pandemic. The survey was carried out from March to May 2021 questioning female and male employees of different ages and professions working remotely during the coronavirus pandemic. The analysis contained responses of 159 employees and included the evaluation of the dependence of responses on industry, gender, and age. The results indicate that surveyed employees see more pros than cons of remote working and that most of them would like to continue working remotely if they had the opportunity and appropriate conditions provided by the employer.*

Keywords: *covid-19, Czech Republic, remote working, labor market*

JEL Classification: *M10, M12, M50*

1. INTRODUCTION

Remote working is generally understood as an alternative working arrangement principally based on the use of information and communication technologies and the work of employees outside the regular employer's workplace (Smith, Patmos, & Pitts, 2018). Remote working is mainly used in the case of different technical, consulting, and administrative professions that may not be a direct part of production processes, and it can be used as a part-time or full-time working arrangement (Tanpipat, Lim, & Deng 2021).

The reasons for using remote working by employers can traditionally be both operational and personnel. For operational reasons, the employer may use remote working to provide some work by its employees at the customer's premises or elsewhere where necessary. For personnel reasons, the employer may use remote working as a benefit to improve employees' work-life balance (de Vries, Tummers, & Bekkers, 2019). Such use of remote working brings advantages and disadvantages for employers as well as employees. Although employers may face some operating and technical issues, the use of remote working allows them to improve employee performance and reduce operating costs (Groen, van Triest, Coers, & Wtenweerde, 2018). Similarly, although employees may face some self-management or social issues, the use of remote working allows them to gain time flexibility or reduce travel costs (Mueller & Niessen 2021).

However, the global outbreak of the coronavirus pandemic in early 2020 has radically changed the traditional view of remote working and accelerated the shift of remote working from an alternative to a standard working arrangement (Galanti, Guidetti, Mazzei, Zappala, & Toscano, 2021). Due to lockdowns, many employees whose jobs made it possible had to start working remotely, especially from home, and they have experienced various challenges of working outside the regular employer's workplace, often without previous experience (Anderson & Kelliher, 2020). The use of remote working during the coronavirus pandemic

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has enabled employers to maintain operations and jobs while preventing the spread of the coronavirus at their workplaces (Belzunegui-Eraso & Erro-Garces, 2020). On the other hand, they had to change the organization of work and provide employees with the necessary technical equipment and support (Wang, Liu, Qian, & Parker, 2020). Employees working remotely during the coronavirus pandemic fully experienced all the advantages and disadvantages of remote working (Leite & Lemos, 2021). They have enjoyed a more flexible working arrangement and the autonomy to manage their daily tasks and duties, which has allowed them to reach a certain work-life balance (Tokarchuk, Gabriele, & Neglia, 2021). However, they also have faced challenges of more complicated communication and cooperation, unsuitable workspace or technical equipment, or social isolation, and the loss of contact with others (Camacho Solis, 2021). The analysis of these positive and negative experiences of employees is important for the development of the use of remote working beyond the coronavirus pandemic.

2. GOAL AND METHODOLOGY

The paper analysis employees' perspective on their employment and remote working during the coronavirus pandemic to make suggestions for improved self-management of remote working by employees beyond the coronavirus pandemic. The analysis is based on a questionnaire survey carried out by authors from March to May 2021 among various female and male employees of different ages and professions working remotely during the coronavirus pandemic.

The questionnaire used included ten questions about respondents' employment and remote working during the coronavirus pandemic: (1) respondents' opinion on their future employability, (2) skills respondents consider most important for their future employability, (3) things respondents consider most important at work, (4) respondents' fears of losing their jobs due to the coronavirus pandemic, (5) changes at respondents' work situation due to the coronavirus pandemic, (6) respondents' desire to work remotely, (7) advantages of remote working considered by respondents as main ones, and (8) disadvantages of remote working considered by respondents as main ones, (9) technical and organizational support provided to respondents by the employer during the coronavirus pandemic, and (10) computer applications respondents commonly use working remotely.

The analysis contained responses of 159 employees that were characterized by gender (26% male, and 74% female), age (28% 25 years or less, 29% between 26 and 39 years, and 43% 40 years or more), and industry (31% administration, 22% retail, 16% public administration, 14% manufacturing industry, 9% information technology, and 8% finance). The data analysis was performed by calculating relative frequencies, creating pivot tables, and evaluating the dependence of responses on the age of respondents (25 years or less, between 26 and 39 years, and 40 years or more). Performing chi-square goodness of fit test, two hypotheses on respondents' employment and remote working during the coronavirus pandemic were verified:

> H1: Younger employees have been worried less about losing their job due to the coronavirus pandemic than older employees.
>
> H2: Younger employees would like to work remotely beyond the coronavirus pandemic more than older employees.

3. RESULTS AND DISCUSSION

Due to the outbreak of the coronavirus pandemic and the introduction of workplace closures, many employees have faced a new experience of remote working. These also include the 159 respondents of the authors' survey. This chapter analyzes and discusses their perspective on their employment and remote working during the coronavirus pandemic.

The coronavirus pandemic has caused significant fluctuations in labor markets and many employees have been at risk of losing their jobs. In this context, the first question asked respondents how they value their future employability, with 44% of respondents evaluating it as high, 53% of respondents evaluating it as average, and 3% of respondents evaluating it as low. Among the 44% of respondents who valued their future employability as high, most respondents were middle-aged or older and worked in public administration or information technology, which are industries where job security and labor demand are relatively high. On the other hand, among the 3% of respondents who valued their future employability as low, most respondents were middle-aged or younger and worked in administration or retail, which are industries where job security is relatively low.

Long-term employability is determined by general and specific work skills, and therefore the second question asked respondents what skills they consider most important for their future employability. As respondents stated, these skills include decision-making skills (84%), communication skills (79%), problem-solving skills (77%), learning skills (65%), or teamwork skills (64%). These are skills that meet common employers' requirements and that should help employees keep existing or find new jobs, more or less regardless of a crisis such as the coronavirus pandemic.

Whether employees work remotely or not, every employer must create attractive job opportunities for employees to retain them, even in times of the coronavirus pandemic. So, the third question asked respondents what things they consider most important at work. As respondents stated, these things include self-realization (80%), meaningful work (76%), professional growth (67%), smart leadership (66%), fair earnings (65%), or favorable working environment (57%). These are things that naturally increase employee satisfaction and engagement at the workplace, and employers should pay adequate attention to them.

However, employment in times of the coronavirus pandemic has been uncertain for most employees, regardless of their age, profession, or industry. So, the fourth question asked respondents whether they have been worried about losing their job due to the coronavirus pandemic, with 13% of respondents stating yes and 87% of respondents stating no. Among the 13% of respondents who stated yes, most respondents were middle-aged or older and worked in administration or retail, which are industries where job security is relatively low and where people are relatively easy to replace. Performing the chi-square goodness of fit test, hypothesis H1 was verified that younger employees have been worried less about losing their job due to the coronavirus pandemic than older employees (see table 1). There was no significant difference in responses depending on the age of respondents ($p>0.05$). The null hypothesis was tested that respondents' work-life balance does not depend on a home working arrangement. Since the chi-square statistic [χ^2] was lower than the critical chi-square value [$\chi^2_{0,05}(2)$], the null hypothesis was not rejected. The hypothesis H1 was not confirmed.

Following that, the fifth question asked respondents whether their work situation has changed due to the coronavirus pandemic, with 64% of respondents newly experiencing remote working (especially home working), 19% of respondents losing part of their earnings, 11% of respondents changing their jobs voluntarily, 7% of respondent losing their job, or 4% of respondents having to work part-time. This confirms that the coronavirus pandemic has had a significant impact on many aspects of the labor market and employment.

Table 1. Have you been worried about losing your job due to the coronavirus pandemic?

Age	Yes	No	∑
25 years or less	5	40	**45**
26-39 years	9	36	**45**
40 years or more	7	62	**69**
∑	**21**	**14**	**159**
H01: Respondents' fears of losing their jobs due to the coronavirus pandemic do not depend on their age. HA1: Respondents' fears of losing their jobs due to the coronavirus pandemic depend on their age.			
Chi square statistic $\chi 2 = 2.548$ Critical chi-square value $\chi^2_{0.05}(2) = 5.991$			
The hypothesis H1 was not confirmed. Younger employees have not been worried less about losing their job due to the coronavirus pandemic than older employees.			

Source: authors

Probably the most significant change for most employees during the coronavirus pandemic was the need to work remotely due to workplace closures. So, the sixth question asked respondents whether they would like to work remotely beyond the coronavirus pandemic, with 9% of respondents stating yes full-time, 61% of respondents stating yes part-time, and 30% of respondents stating no. Among the 9% of respondents who desired to work full-time remotely beyond the coronavirus pandemic, most respondents worked in information technology or public administration, which are industries offering jobs allowing employees to work remotely without significant limits. These respondents also mentioned more advantages than disadvantages of remote working, especially better time management or time savings. On the other hand, among the 30% of respondents who do not want to work remotely, most respondents mentioned more disadvantages than advantages of remote working, especially loss of personal contact with colleagues or difficulties in communication with colleagues. This confirms that each employee is different, however, the common advantages and disadvantages of remote working mentioned by employees are more or less the same. Performing the chi-square goodness of fit test, hypothesis H2 was verified that younger employees would like to work remotely beyond the coronavirus pandemic more than older employees (see table 2). There was no significant difference in responses depending on the age of respondents ($p>0.05$). The null hypothesis was tested that respondents' work-life balance does not depend on a home working arrangement. Since the chi-square statistic [χ^2] was lower than the critical chi-square value [$\chi^2_{0,05}(2)$], the null hypothesis was not rejected. The hypothesis H2 was not confirmed.

Table 2. Would you like to work remotely beyond the coronavirus pandemic?

Age	Yes	No	∑
25 years or less	31	14	**45**
26-39 years	37	8	**45**
40 years or more	43	26	**69**
∑	**111**	**48**	**159**
H01: Respondents' desire to work remotely beyond the coronavirus pandemic does not depend on their age. HA1: Respondents' desire to work remotely beyond the coronavirus pandemic depend on their age.			
Chi square statistic $\chi 2 = 5.145$ Critical chi-square value $\chi^2_{0.05}(2) = 5.991$			
The hypothesis H2 was not confirmed. Younger employees would not like to work remotely beyond the coronavirus pandemic more than older employees.			

Source: authors

Following that, the seventh question asked respondents about the main advantages of remote working and respondents stated better time management (67%), time savings (63%), work-life balance (52%), or cost savings (49%). In contrast, the eighth question asked respondents about the main disadvantages of remote working and respondents stated loss of personal contact with colleagues (86%), difficulties with a concentration on performing work (56%), difficulties in communication with colleagues (47%), or technical equipment costs (18%).

To eliminate the significant disadvantages of remote working associated with communication, cooperation, and coordination of work activities to achieve desired employee performance, it is necessary to provide employees with suitable technical and organizational support. So, the ninth question asked respondents whether their employers have provided them with technical and organizational support while working remotely during the coronavirus pandemic, with 58% of respondents stating yes and 48% of respondents stating no. Among the 48% of respondents who stated no, most respondents worked in administration or retail, which are industries where technical or organizational support may not be as crucial as in other more technical sectors; however, every employee working remotely should have some technical and organizational support to maintain the desired performance.

The performance of employees working remotely is significantly affected by their ability to work with information and communication technologies to communicate and cooperate with colleagues, superiors, subordinates, and other stakeholders. So, the tenth question asked respondents what computer applications they commonly use working remotely and they stated a text editor (97%), a spreadsheet (93%), a presentation program (86%), an email client (82%), and a video meeting application (80%).

The results analyzed show that the respondents have been able to face a new challenge of their employment and successfully deal with remote working during the coronavirus pandemic and related workplace closures. Despite some social isolation and certain technical problems, most respondents appreciated the obvious advantages of remote working in terms of time or cost savings (Leite & Lemos, 2021). This is also the reason why most respondents would like to work remotely beyond the coronavirus pandemic, either part-time or even full-time. However, the more significant application of remote working depends both on the options of the employer, because not every job allows working remotely, and on the options of employees, because not every employee can work independently for a long time (Camacho Solis, 2021).

Remote working is suitable for administrative, consulting, or technical professions that do not require the direct involvement of employees in the production process or their permanent cooperation with colleagues (Bojovic, Benavides, & Soret, 2020). Employers letting their employees work remotely part-time or full-time need to change their leadership systems, especially the way they plan, organize, and control the work activities and results of their employees. They also need to provide employees with satisfactory organizational and technical support (Groen, van Triest, Coers, & Wtenweerde, 2018). On the other hand, employees working remotely part-time or full-time need to be ready to change their working routine, especially the way they plan, organize, and control their work activities and results, as well as the way they coordinate, communicate, and cooperate with colleagues, superiors, subordinates, and other stakeholders (Predeteanu-Dragne, Tudor, Popescu, & Nicolae, 2020). To work remotely successfully, employees need to develop their self-management to achieve desired performance as well as work-life balance. Technically, employees working remotely should keep following rules:

- They should get familiar with remote working policies defined by the employer and guide the remote working in practice, including the rules of planning, organizing, leading, and controlling work activities performed remotely.

- They should ask their leader about regular feedback on their actual performance and ability to meet defined performance standards and deadlines.
- They should get familiar with information and communication technologies required by their employer to perform agreed work remotely.
- They should agree with their colleagues, superiors, subordinates, and other stakeholders on the way of communication, coordination, and cooperation.
- They should care about their working conditions and work-life balance to keep performing well at their remote workplace.

4. CONCLUSION

The outbreak of the coronavirus pandemic and the introduction of restrictive measures including workplace closures, have had a significant impact on employment and let many employees experience remote working (especially home working). The authors' survey on the employment and remote working perspective of 159 female and male employees of different ages and professions working remotely during the coronavirus pandemic confirms the conclusions of many other practitioners.

The analysis did not confirm the hypothesis that younger employees have been worried less about losing their job due to the coronavirus pandemic than older employees and that younger employees would like to work remotely beyond the coronavirus pandemic more than older employees. The results demonstrate the general ability and interest of many employees to work remotely, even beyond the coronavirus pandemic, if their jobs make it possible, regardless of gender, age, or industry.

Respondents working remotely have appreciated time savings, work-life balance, or cost savings, although they have faced some social isolation and certain technical issues. However, these issues can be addressed by appropriate support provided by the employer. Insufficient technical and organizational support provided by employers seems to be a frequent source of dissatisfaction for many employees working remotely. The main challenge for employees working remotely is being as productive as at the workplace. To reach this, employees need quality self-management, especially the ability to plan, organize, and control their work activities and results. They also need to learn how to efficiently coordinate, communicate, and cooperate with colleagues and other stakeholders.

The authors' conclusions are limited by a relatively low number of respondents. However, they offer an opportunity for further remote working research based on the experience of both employers and employees to find effective and efficient ways of working remotely.

REFERENCES

[1] Anderson, D. & Kelliher, C. (2020). Enforced remote working and the work-life interface during lockdown. *Gender in Management*, vol. 35, iss. 7-8, pp. 677-683.

[2] Belzunegui-Eraso, A. & Erro-Garces, A. (2020). Teleworking in the context of the Covid-19 crisis. *Sustainability*, vol. 12, iss. 9.

[3] Bojovic, D., Benavides, J. & Soret, A. (2020). What we can learn from birdsong: Mainstreaming teleworking in a post-pandemic world. *Earth System Governance*, vol. 5.

[4] Camacho Solis, J. I. (2021). Teleworking, the digital utility due to the Covid-19 pandemic. *Revista Latinoamericana de Derecho Social*, vol. 32, pp. 125-155.

[5] De Vries, H., Tummers, L. & Bekkers, V. (2019). The benefits of teleworking in the public sector: Reality or rhetoric? *Review of Public Personnel Administration*, vol. 39, iss. 4, pp. 570-593.

[6] Galanti, T., Guidetti, G., Mazzei, E., Zappala, S. & Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of Occupational and Environmental Medicine*, vol. 63, iss. 7, pp. E426-E432.

[7] Groen, B. A. C., van Triest, S. P., Coers, M. & Wtenweerde, N. (2018). Managing flexible work arrangements: Teleworking and output controls. *European Management Journal*, vol. 36, iss. 6, pp. 727-735.

[8] Leite, A. L. & Lemos, D. (2021). Human resources management and teleworking: challenges and possibilities. *Revista do Servico Publico*, vol. 72, iss. 2, pp. 330-359.

[9] Mueller, T. & Niessen, C. (2021). Self-leadership in the context of part-time teleworking. *Journal of Organizational Behavior*, vol. 40, iss. 8, pp. 883-898.

[10] Predeteanu-Dragne, D., Tudor, I., Popescu, D. & Nicolae, V. (2020). Is homeworking a better option in the digital era? Empirical research across EU member states. *European Journal of Sustainable Development*, vol. 9, iss. 4, pp. 109-117.

[11] Smith, S. A., Patmos, A. & Pitts, M. J. (2018). Communication and Teleworking: A Study of Communication Channel Satisfaction, Personality, and Job Satisfaction for Teleworking Employees. *International Journal of Business Communication*, vol. 55, iss. 1, 44-68.

[12] Tanpipat, W., Lim, H. W. & Deng, X. M. (2021). Implementing remote working policy in corporate offices in Thailand: Strategic facility management perspective. *Sustainability*, vol. 13, iss. 3.

[13] Tokarchuk, O., Gabriele, R. & Neglia, G. (2021). Teleworking during the Covid-19 crisis in Italy: Evidence and tentative interpretations. *Sustainability*, vol. 13, iss. 3.

[14] Wang, B., Liu, Y. K., Qian, J. & Parker, S. K. (2020). Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective. *Applied Psychology*, vol. 70, iss. 1, pp. 16-59.

EMPLOYEES' WELL-BEING AND THE MULTINATIONAL COMPANY PERFORMANCE IN THE DIGITALISATION AGE

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Abstract: *Well-being of employees resonates nowadays in debates of academics, entrepreneurs or politicians fighting for the votes before elections. The company's management where employees perceive the working environment well organised, inspiring, motivating with justice in rewarding creates employees' loyalty to the company where they work. This is transformed into higher working morale leading to diligent and high quality performance which should be reflected in firm's successful results. The research object are factors of responsible management focusing on human resource management that may eventually contribute to successful results of the company. The objectives of this scientific paper are to examine and critically analyse three managerial approaches that directly or indirectly incorporated the concept of well-being of employees into short-run or long- run managerial work connecting past ideas (represented by Chinese philosophers and Tomas & Antonin Bata's responsible management) with the present ones (selected Open-book management) into a common goal valid for centuries, that is profit for everybody.*

Key words:, *Chinese traditional culture, open-book management, profit sharing, responsible management,*

JEL Classification: *B0, I3, M10, M12, M50*

1. INTRODUCTION

China has a splendid history of civilization for five thousand years. In the practice of social production, the Chinese nation has contributed a wealth of management ideas, which has a profound impact on modern human resource management. China's modern human resource management should absorb the essence of Chinese traditional culture and apply it to actual human resource management to promote the rapid development of human resource management. With the acceleration of the process of global economic integration, more and more companies are pursuing internationalization in human resource management, introducing a large number of advanced western management concepts and tools.

Therefore, how to integrate western science and mature management methods on the basis of a thorough understanding of Chinese culture and human nature has become a question for enterprises (Faure & Fang, 2007). The concept of employee well-being has been increasingly taken into consideration as a key factor for organisations (Page & Vella-Brodrick, 2009) offering benefits as regular semminars on leadership or antistress training (Karbach et al., 2020) tailored to the company needs. Luo et al. (2011) tested direct and moderating effects of Chinese work values (CWV) on relationships between work stressors and work well-being among employees in the Greater China region.

Human resource management is not only a discipline, it is also a culture. Human resource management is made on the basis of Western culture, with the rational, independent and creative values of Western culture (Pieper, 1990). In the meantime, there are some positive

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influences in Chinese traditional culture, such as the people-oriented thinking, the spirit of self-improvement, the spirit of giving gifts to the Chinese, etc. In management, we can apply these positive ideas to modern human resource management.

Table 1. Chinese traditional culture and its impact on human resource management

Positive impact	Negative impact
Humanism The spirit of self-improvement Gentlemen take righteousness for gain The four dimensional characteristics of Confucian culture: benevolence, righteousness, loyalty, and relationship	Egalitarianism

Source: Elaborated by authors

1.1 Mainstream ideas of Chinese traditional culture & their influence on HRM

Humanism as defined by American Humanist Association is a progressive philosophy of life that stresses the ability and responsibility of people themselves to live ethically with the aim of personal fulfillment that aspire them to the greater good, without theism or other supernatural beliefs. (AHA, 2022). In ancient China, Confucianism was the mainstream of the philosophers. When discussing issues such as governing, governing the people, prospering a nation, and starting a business, they highly respected *humanism.* Confucius advocated a people-oriented management thought and required taking care of others as the basic starting point. He believes that human nature makes people form a society, and the essence of human nature is "benevolence".

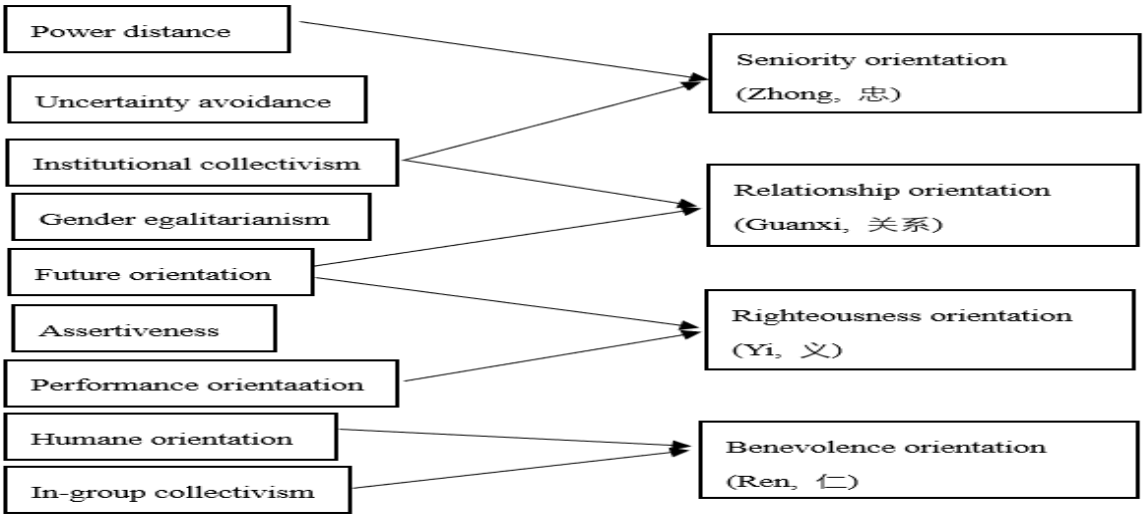
In today's world, with the increasingly fierce global competition, business managers also realize the importance of talents. People are the starting point and destination of management, and all management activities must be based on mobilizing people's enthusiasm and creativity. Today, when environmental factors are becoming more and more uncertain, maintaining the advantages of human resources through human resource management and then maintaining the competitive advantages of the organization is an important magic weapon for the sustainable growth of the organization. *"Continuous self-improvement"* and "*honorable virtues*" are one of the basic spirits of Chinese traditional culture, which are accepted by the whole society, have a strong stimulating effect on all classes of Chinese society, and become the spiritual driving force of the Chinese nation's perseverance and progress. Life attitude has a direct and profound influence on work attitude, and work attitude directly affects the survival and development of enterprises. There are two factors to improve business productivity, one is the latest science and technology, and the other is a dedicated work spirit. The spirit of dedication is manifested as a working attitude that is courageously dedicated to the enterprise. This spirit of self-improvement requires the human resource management of the enterprise to take various incentive measures to fully mobilize the enthusiasm of employees, stimulate their enthusiasm for work, and achieve organizational goals efficiently. Therefore, human resource management can conduct in-depth research on the self-improvement spirit in traditional Chinese culture.

In Confucian culture, the ideas of "*gentlemen take righteousness for benefit*", "benefit to the people and help the people" have significantly affected the corporate employment strategy and improved the quality of employee rights protection. Gan W. et al. (2020) find that the greater the intensity of the Confucian culture in the area where the company is located, the higher the rate of employee labor contract signing and social insurance purchase rate, the greater the investment in employee training, and the more likely it is to establish a labor union. Further tests show that the positive effect of Confucian culture in improving employee

employment security is more prominent in areas with "weak judicial protection". This means that the two different forces of Confucian culture and judicial protection have certain alternative functions in strengthening the protection of employees' rights and interests. They also find that global competition has weakened the positive effect of Confucian culture on employee/employment protection. Their research enhances/deepens the understanding of factors affecting employee rights protection in the context of "weak systems" in emerging market countries from the traditional culture perspective, so as the theoretical understanding of the economic consequences of Confucian culture from the micro-enterprise level.

Kang et al. (2017) found that the four dimensional characteristics of Confucian culture (benevolence, righteousness, loyalty, and relationship) have a positive effect on employees' emotional motivation and normative motivation, which in turn affects employees' overtime behavior. Comparisons are drawn between the Confucian orientations and the dimensions of the GLOBE research program, where House et al. (2004) delineated nine cultural dimensions: uncertainty avoidance, power distance, institutional collectivism, in-group collectivism, gender egalitarianism, assertiveness, future orientation, performance orientation, and humane orientation. The purpose for doing this is to clarify the Eastern-based dimensions by using this popular, understandable Western cultural framework. Figure 1 indicates a mapping of the GLOBE dimensions with their respective Confucian orientations and highlights the comparison between cross-cultural frameworks and Confucian orientations.

Figure 1. GLOBE dimensions mapped with their respective Confucian orientations



Source: House, Hanges, Javidan, Dorfman & Gupta, 2004.

The mainstream thought of Chinese traditional culture that has a negative influence on human resource management is *egalitarianism***.** According to Confucious, that „If there is a state-owned family, they will not suffer from burglary but suffer from uneasiness, and if they do not suffer from poverty, they suffer from unevenness." In this egalitarian mentality of equality and poverty, human personality is severely suppressed, and human creative spirit is deeply suffocated. Affected by this cultural mentality, people are afraid of differences in interests between people. In an attempt to achieve unity by hitting the strong and sympathizing with the weak, so that their respective psychology can be supported and balanced. As a result, successful people often become targets of public criticism and are attacked vigorously. The losers often receive unconditional and unreasonable sympathy and help.

Scientific and reasonable salary system must be linked to work performance, motivate employees to work, reward outstanding work performance, and accomplish the rewarding

employees process. Under the traditional planned economy, the "big pot of rice" and "doing more and less doing the same thing" in distribution are all reincarnations and reinforcements of egalitarianism for equality and poverty. The egalitarian thinking can seriously affect the reform of human resources, making it difficult to implement a scientific salary management system in enterprises. Affected by this traditional culture, it will cause the loss of corporate talents, and fails to create an efficient and stable team for the company.

This first part sumarized the ideas from Chinese traditional culture that has an influence and form their motivation to work hard and what creators of HRM policy should keep in mind in order to manage the common goal to hire and create for employees working conditions where they can show their talent and are motivated to perform well in the company. Another example which will be discussed in the next part is the responsible management of big Czech entrepreneurs Tomas and Antonin Bata. The objectives of this scientific paper are to examine and critically analyse three managerial approaches that directly or indirectly incorporated the concept of well-being of employees into short-run or long-run managerial work connecting past ideas (represented by Chinese philosophers and Tomas & Antonin Bata's responsible management) with the present ones (selected Open-book management) into a common goal valid for centuries, that is profit for everybody.

If poeple think how many scandals occurred only in 21st century, the future research question may be raised, where people, managers, owners, governments, etc. failed that all these scandals, corruptions and business malpractises were allowed to happen. Therefore the next part deals with Tomas Bata responsible management, reminds us Tomas Bata enormous power of his deeds, he condemned fraud and financial crisis, he considered a moral misery as a cause and the economic decline as the consequence of it. (Nadace T. Bati, 2021)

2. BATA'S RESPONSIBLE MANAGEMENT LINKED TO HRM POLICY

Tomáš Baťa's management concept continued by his step brother Antonín, was ultra-modern for its era characterised with introducing modern production and decentralisation of the company's management enriching it with social consciousness and managegment responsibility. Tomas Bata emphasized the need to think about successors and future managers much earlier than the problem of replacement and the need for a new manager would occur. Educating their own specialists, managers was considered the instrument of winning their loyalty and showing the respect for their mastership and knowledge. With Tomas Bata´s statements: „The degree of prosperity and wealth of the nations depends on abilities of their businesspersons" and pointed out that: "Although the legislation can order the entrepreneur to do well, no one can force anyone to become and remain the entrepreneur. Still, the worst entrepreneur is better than no entrepreneur. This higher moral level of business is caused by increasing entrepreneurship". From his statements the rationale is clearly implied. He considered enthusiastic and clever entrepreneurs with their businesses as key persons for creating sustainable jobs for people. His approach towards HRM was to train and educate own people, from people who worked in the company at lower position to bring up the managers and directors out of them, thus to offer them future career prospects. Moreover, he wanted to motivate the workers to hard work and gain their loyalty by rewarding them for excellent performance by introducing one of the first profit-sharing initiatives, transforming all employees into associates with a shared interest in the company's success (today's equivalent of performance-based incentives and stock options). Tomas Bata´philosophy continued also in Antonin Bata´s deeds, which was their belief that net income thus capital resources earned in the business due to the progress in the production should be immediately shared justily also among employees, customers and the plant, that must serve to the public. Based on examining their lives and work achievement we may stress that their responsible management linked to the HRM policy is built on the following pillars.

2.1. Five Pillars of Bata's Responsible Management Linked to the HRM

The strong points of their leadership implemented in their work are summarised as follows:

1. As an entrepreneur: knowledge, experience is the threshold of a successful businessman and he/she should enable and inspire their employees to gain knowledge, experience and skills in educating and training.
2. Social consciousness and the maximised effort of building welfare for all, connected with employees' diligency motivated by just reward system for achieving high-quality performance and training with clear goals.
3. Morale and sound competition, responsible marketing.
4. Responsible management (CSR and sustainability concept) and Batas´leadership.
5. Disagreement with the indebtedness morale and corruption.

The Table 2 offers more in details their policies and accomplishments.

Table 2. Five Pillars of Bata's Responsible Management Linked to the HRM

1. Knowledge, experience and skills training with clear goals a) **knowledge and experience at the beginning required** (a long history of shoemaking -spanning over 300 years - family business) b) **ongoing education and training of the employees for each position** (education and training in his Bata school of Work, to bring up and educate managers from their own employees, language education, pilot courses including management courses, psychology, ethics, communication, importance of accounting knowledge and understanding for all levels of managers to understand the information hidden in numbers linked to their work Motivation for high quality performance, **the creation of mentoring system** – to educate mentors who will pass the knowledge and experience c) **personal example for inspiration,** not only for employees, -courageous managers and entrepreneurs, the society needs enthusiastic entrepreneurs with ambitious goals. Their success was an introduction of employee's book where the employee plans how much he/she would like to earn – efforts made to fulfil it by Batas, who were known by respectful approach towards employees, they called everyone colleagues.
2. Social consciousness and the maximilised effort of building welfare for all, connected with achievement of good and rewarded performance Fight against poverty, interest in employees, providing employees with health care, housing and community building aiming at employee welfare. Highly moral and human approach towards employees, showing them respect and dignity, each work mental or physical is equally important and must be rewarded. Wages schemes (4 types) created and participation ESOP like scheme on company's eanings to secure justice in rewarding represented a motivating tool for gaining employees' loyalty.
3. Morale and Sound competition, Responsible marketing Creating list of the customers, notes of customers' objections, wishes, questions, comments Credos for sale: winner' reward is right and opportunity to serve customers. Our customer is our Lord. Psychology needed for understanding customers, train employees in it. Bata's Pricing - prices ending with 9 .
4. Responsible management (CSR and sustainability concept) , Leadership. Open to modernisation: innovative approach in production and management, more than 100 patents. Decentralisation on management – guild centres (responsibility accounting and management), high quality product and CSR quality product. Functionality of production buildings enable smooth workflows, supply chain make work easier, less costly. Diversification e.g. in aviation, rubber, chemical, textile, wood and shoe production supporting industries, film studio for marketing aims Export abroad and building foreign subsidiaries, as a strategy to fight again increased custom tariffs or domestic market protection policy and by that creating jobs also abroad.

Motto: Responsible managers must serve their customers and to their employees
5. Indebtedness Moral and Corruption No making debts, not throwing away value for nothing, not blackmailing workers, high morale, not supporting bankcruptcy because he himself overcame bankruptcy thanks to the productive and diligent work and paid his creditors in full.

Source : Saxunova et. al, 2021

2.2 Open-book Management Philosophy - Modern Version of Responsible Management

Every employee in the company is first of all, familiarised with their duties to perform well, how to fulfill their duties and what is their reward for the work performed, eventually recommended to offer a profit share alternative through an employee stock option plan. The base of this philosophy is described as situation in the sport team it is important a) to know the rules of the game, b) to know how to keep the score, and c) to have a stake in the outcome. The research results in the USA showed that very few employees understand how the business is conducted. The training is organized for all employees starting with janitors, back office staff, line workers, etc.) to learn to understand financial statements, cost variances and financial ratios. The expectations of Open-book management policy are the following benefits sumarized in Table 3 (Greer, Schmelzle, 2021):

Table 3. Open-Book Management Philosophy for sustainability efforts

1. Superior Management Control	enables: reduction of waste materials, late arrival for work, taking long breaks by employees,
2. Entrepreneurial attitude	open book environment supports: a flow of ideas from employees to managers, assisting in process innovation, purchase agreements, contracts, hiring decisions
3. Financial literacy	knowledge in finance, financial accounting and management accounting for improving decision making, business understanding
4. Accountability in budgeting	employees learn about the costs needed to run their department, increases knowledge and skills in budgeting
5. Improved company culture	open-book management increased transparency and decentralised decision making creates an attractive working place for people a culture o f openness and creativity

Source: Greer,O. & Schmelzle,G. 2020.

Open-book management proved that employees have an entrepreneurial approach in the organisations implementing this management philosophy, employees are more active in innovation, communicating their tasks, prepare scorecards, where the performance is monitored and showing the partial accomplishment. Moreover, the process improvement, innovations are proposed by employees in order to increase the profitability, since they know that they are participating in profit sharing. The people participate in evaluating, analysing the wrong doing, support what they help to create. In all philosophies the justice in reward of employees dominated, this is a crucial element of well-being with transparent and open working environment where mutual respect dominates.

2.3 Family businesses and employees' well being

According to an extensive study by Credit Suisse, family businesses are performing best on the stock markets. They are more profitable than other companies, for relatively simple

reasons. Their goal is to focus on long-term (quarterly) results, they finance activities with shareholders capital and invest significantly in the future, thus progress development and innovation. In Latin America and most Asian countries, almost half of family businesses are owned by the first generation of owners, while in Europe and in the USA, family businesses are much older, 30% of European companies are in the fifth generation or even older.

Table 4. The family business and its four basic pillars:

Unity of family businesses	Value more than money	Planning & unified vision	Goal - Preparation for future generations
-adaptable faster to market changes -their family and business interests are placed before their own vision of profit -communication is a priority.	values are built differently in companies in which several generations have shown their entrepreneurial skills, than in a classic "non-family" company	-regular planning -regular adjusting their long-term market strategies	educate the new CEO, who will have the same ranking of values and precisely defined ambitions

Source: Elaborated by the autors based on source of Forbes, 2018.

Family business is probably one of the oldest forms of business in human history. There is natural cohesion in the family and its members, in majority the family members can trust each other.The satisfaction is regulated by ESOP program, but not excluded, e.g. the family business would like to reward non-family member of their business (Novackova et al., 2020).

Innovation in various family industry sectors e.g. metallurgical, engineering, automotive, farming, brewing industry, confectionary industry, (Dudic et al., 2020) and increased productivity, production efficiency, energy and material saving, logistic route optimization is assumed to happen by introducing industry 4.0 concept (Krajco & Grencikova), it utilizes digital transformation almost in each area of the life which launching was accelerated by Covid pandemia definitely this phenomena are adaped by the family businesses more quickly. Digital age has brought also the issue of overloading work and time spent by computer, which does not contribute to employee's well being. Employers should seriously start thinking of hygiene connected with the matter of employee's overworking.

3. PROBLEM FORMULATION, RESULTS & DISCUSSION

The success of companies is greatly affected by the skills and knowledge of employees. These are determinants that give companies a competitive advantage that could be transformed into higher profitability, thus higher EPS and thereby firms are trying to reward the employees with offering them the stake in the outcome and possibly retain good employees. We assume that if a company succeeds, owners' resources increase through retaining earnings and reinvesting net profit into new profitable projects. The company may a) offer employees employee shares, b) forms a social fund, c) pays remuneration, or d) increase wages to its employees. Firstly, we focus on studying the impact of equity on the number of ESOP shares in research sample. The research sample contained profitable companies, therefore we assume the company achieved net profit and we are interested if there is any relation between the possibility of employees' being rewarded by ESOP shares (well-being factor of the employees) when there is an increase in equity due to the net profit.

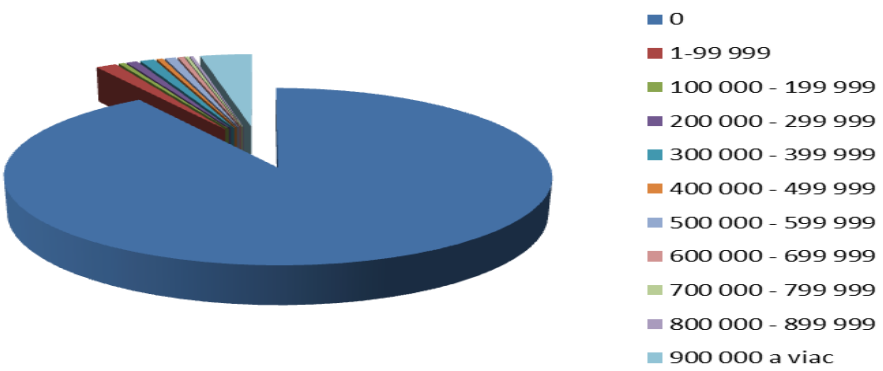
Based on the date collected we make the following prediction that will be tested:

H1: With the growth of shareholders' equity in the capital structure, given the growth of EPS, companies tend to increase employee satisfaction through the offered employee benefits.

Available information shows that in the analyzed 150 public corporations from Visegrad Four Group (Poland, Czechia, Slovakia and Hungary), Germany, the United States of America and

the United Kingdom from the period 2009-2018, 90.83% of the companies do not offer employee shares. It follows that only a small proportion of employers selects the issuance of employee shares as a tool for an employee satisfaction, the private companies are not included into the research sample. This observation is illustrated in Graph 1 and Table 5.

Graph 1. The number of ESOP (employee stock option plan shares)



Source: Elaborated by authors.

Table 5. Distribution of ESOP shares in the public companies of the examined sample.

The range of shares	Number of the corporations	In %
0	1090	90,83%
1-99 999	17	1,42%
100 000 - 199 999	5	0,42%
200 000 - 299 999	9	0,75%
300 000 - 399 999	12	1,00%
400 000 - 499 999	5	0,42%
500 000 - 599 999	9	0,75%
600 000 - 699 999	5	0,42%
700 000 - 799 999	3	0,25%
800 000 - 899 999	3	0,25%
900 000 a viac	42	3,50%

Source: Elaborated by authors

3.1. Results

We analyzed the effect of the percentage change in equity on the number of employee shares using a simple linear regression, assuming EPS growth. Autocorrelation is tested using the Durbin-Watson test. Table 6 shows autocorrelation 0.336 (Durbin-Watson coefficient).

Table 6. Summary – H1 Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,059[a]	0,004	0,002	3249708,157	0,336

a. Predictors: (Constant), Percentage change of Shareholders' equity, given the growth of EPS

b. Dependent Variable: Number of employees shares

Source: Elaborated by authors IBM SPSS Statistics

No autocorrelation was required, but it was not met. The linear regression model cannot be sketched. This fact is also confirmed by the information R and R2 in the table 6. We confirm the prediction (hypothesis H0): increase in the percentage change in equity, assuming the growth of EPS, does not cause an increase in the number of employee shares. We analyzed the relationship between the number of employee shares and the percentage change in equity with EPS growth also using the Pearson correlation coefficient.

Table 7. Correlation H1

Pearson Correlation	*p*-value	Result
0,059	0,068	No dependency between variables

Source: Elaborated by authors

We test hypotheses at the significance level $\alpha = 0.05$. This means that if the p-value > 5%, H0 is confirmed. The results confirm that there is no dependence between the variables, as the p-value is higher than the significance value (0.068).

The research results show that 90.83% of companies in our research sample do not tend issuing employee shares to offer employees the share on the ownership. The regression model cannot be sketched in this case. There is no global dependency between the analyzed variables. The reason for the lack of dependence between the capital structure and the number of employee shares may be the insufficient scope of published information on employee shares in publicly available sources as well as the lack of interest of companies to motivate and reward employees using benefits offered by employee shares.

We further analyze the impact of the capital structure on the number of employee shares in individual countries. As, according to our data, no company in the V4 Group announced employee shares issuance, the dependent variable in each case acquired a value of 0, the results cannot be evaluated statistically. For this reason, data analysis only will be made on German, British and American corporations.

Table 8. Summary – H1 - countries

Model Summary

Country	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Germany		0,165[a]	0,027	0,017	869535,407	0,303
Great Britain		0,110[a]	0,012	0,000	132393,408	1,701
USA		0,031[a]	0,001	0,000	5496491,120	0,341

a. Predictors: (Constant), Percentage change of Shareholders' equity, given the growth of EPS

b. Dependent Variable: Number of employees shares

Source: Elaborated by authors IBM SPSS Statistics

We assume the assumption of no or little autocorrelation using the Durbin-Watson test. The test results are contained in Table 8 Countries. The values given in the coefficient show that autocorrelation is reported in the data in Germany and the United States of America. No autocorrelation was required, but it was not met, therefore the model of linear regression in given countries cannot be compiled. In the United Kingdom, on the other hand, the coefficient is 1,701 i.e. autocorrelation is not present, the condition is met. We continue to focus on other conditions of linear regression in the United Kingdom. In the case of the percentage change in equity with the growth of EPS, we will use the help of nonlinear transformation. The following chart shows the breakdown by number of employee shares in the United Kingdom.

Graf 2. Histogram - Number of employee shares - Great Britain

Source: Elaborated by authors IBM SPSS Statistics

The graph shows that the number of employee shares in the United Kingdom does not have a normal distribution, so the model of linear regression in a given country cannot be compiled. This fact is also confirmed by the information R and R2 in Table 8. The null hypothesis for the United Kingdom was confirmed. It follows that the increase in the percentage change in equity, given the growth of EPS, does not cause an increase in the number of employee shares issued to employees in the United Kingdom.

We further analyze the relationship between the number of employee shares and the percentage change in equity with EPS growth by country using the Pearson correlation coefficient. It confirmed that the percentage change in shareholders' equity, given EPS growth, shows no dependence between the analyzed variables for companies in Germany, the United Kingdom and the USA. Thus, shareholders' equity increase, provided EPS grow, has no impact on the issuance of employee shares in the countries analyzed.

Table 9. Correlation H1 - countries

	Pearson Correlation	***p*-value**	**Results**
Germany	0,165	0,055	No dependency between variables
Great Britain	-0,110	0,274	No dependency between variables
USA	0,031	0,327	No dependency between variables

Source: Elaborated by authors

4. CONCLUSION

The company's management where employees perceive the working environment well organised, inspiring, motivating with justice in rewarding creates employees' loyalty to the company where they work. This is transformed into higher working morale leading to diligent and high quality performance which should be reflected in firm's successful results. The employees participate more actively in business activities if they are partial owners, having stake in the outcome. All our discussed philosophies introduced the system of employee's motivation through many factors of their well-being, such as the support of education, trainings, CSR and ethics, just rewarding system , although so far employee stock option plan is not used based on our research by companies in our research sample. It raises the question of another research what is the most relevant obstacle protecting from using ESOP.

We are at the beginning of the research, it will be continued. The shortcoming could also be that we are not able to find out if the reinvestment will bring sufficient increase in shareholders' equity to avoid the EPS dilution which may explain confirmation of H0. It creates space for another research.

The result of the paper is to stress that genuine wisdom and knowledge of the great philosophers and entrepreneurs, not only mentioned Chinese or Czek or American ones, whose thoughts should be preciously cared for. The humankind waste precious time, capital, health and wisdom of these enthusiastic people if we forget and do not learn their ideas, that are valid nowadays, as well. Tomas and Antonin Bata as incredible leaders were known by their persuasion that the well-being of each one depends on each doing one's work in such a way that the other may need it. (T. Bata Foundation, 2021), the entrepreneurs and politicians should cherish their wisdom, and take the most of it for their work and take care for endless spreading their ideas.

REFERENCES

[1] AHA. 2021. [Online], [cit.2021-10-22]. Available from: https://americanhumanist.org/what-is-humanism/definition-of-humanism/

[2] Cvenkel, N.R. (2018). Employee Well-being at Work: Insights for Business Leaders and Corporate Social Responsibility, Stakeholders, Governance and Responsibility (Developments in Corporate Governance and Responsibility, Emerald Publishing Limited, Bingley, vol. 14, pp. 71-90. doi:10.1108/S2043-052320180000014004

[3] Desai, A.A. & Ball, M. (2021). Workplace Assigned Mobile Communication Devices and Employee Stress. *Industrial and Systems Engineering Review*, vol. 9, iss.1, pp. 47-55.

[4] Dudic Z., Dudic B, Pejanović, R., Škatarić et al. (2020). The rural policy of Slovakia after joining the EU. *Agriculture and Forestry*, vol. 66, iss 3, pp. 35-51. https://doi.org/10.17707/AgricultForest.66.3.042020.

[5] Faure, G. O., & Fang, T. (2008). Changing Chinese values: Keeping up with paradoxes. *International Business Review*, Elsevier, vol.17, iss. 2, pp.194–207. doi:10.1016/j.ibusrev.2008.02.011

[6] Forbes. (2018). [Online]. [cit.2021-10-22]. Available from: https://www.forbes.sk/ rebricek-biznisu-sa-venuju-cele-generacie-toto-su-nase-najvacsie-rodinne-firmy/.

[7] Greer,O. & Schmelzle,G. 2020. Open-book management goes green. Journal of Strategic Finance. Vol.2020 iss.9. pp. 41-45.

[8] House, R. J., Hanges, P. J., Javidan, M., Dorfman, P., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage Publications.

[9] Hunger, J. D. & Wheelen, T. L. (2007). *Essential of Strategic Management.* New Jersey: Prentice Hall, p. 356.

[10] Kang, J. H., Matusik, J. G., & Barclay, L. A. (2017). Affective and Normative Motives to Work Overtime in Asian Organizations: Four Cultural Orientations from Confucian Ethics. *Journal of Business Ethics*, vol. 140, iss. 1, pp. 115–130. doi:10.1007/s10551-015-2683-4.

[11] Karbach, R, Krajnakova, & Horvathova, A. (2020). Enterprise Training in Condition of Smart Manufacturing. In: Proceedings of International Scientific Conference on The Impact of Industry 4.0 on Job Creation. Trencianske Teplice, pp. 92-199.

[12] Kelloway, E.K., Weigand, H., McKee M.C., Das, H. (2013). Positive Leadership and Employee Well-Being. *Journal of Leadership & Organizational Studies*, vol. 20, iss. 1, pp. 107-117. doi:10.1177/1548051812465892.

[13] Krajco, K. Grencikova A. (2020). Reason for introducing 4.0.in the Slovak Republic. In: Proceedings of International Scientific Conference on The Impact of Industry 4.0 on Job Creation. Trencianske Teplice, pp. 117-122.

[14] Liu, L. & Jia, Y. (2021), Guanxi HRM and employee well-being in China, Employee Relations, Vol. 43, iss.4, pp. 892-910. doi:10.1108/ER-09-2019-0379

[15] Luo, L., Kao, S.-F., Siu, O.-L., & Lu, C.-Q. (2011). Work Stress, Chinese Work Values, and Work Well-Being in the Greater China. The Journal of Social Psychology, 151(6), 767–783. https://doi.org/10.1080/00224545.2010.538760.

[16] Nadace Tomase Bati. (2021). *Myslenky Tomase Bati*. Eds. Koncitikova, G, Velev, P. Zlin: Graspo CZ, p.147.

[17] Novackova, D., Saxunova, D. (2020). Granting Investment Aid into Business Service Centeres in Slovakia. In: Proceedings of International Scientific Conference on The Impact of Industry 4.0 on Job Creation. Trencianske Teplice, pp. 90-301

[18] Page, K.M. & Vella-Brodrick, D.A. (2009). The 'What', 'Why' and 'How' of Employee Well-Being: A New Model. *Soc Indic Res*, vol. 90, pp. 441–458 doi:10.1007/s11205-008-9270-3).

[19] Pawar, B.S. (2016). Workplace spirituality and employee well-being: an empirical examination, *Employee Relations*, vol. 38, iss. 6, pp. 975-994. doi:10.1108/ER-11-2015-0215

[20] Pieper, R. (2012). *Human Resource Management: An International Comparison*. Walter de Gruyter.

[21] Salmi, I., Pietiläinen, V., & Syväjärvi, A. (2021). The experience qualities approach to leadership and employee well-being 1. *Nordic Journal of Working Life Studies*, vol. 11, iss. 2, pp. 3-23. [online]. [cit.2017-09-22]. Available at https://www.proquest.com/scholarly-journals/experience-qualities-approach-leadership-employee/docview/2544548347/se-2

[22] Saxunova, D., Hector, H., Kajanova, J. & Slivka, P. (2021). *Integrity of the Corporate Social Responsibility and Management of Financial Services in the Digital Era*. [Online], [cit.2021-11-22]. IntechOpen, DOI: 10.5772/intechopen.101057.

[23] Simpson, B., Stackhouse, M. and White, K. (2019), Stress and Well-Being at the Consumer–Employee Interface, Perrewé, P.L. and Harms, P.D. (Ed.) Examining the Role of Well-being in the Marketing Discipline (*Research in Occupational Stress and Well Being*, vol. 17, Emerald Publishing Limited, Bingley, pp. 27-49. DOI:10.1108/S1479-355520190000017002

[24] Zhang, B., Yang, L., Cheng, X., Chen, F. (2021). How Does Employee Green Behavior Impact Employee Well-Being? An Empirical Analysis. Int. J. Environ. *Res. Public Health*, vol. 18, pp. 1669. Doi:10.3390/ijerph18041669

[25] Zhang, X. and Teng, W. (2015). Dizi Gui and employee well-being. In: Academy of Business and Emerging Markets (ABEM) Conference 2015, Windhoek, Namibia, 4-6 August 2015.

[26] 淦未宇, 徐细雄, & 刘曼. (2020). 儒家传统与员工雇佣保障：文化的力量. 上海财经大学学报. [online]. [cit.2017-09-22]. vol. 22, iss.1, pp. 66–84. Available at https://kns.cnki.net/kcms/detail/frame/list.aspx?dbcode=CJFD&filename=SCJB202001005&dbname=CJFDLAST2020&RefType=1&vl=wL7oHg9On0_JCewqcgCr3bPRRiNHFWHw8n0_3tnrWvaUySAQW6mwTkXanl9dkwF7

Appendix – research sample

USA	Germany	Great Britain	Czechia	Poland	Hungary
Aaron's, Inc.	3U HOLDING AG	1PM PLC	ČEZ	Alior	4iG
Aetna	4 SC AG	3i Group PLC	FORTUNA	Asseco Poland	ANY nyrt.
Agilent Technologies, Inc.	aap Implantate AG	600 GROUP PLC	KOMERČNÍ BANKA	Bogdanka	CIB Bank
Almaden Minerals, Ltd.	adidas AG	ABACO CAPITAL PLC	O2 C.R.	BORYSZEW	CIG Pannónia
Amazon	Biofrontera	ABCAM PLC	PEGAS NONWOVENS	BZWBK	FHB
AmerisourceBergen	BMW AG	ABERDEEN ASIAN SMALLER COMPANIES INVESTMENT TRUST PLC	PHILIP MORRIS ČR	CIECH	Graphisoft Park
Archer Daniels Midland	Constantin Medien	ACACIA MIN	Pražské služby	Cyfrplsat	MOL
Berkshire Hathaway Inc.	Daimler AG	ACCESSO TECHNOLOGY GROUP PLC	RMS Mezzanine	Enea	OTP
Boeing	Deutsche Lufthansa AG	ACTIVE ENERGY GROUP PLC	Toma	Energa	Telekom
Cardinal Health	Drillisch	ADMIRAL GROUP PLC	Unipetrol	Eurocash	Zwack
Citigroup	Eurokai	ADVANCED MEDICAL SOLUTIONS GROUP PLC		KGHM	4iG
Comcast	EVOTEC AG	AEOREMA COMMUNICATIONS PLC	**Slovakia**	LPP	ANY nyrt.
CVS Health	FinTech Group	AFC ENERGY PLC	1. garantovaná a.s.	Alior	CIB Bank
Disney	Gerry Weber International AG	AVON RUBBER PLC	Allianz - Slovenská poisťovňa, a.s.	Asseco Poland	CIG Pannónia
Home Depot	Henkel	CENTAMIN	Best Hotel Properties a.s.	Bogdanka	FHB
Chevron	Infineon Technologies AG	COCA-COLA HBC AG	Biotika a.s.	BORYSZEW	Graphisoft Park
IBM	Kontron	DEVRO PLC	CEMMAC a.s.	BZWBK	MOL
Intel	LPKF Laser & Electronics AG	ELECTROCOMPONENTS PLC	CRH (Slovensko) a.s.	CIECH	OTP
J. P. Morgan Chase	Merck KGaA	EXOVA GROUP	Druhá strategická, a.s.	Cyfrplsat	Telekom
Kroger	MorphoSys AG	FRESNILLO	GEOCOMPLEX, a.s.	Enea	Zwack
McKesson	msg life	Hansard Global PLC	CHEMOLAK a.s.	Energa	4iG
Microsoft	prosiebensat1	CHARLES TAYLOR PLC	Majetkový Holding, a.s.	Eurocash	ANY nyrt.
PepsiCo	PVA TEPLA AG	OXFORD BIOMEDICA	Poľnonákup ŠARIŠ, a.s.		CIB Bank
Procter & Gamble	Siemens	POLYMETAL INTERNATIONAL PLC	SLOVENSKÉ ENERGETICKÉ STRO		4iG
United Technologies	Singulus	RANDGOLD RES.	SLOVNAFT, a.s.		ANY nyrt.
UnitedHealth Group	SMA Technologie AG	SPIRENT COMMUNICATIONS PLC	Stapring, a.s.		CIB Bank
UPS	Südzucker AG	ST. IVES PLC	Tatra banka, a.s.		
Verizon Communications	thyssenkrupp AG	STV GROUP PLC	Union poisťovňa		
Walmart	Volkswagen AG	SUPERGROUP PLC	Všeobecná úverová banka, a.s.		
Wells Fargo	3U HOLDING AG	WORKSPACE GROUP PLC	1. garantovaná a.s.		
	4 SC AG	1PM PLC	Allianz - Slovenská poisťovňa, a.s.		
	aap Implantate AG	3i Group PLC	Best Hotel Properties a.s.		
		600 GROUP PLC			
		ABACO CAPITAL PLC			
		ABCAM PLC			

THE GLOBAL IMPACT OF THE PENETRATION OF INTERNATIONAL QUALITY MANAGEMENT STANDARDS ON THE LABOR MARKET OF DEVELOPING TERRITORIES (ON THE EXAMPLE OF THE RUSSIAN FEDERATION)

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Abstract: *Globalization has changed all the current laws of economics. Affected consumption and understanding of the quality of consumption. The impetus for this was the development of technologies that influenced the change in the picture of the world that each individual faces. Technology has changed the concept of value added as a result of labor. Some twenty years ago, the idea that the service market could shift by 40% towards remote technologies was simply fantastic. As a result of such changes, all countries: developed, countries with economies in transition, as well as developing ones, have faced the same type of task, which affects them with the same degree of influence. The task is to preserve labor potential, shift it towards new technological challenges, determine the needs of consumers that are necessary and sufficient to satisfy them, preserve sovereignty in the new conditions. At the same time, the concept of the essence of "quality" occupies a key place in solving these problems. It undergoes a semantic change. The concept of "quality" twenty years ago is different from the concept of "quality" with which we deal today. In the presented article, we tried to investigate this process and predict possible changes that the economic community will face in the near future. For an example of the changes taking place, we examined the territory of the Russian Federation. It belongs to countries with economies in transition, which we also referred to as developing territories. They are inferior in terms of the volume of services provided to consumers in developed territories, but under the influence of the penetration of international quality management standards, they change the structure of the labor market. International standards penetrate less developed areas due to the development of technologies that are carriers of new standards. Moreover, this type of penetration occurs de facto. De jure, the composition of the standards that are applied in the territory is changing due to the signed conventions and agreements. As a result, economic relations in general are changing. And since the resource labor is one of the main ones in the list of scarce resources, it is primarily subject to global changes.*

Key words: *labor, developing territory, developed territory, consumer, request, gross product, product, service, quality, standard of management.*

JEL Classification: *A 13, D 60, E 27, J 21*

1. INTRODUCTION

To define the problem, we focused on the classification of countries by the level of GDP per capita. This approach is the most preferable for solving the posed problem. Needs, needs, requests are directly related to the gross domestic product. GDP is the total value of final goods and services created domestically by both domestic and foreign firms (Mankiw et al. 2021). The consumer is guided by them in his choice. It is most often limited to a given set of consumer properties possessed by goods and services presented on the market within the country. If the production of goods is limited by the available technologies for their production on the territory of the country, then the "quality" that the manufactured goods will

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have will differ from the "quality" of the goods, services produced in a developed territory. The process of penetration of international quality management standards tightens the system of creating high-quality goods and services for all territories in general, regardless of their level of economic development. The reason is that standards are the rules by which elements interact within a system. If the rules change, then the whole process of creating goods and services changes. All scarce resources are involved in this process. Labor is the basis for the creation of goods and services. As a result, there are changes and requirements for the work itself. If we consider labor as a combination of knowledge, skills and experience, then it is to their essence that the attitude is changing in all territories covered by the economic division of labor.

2. PROBLEM FORMULATION AND METHODOLOGY

The quality of the goods and services that the company produces determines the image of the company, the loyalty of consumers towards it is reflected in the manufacturer's brand. This is the invaluable relevance of the problem under consideration.

It is quite difficult to maintain the quality of goods and services that meets the standards in force in a developing territory. The producers themselves and the state should be interested in this. In a developing economy, government support for quality management systems (QMS) of enterprises that are implemented and work in constant improvement with a quality model is simply necessary. The quality model requires a continuous process of its maintenance. In accordance with the Shewhart-Deming Cycles (PDCA) as well as the key principles of enterprise quality management (Deming, 2013).

In the conditions of the economic crisis, which is a consequence of the social crisis (pandemic), it becomes more and more difficult to maintain the QMS at enterprises. Manufacturers have no free funds for these purposes. Quality is not the primary task in ensuring the break-even level of the property complex functioning. The drop in the quality level affects the break-even processes in the future. Ultimately, the value of the company's business reputation is lost, which further affects the duration of the manufacturer's life cycle in the market.

The crisis is aggravated by the globalization of the economy, which also penetrates into the theory of quality management. All functions of the manufacturer's management are involved in the formation of the quality of products and services (Kordos, Berkovic, 2020). Auditing is necessary to control the financial and economic turnover within the organization. And not only internal, but also external. In the context of globalization, the Russian Federation has been actively introducing ISA (International Auditing Standards) since 2017, which are built and operate on the basis of the rules of international integration. The language of these standards is English. Adaptation to the economy of the Russian Federation is going on rather difficult, with a certain period of lag. The reason for this is the need to translate and compare these standards with the current financial and economic turnover, which takes place to a greater extent in the Russian territory.

Even earlier, the Russian Federation switched to the integration of IFRS (international financial reporting standards). They have become mandatory for organizations operating on the territory of the Russian Federation and integrated into the international division of labor. Most of the small and medium-sized enterprises, which form the basis of the Russian economy, do not use them in full until now. The reason is the same. A complex adaptation process, as well as significant differences in the processes that take place in the financial, economic and economic activities of Russian enterprises. The originality and originality of the Russian economy.

The development of integration goes on as usual. It is impossible to get away from the objectivity of the events taking place. The reason for this lies in the objective laws of the theory of organization (Richard, Daft, 2015), which explain the global impact of the new rules on all territories involved in the economic division of labor.

In Russia, international standards are being developed in large business, where there is stable government support. Money is invested in such enterprises (for example, large agricultural complexes, transnational corporations). Small and medium-sized businesses do not receive such development.

As a result, there is a bias in the implementation of growth point beacons. The beacon in this case is the implementation of international standards. Figure 1 shows sectoral links. The sectors through which the integration takes place are systems. These include: individual - organization - industry - sovereign territory. The resources of this model of economic growth are international management standards. The factors of economic growth are competitiveness and integration. The growth of the economic model is the result of finance.

Figure 1. The system of sectoral relations of the economic growth model, influenced by the factor of implementation of international standards

The peculiarities of introducing standards into the activities of organizations is explained by the theory of penetration of international management standards, which is a theory that explains the adaptation of international standards in the activities of socio-economic systems.

Based on the objective processes taking place in the activities of socio-economic systems, she explains how these systems respond to changes in the rules of behavior and quality management. The objectivity of the penetration of international standards is confirmed by the objective laws of the theory of organization: the law of self-preservation, the law of synergy, the law of development. Socio-economic systems become the objects of research. The smallest of them is the individual. The largest is a sovereign territory (Kaygusuz, Sait, 2011).

Considering the theory and practice of the penetration of international quality management standards, it is necessary to consider in more detail the integration and adaptation of socio-economic systems in the activities of the latter.

As you know, integration is seen as adherence to new rules, adaptation speaks of agreement with the new rules. Only penetration more deeply describes the process of striving for socio-economic systems to comply with quality management standards through the immersion of their activities in these new rules.

Conventionally, the objects of research according to the degree of their interest in the integration processes of international quality management standards can be divided into three groups:

1. socio-economic systems, the use of international quality management standards in their activities is mandatory. These can be exporting organizations, organizations with foreign

capital, credit, insurance organizations, as well as organizations that are participants in the securities market, etc.

2. socio-economic systems that want to take a leading position in the market seek to cooperate with international companies. They can have implemented international quality management standards, but of purely nominal validity.
3. socio-economic systems that do not seem to want to introduce international quality standards in their activities, but given the change in consumer standards, are forced to improve the quality of the added value they have created.

It is the third group of socio-economic systems that is the most vulnerable in the processes of penetration of international quality management standards. It is the most numerous and forms the basis of promotion and immersion in new rules of conduct. The basis of standardization is its voluntariness. If socio-economic systems begin to participate voluntarily in these processes, then we can talk about the beginning of the final stage of penetration of international standards into the economy of a sovereign territory.

By attaching to this grouping the correspondence of socio-economic systems to historical, geographic and demographic, characterizing the degree of penetration of standards, it is possible to make an extended forecast of the spread of new rules of conduct in a sovereign territory. It is necessary to remember about sovereignty.

The introduction of IFRS, ISA is a prelude to the replacement of all current quality standards from GOSTs to ISO. For this reason, at the beginning of 2020, the use of 10,000 GOSTs on the territory of the Russian Federation was questioned (Kruglov, Artonkina, 2020). A developing territory, subject to the requirements of global development, must adjust the management of organizations' systems, including quality management systems, in accordance with the established requirements of international communities. As a result of these processes, the organization's system is being transformed as an object of quality management.

Table 1. Transformation of the organization system (Ken Colwell,2021) - the object of quality management

Direction	GOST	ISO
Organization - an internal element of the organization system	Focused on the organization as a whole	Assumes the allocation of functional structures within the organization
Output resources - the final scarce resource of the organization's system	Government order	Achieving the expected consumer value, creating a product, service that meets the requirements of consumers
The immediate environment of the organization	State-owned organizations	Organizations with state, private and mixed forms of ownership - corresponding to the entire variety of property that takes place in the considered economic system of a sovereign territory
External environment of the organization	State-owned organizations	Organizations with state, private and mixed forms of ownership (private, state, municipal and other forms of ownership)
Escort	State	Self-regulatory organizations and community communities

From Table. 1 shows that the characteristics of the elements of the organization system during the transformation of the resource management system from the administrative-command

system under the conditions of the USSR to the market one in the Russian Federation, distinguish ISO as a more flexible system of rules used by quality management.

As a result of this transformation, all systems within the organization are affected and ultimately the value of the business reputation of the enterprise. The requirement for "quality" in the essence of this concept is changing. The output resource of this system represents goods and services that meet the requirements of consumers. Assessment of the quality of goods and services is carried out not by representatives of the country in which they are produced, but directly by consumers. The maintenance or transformation of the system is carried out by self-regulatory organizations and public communities. That is, it is shifting from narrow state control towards public opinion on the essence of the events taking place. Within the organization, the allocation of functional structures is supposed. And this is already a requirement for labor resources. The knowledge, skills and experience that they should have in the new environment.

In accounting practice, which is used in modern accounting in the Russian Federation, there is PBU 14/2007 "Accounting for intangible assets" (Order of the Ministry of Finance of Russia dated December 27, 2007 N 153n), which specifies the procedure for determining and reflecting the value of an organization's business reputation. This provision deals specifically with the Russian accounting system, which is mainly used by basic manufacturers in the Russian Federation. In this case, the result of determining this value can be positive and negative. If the result is positive, the value of non-current assets increases. Since goodwill (Goodwill) is reflected in the intangible assets of the company. In the case of a negative result (Badwill Badwill) we are faced with a decrease in the financial results of the company in the balance sheet liability.

Goodwill is defined as the difference between the purchase price paid to the seller when acquiring an enterprise as a property complex (in whole or in part) and the sum of all assets and liabilities according to the balance sheet as of the date of its purchase (acquisition) (Order of the Ministry of Finance of Russia dated December 27, 2007 N 153n) For a more precise definition, the value of the net assets of the organization is used. The drop in the quality of goods and services in a deferred form affects the purchase price, which the seller is ready to pay in the future for the property complex.

As a result, the efforts that the enterprise is making at the current moment of time to maintain the quality of goods, services, as well as the implementation and development of standards, will give a return in the delayed perspective. Business reputation is not only a value that characterizes the value of a business, it is also an indicator of the investment attractiveness of an object. For this reason, maintaining the company's image, conformity of the quality of goods and services to market requirements, the level of customer loyalty, is the basis for the long-term life position of the enterprise. Support for the implementation of quality management standards by the state in a developing economy is also important. In the future, in general, the investment attractiveness of entire sectors of the economy of a sovereign territory may fall, and this will lead to a decrease in the preservation of the sovereignty of the territory (Usacheva, Chechulin, Zakharov, 2020). It will change the structure of the labor market, the essence of needs and their satisfaction.

Refusal from GOSTs in the conditions of an unprepared concept for the development of manufacturing industries is not permissible. There should be a transitional period that will predetermine the bringing of internal quality standards to the level of international standardization requirements (Rosling, 2018).

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

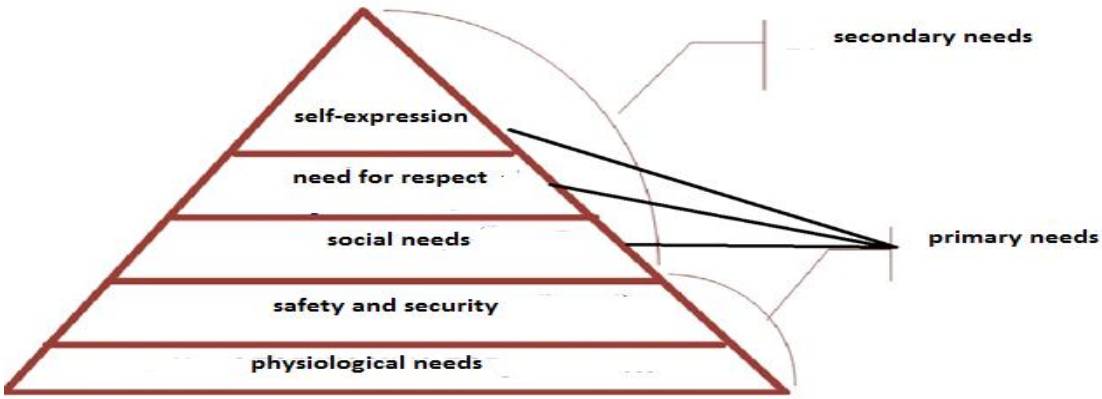
The task is to preserve labor potential, shift it towards new technological challenges, determine the needs of consumers that are necessary and sufficient to satisfy them, preserve sovereignty in the new conditions.

As a result of globalization, consumer needs are being transformed. Those needs that met the needs at the beginning of the 21st century have changed significantly under the influence of technological revolutions. The quality of services has changed, now it is important that they are provided quickly and safely. The quality of the goods has also changed in essence. The concept of "quality" began to include not only satisfaction of needs at the desired level, but also safety. Moreover, security has shifted to the fore. The reason for this was the attitude towards the formation of international quality management standards, when responsibility shifted from declarative instructions from the state to the opinion of society as a whole. The product itself has also changed. From the point of view of F. Kotler, the goods with reinforcement have come to be represented as goods having a stronger connection with the information environment, in which they receive demand and subsequent consumption. Under the influence of technology, the requirements for labor skills, knowledge and experience have also changed. The approach to the educational process is also changing. It is shifting towards a competence-based approach that supports the modern paradigm of interdisciplinary science and education. The UNESCO report says: “Increasingly, entrepreneurs need not qualifications, which, from their point of view, are too often associated with the ability to carry out certain operations of a material nature, but competence, which is seen as a kind of cocktail of skills inherent in each individual, which combines:

- qualification in the strict sense of the word ...
- social behavior,
- the ability to work in a group,
- initiative
- love of risk "(Report of the International Commission on Education, submitted to UNESCO" Education: the hidden treasure ", 1997).

The transformation of needs can be considered in the form of changes to the classification of these on the example of Maslow's Pyramid (see Figure 2).

Figure 2. Maslow's pyramid



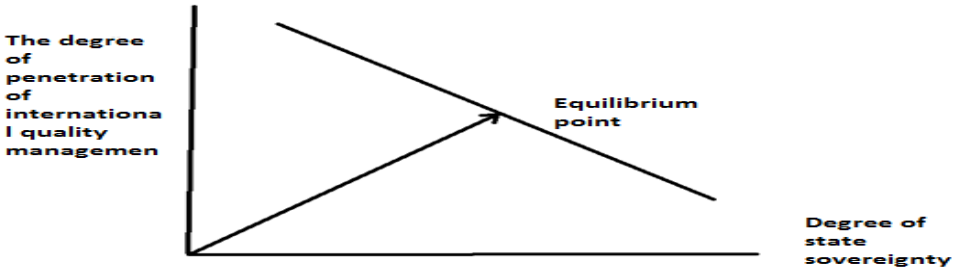
As a result, a significant part of secondary needs is shifted towards primary ones. An individual who does not want to express himself loses his labor potential in a modern global society. But since not a significant part of society strives to meet the needs of the second level, a labor market crisis arises. What to do for those whose needs of the second level are not developed. A competent approach, implemented at the level of the educational process, can serve as a tool that reduces the risk of the consequences of transforming consumer needs in the context of globalization. We are introducing a new stimulator of growth and development into the younger generation. So, as a result of globalization, the concept of the essence of "quality" is changing, and the concept of "need" itself is changing. What was acceptable in the information revolution in the fourth industrial revolution is no longer possible. The fourth industrial revolution is associated with the integration of new technologies into the economic community, such as Big Data, smart homes, virtual and augmented reality, quantum computing, blockchains, and printed electronics. The fourth industrial revolution is being implemented in autonomous robots, digital twins, and precision farming.

The processes of creating digital twins in business are interesting. Enterprise modeling is something the economic community couldn't even dream of. Conducting an experiment in economic science without global financial losses. To date, the economic community is actively using pilot options. The possibility of conducting experiments will make it possible to make significant progress in the field of making management decisions in conditions of reducing to a minimum entrepreneurial risk. This is a solution to problems in the context of globalization of processes.

What risks are possible as a result of the implementation of these approaches.

1) The first risk is that globalization in the context of the fourth industrial revolution may negatively affect developing countries that do not possess modern technologies.
2) The second risk is that globalization in the context of the fourth industrial revolution may negatively affect individuals who do not own or are not involved in modern technologies.
3) The third risk is that globalization in the context of the fourth industrial revolution will lead to a revision of financial centers in the global economic space.
4) Fourth risk - globalization in the context of the fourth industrial revolution will change the structure of social relations and affect each individual taken separately.
5) Labor market regulation is a macroeconomic task. Its solution is possible in the context of globalization only on the part of the state if it is necessary to preserve state sovereignty.
6) There are checkboxes that should never be crossed. Figure 3 shows the equilibrium point of penetration of quality management standards into a sovereign territory.

Figure 3. Equilibrium point under the conditions of penetration of international quality management standards into a sovereign territory.



In the face of economic challenges from the 4.0 revolution, it is necessary to be in the break-even zone, which is characterized by an equilibrium point regarding the degree of penetration of international quality management standards into the sovereign territory and the degree of state sovereignty.

4. CONCLUSION

To solve the problems identified by our research, it is necessary to revise the development strategies of developing territories. Take care of sovereignty. Adapt the rules of behavior of economic agents to the global ones. At the same time, the process of adaptation (adaptation) should be aimed at strengthening sovereignty. This will make it possible to achieve a positive synergistic effect as a result of the transformation of the economic space. Most importantly, it is necessary to have ownership of scarce resources, which are indeed scarce in the context of the fourth industrial revolution. The actions of individual individuals who take on the challenges of the technological revolution should be based on a change in the consumption structure, a competency-based approach, as well as the possession of scarce resources of the fourth industrial revolution each individually.

REFERENCES

[1] Colwell, K. (2021). Starting a Business QuickStart Guide: The Simplified Beginner's Guide to Launching a Successful Small Business, Turning Your vision into reality, and Achieving your Enterprenerial Dream. Phd, MBA.

[2] Daft, R. L. (2015). *Organization Theory and Design. Cengage Learning*, 688 p.

[3] Deming W.E. (2013). *The Essential Deming: leadership principles from the father of quality*. NY: McGrow-Hill.

[4] Kaygusuz, S. Y. (2011). Target Costing for New Product Development Process. *Business and Economics Research Journal*, vol. 2, iss. 4, pp. 1-19.

[5] Kruglov M. G., Artonkina N. V. (2020). In the world of quality management. *Quality management*, iss. 1, pp. 2-10.

[6] Kordos, M. & Berkovic, V. (2020). Applying Automation in Slovak Tourism Industry - Benefits and Issues. *AD ALTA-Journal of Interdisciplinary Research*, vol. 10, iss. 1, pp. 132-138.

[7] Mankiw, Stonecash, R., Gans, J., King, St. (2021). *Princeples of Macroeconomics.9th edition*, Gengage, 480 p.

[8] Ministry of Justice of Russia. (2007). Order of the Ministry of Finance of Russia of 27.12.2007 N 153n (as amended on 16.05.2016) "On approval of the Accounting Regulations" Accounting for intangible assets "(PBU 14/2007)" (Registered in the Ministry of Justice of Russia on 23.01.2008 N 10975).

[9] Rosling, H. (2018). *Factfulness: Ten Reasons We're Wrong About the World--and Why Things Are Better Than You Think*. New York, 342 p.

[10] UNESCO. (1997). Report of the International Commission on Education submitted to UNESCO Education: A Hidden Treasure.

[11] Usacheva, E, Chechulin, A, Zakharov, N. (2020). Model Of Complex Analysis Of Internet Communications In St. Petersburg Tourism Marketing. In: The 12th international scientific conference "*New Challenges in Economic and Business Development – 2020: Economic Inequality and Well-Being*": Riga, Latvia, October 2, 2020. Proceedings. Riga: University of Latvia, 2020. pp. 487-496.

JUSTIFICATION OF THE ECONOMIC AND MATHEMATICAL RELATIONSHIP BETWEEN THE LEVEL OF QUALITY AND THE COST OF TANGIBLE AND INTANGIBLE SERVICES

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Abstract: *Labor is the source of use value. At the same time, there are different masses of use values, since labor is the source of various goods and services. To estimate the mass of use values, simple average labor is used. In the context of digitalization, the quality of the mass of use values is changing. At the same time, the assessment of the value of a digital service differs from the assessment of the value of a material service. This is due to both the exchange value and the level of intellectual abilities of the manufacturer himself. The intangible nature of digital services determines the features of control over the quality of their provision and the use of Big Data technologies, as well as genetic algorithms. Combining the methods of network planning and expert assessments, it is possible to establish the real cost of a service taking into account its quality of consumption, as well as to achieve a correspondence between services of a different nature. As a result of this approach, a synergistic effect arises from the total consumer value.*

Key words: *labor, consumer values, monetarized, Big Data, service, quality, basic economic, different nature, reasonable price, network graph.*

JEL Classification: *A13, A11, C02, C44, D60*

1. INTRODUCTION

To define the problem, we focused on the classification of countries by the level of GDP per capita. This approach is the most preferable for solving the posed problem. Needs, needs, requests are directly related to the gross domestic product. GDP is the total value of final goods and services created domestically by both domestic and foreign firms (Mankiw, 2021). The consumer is guided by them in his choice. It is most often limited to a given set of consumer properties

Any type of labour is, on the one hand, the expenditure of human workforce in the physiological aspect, and in its capacity of abstractly human one, labour forms the value of goods. Any labour is, on the other hand, the expenditure of human workforce in a special expedient form, and in this capacity of particular useful labour it creates consumer values. (Marx, 2006)

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Labour by its very nature can create plenty of different consumer values. Work efficiency and productivity change and affect the mass of consumer values. Work can be very productive or not. Therefore, it is possible to expend an equal amount of labor, but as a result to produce different masses of consumer values.

For the evaluation of complex work the concept of a simple average labour is usually used. It is the expenditure of simple work power, which, on average, is possessed by the physical organism of every ordinary person, who is not distinquished by special development. (Marx, 2006).

In the terms of digitalization, the quality of the mass of consumer values is changing. The expediency of labor is starting to prevail. Labor is acquiring mostly a quality of non-material resulting forms. Physiological effort is being reduced to mental effort. Labour is becoming more intellectual. The physical component of labour is decreasing. The fifth technological revolution led to a change in the nature of labour, its essence. The nature of non-current assets, which are an instrument of production of the intangible mass of consumer value, has changed. Heavy machines have been replaced by digital means of communication. Man, using them, is now the source of the production of consumer value.

The consumer value produced in this way is the basis for the production of intangible services, including digital services. The mass of consumer value determines the value of services of the area and the corresponding quality of their production.

According to David Ricardo, " the value of an object, or the quantity of any other object for which it is exchanged, depends on the comparative amount of labor required to produce it, and not on the greater or smaller amount of remuneration received for this work (Ricardo, 1919).

David Ricardo demonstrates a correspondence between the comparative amount of labor and the value of its result. The value of an object can also determine the quality of the result of work. At the same time, David Ricardo emphasizes that the amount of remuneration received by a person for his/her work, to a lesser extent affects the value and quality of it. The value of an intangible service depends on the intellectual abilities of the manufacturer itself. In this case, the remuneration will have a greater impact on the value of the intangible service rather than the material one. The material component may also prevail if the conditions under which the service is produced are monetarized. The degree of monetarization can change priorities between a person's own realization and the amount of material incentives.

Adam Smith observed that " the word value is used in two different meanings, and sometimes expresses the utility of an object, and sometimes it expresses the purchasing power, relative to other objects, which the possession of this object provides. The former may be called the value of consumption, the latter may be called the value of exchange." (Ricardo, 1919) Exchange value determines the amount of money that one is willing to pay for the result of labor in order to have a certain consumer value. In the context of changing the nature of labor result, exchange value and consumer value are dominant in production process.

If an object has no consumer value at all, in other words, if we can derive neither pleasure nor benefit from it, then it will have no exchange value, despite its rarity and the amount of labor required to produce it. This is true for both tangible and intangible services. Digital services have exchange value and consumer value.

The exchange value is borrowed from the rarity and quantity of labor that are expended for their production. For digital services, rarity is the most important. More seldom or individual digital service can only be produced by trained and talented employees. What can affect the exchange value of a digital or any other intangible service? Of course, current legislation on the protection of intellectual property rights (copyright, which takes place in a sovereign territory). If these conditions are not applied, then the intangible service, as well as the digital

one, is simply devalued. The decrease in the exchange value of a digital service, as well as an intangible one, can also be related to necessary training of the end user. A person has to be ready to understand and realize it. If the service is unique, its consumer is usually ready to consume it. If the service is of a mass nature and is designed for a wide coverage of the target audience, then this audience should be ready to purchase suggestive selling (Kotler, 1967).

In the book, Drury K. defines the importance of organizational work for successful functioning of firms. In the context of digitalization of technological processes, this is an important aspect. It is necessary to clearly understand the distribution of powers, the order of subordination and reporting (Cowton, Brierley, Drury, 2008). This is the only way to start digitalizing processes.

2. PROBLEM FORMULATION AND METHODOLOGY

Digitalization of processes is directly related to the services provided by IT specialists. The quality of the service should be constantly evaluated. A service provider must control the degree of satisfaction of customer's needs. If the needs are not fully met, the price of the service should be reviewed (Jan van Bon,2007)

Quality is a set of characteristics of a product or service that form the ability of a product to meet the formed and implied needs (ISO 8402:1994).

The concept of "reasonable price" should be associated with the degree to which the customer's needs are met. The quality and reasonable price must be proportionate. The quality of a service consists of the quality of the processes that it consists of. This is very important to understand when digitizing technological processes. The quality assurance is determined by the Shewhart-Deming cycles (Shewhard, Deming, 1939; Wiley, 2019).

The digitalization of technological processes, spurred by the crisis phenomena in society, has led to a new leap in the development of the control over the quality. To provide quality digital services, it is necessary for service providers to achieve organizational maturity. As a result of the digitalization of services, the quality of products and services has become more individually evaluated. Large companies that are used to living in the old way have dramatically reduced their life cycle. However, some leaders happen to have been able to respond to the ongoing processes quickly. These companies include Adobe, Amazon, Apple, Facebook, Google, and Netflix («Intercom on Product Management»).

Quality assessment is impossible without the Big Data theory (Blagirev, 2019). This theory allows us to take into account all the assumptions that are possible in assessing the quality of tangible and intangible services. While economic theories allow us to understand the essence of the origin of a service cost and its compliance with quality, the theory of big data allows us to justify the genetic algorithms underlying the determination of quality level of services in question . Genetic algorithms are predetermined by the fuzzy sets underlying their nature. We deal with fuzzy sets in the situation when we cannot say unequivocally that any estimate is correct by 100 percent.. These genetic algorithms (Rutkovskaya, 2013) can be used to determine the correspondence between the quality level and the cost of an intangible digital service. The conclusion in this case may be unclear and many subjective and objective conditions are required to evaluate the exact match. As for matching the valuation of tangible and intangible services, network planning can be used for this purpose.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

Using a network graph, you can determine the critical length of the path from the idea to the implementation of the task. The critical path in the implementation of a digital service is less than in the implementation of a material service (Usacheva, Chechulin, Zakharov, 2020). A

digital service is virtual, it is accomplished when implementing the algorithm of its action. The material service is tangible. However, the technology for implementing tangible and intangible services is identical (see Fig. 1, Tables 1, 2).

Figure 1. Network graph of the service implementation technology

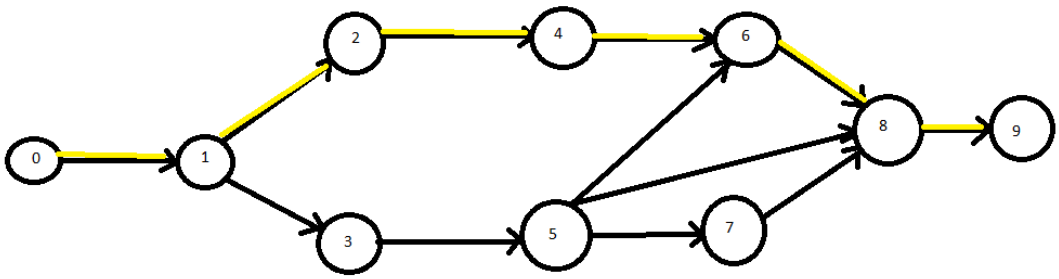


Table 1. The content of works included in service implementation technology

Work (i.j)	Content
(0,1)	Idea of creating a service
(1,2)	Developing a flow chart of implementation of services.
(1,3)	Preparing a flow chart of implementation of services..
(2,4)	Preparing necessary resources for the implementation of services
(3.5)	Searching and preparing necessary resources for the implementation of services
(4,6)	Consultancy with the consumer prior to commencement of services
(5,6)	Audit of preliminary consultancy prior to commencement of services.
(5,7)	Manufacturer's consultations with the consumer prior to commencement of services.
(5,8)	Monitoring the provision of services
(6,8)	Direct service provision.
(7,8)	Production of the service
(8,9)	Consultations with the consumer after the service has been performed

Table 2. Calculation of the critical path of the network schedule of the service implementation technology

work(i.j)	Number of previous works	Work duration t(i.j)	Work completion dates				Time reserve			
			early		late		of works		Of events	
			beginning, Трн(i.j)	end, Тро (i.j)	beginning, Тпн(i.j)	end, Тпо (i.j)	complete, Rп(i.j)	free, Rc(i,j)	Rj	Кн
1	2	3	4	5	6	7	8	9	10	
(0,1)	0	15	0	15	0	15	0	0	0	1
(1,2)	1	16	15	31	15	31	0	0	0	1
(1,3)	1	6	15	21	18	24	3	0	3	0.921
(2,4)	1	6	31	37	31	37	0	0	0	1
(3,5)	1	5	21	26	24	29	3	0	3	0.921

(4,6)	1	8	37	45	37	45	0	0	0	1
(5,6)	1	6	26	32	39	45	13	0	13	0.675
(5,7)	1	14	26	40	29	43	3	0	3	0.921
(5,8)	1	8	26	34	39	47	13	0	13	0.658
(6,8)	2	2	45	47	45	47	0	0	0	1
(7,8)	1	4	40	44	43	47	3	0	3	0.921
(8,9)	3	3	47	50	47	50	0	0	0	1

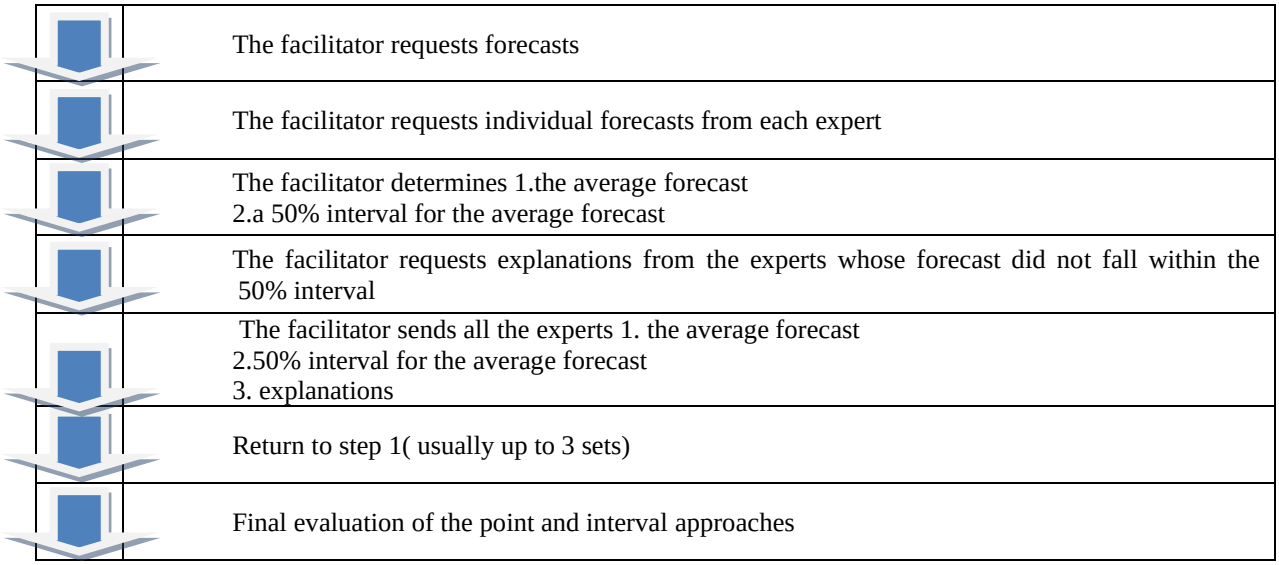
The critical path includes the works (0,1), (1,2), (2,4), (4,6), (6,8), (8,9). These works combine the maximum amount of time required for the implementation of the service. It is the optimization of the duration of this type of work that allows you to compare the duration of tangible and intangible services. This is achieved under the condition that the total and partial reserves of work belonging to the critical path are zero.

The content of work when a material service is produced differs from the content of work when a digital service is produced. The difference is in the duration of service provision.

The longer the path, the more time is spent on the production of the service, the more time is needed for its consumption. The service, unlike the product, does not require storage, physical delivery, these stages are excluded from the process of its production and consumption. Digital services, in contrast to material services, require fewer material resources. The consumer must be initially ready to consume a digital service, as opposed to a material service, where more material resources and greater producer's involvement in the process of bringing this service to consumption are required Also, the duration of consumption of a digital service can change more flexibly in contrast to a material service.

The method of expert assessments. Experts determine the duration of satisfaction with the quality of the service (see Fig. 2) .

Figure 2: Delphi Method Algorithm



For expert assessment of satisfaction with the quality of the service, we use the Delphi method (Ilchenko, 2019).

4. CONCLUSION

Evaluating the quality of a digital service compared to a physical service requires a different qualification of the expert. That is, the experts must have a different education and level of training. In the contemporary world, they have to own different competencies. The cost of the service is associated with the time of its implementation and satisfaction with its quality. Combining the methods of network planning and expert assessments allows you to determine the real cost of the service, taking into account its quality of consumption. The relationship is inversely proportional. The longer the period of satisfaction with the quality, the lower the cost of the service. A one-time service is more expensive than a time-deferred service. Combining modern theories with basic economic and mathematical calculations justifies the relationship between the quality and cost of services of different nature, and also connects with the synergistic effect that can develop as a result of achieving their compliance (Smetanina, 2019).

REFERENCES

[1] Blagirev, A. (2019). Big data in simple language. AST Publishing House, 256 p.

[2] Cowton C., Brierley J. & Drury C. (2008). Investigating activity-based costing in manufacturing industry. *Cyprus International Journal of Management*, vol. 13, iss. 1, pp. 21-33.

[3] Ilchenko, V. (2019). Workshop on economic and mathematical methods: textbook. Manual. In: A.I. Ilchenko, O. L. Ksenofontova, G. V. Kanakina. - M. *Finance and Statistics*, Moscow: INFRA, 288 p.

[4] Intercom Inc. (2017). Intercom on Product Management.

[5] ISO 8402:1994 Quality management and quality assurance. Vocabulary.

[6] Kotler, Ph. (2009). *Marketing Management: Analysis, Planning and Control*. Englewood Cliffs, N.J.: Prentice-Hall.

[7] Marx, K. (2006). *Das Kapital. From Capitalist Exploitation to Communist Revolution*. Audio CD. Published by Blackstone Audiobooks.

[8] Petty W. (2012). *Treatise of Taxes and Contributions*. London, p. 47.

[9] Ricardo, D. (2001). *Principles of Political Economy and Taxation*. G. Bell, p. lix.

[10] Rutkovskaya D. (2013). *Neural networks, genetic algorithms and fuzzy systems*. 2nd ed., p. 384.

[11] Smetanina, T.V. (2019). Synergetic approach in explaining the behavior of organizations. In: Collection of articles of the International Scientific and Practical Conference "*Problems of Methodology and Experience of Practical Application of the Synergetic Approach in Science*" (Samara, 10.04.2019). - Ufa: Aeterna, pp. 50-52.

[12] Usacheva, E., Chechulin, A. & Zakharov, N. (2020). Model Of Complex Analysis Of Internet Communications In St. Petersburg Tourism Marketing. In: The 12th international scientific conference "*New Challenges in Economic and Business Development –: Economic Inequality and Well-Being*": Riga, Latvia, October 2, 2020. Proceedings. Riga: University of Latvia, 2020. 487-496 pp.

[13] Van Bon, J. (2007). *Foundations of IT Service Management*. Van Haren, -02-01. — P. 4. — ISBN 9789087538446.

[14] Walter A., Shewhard, W. & Edwards D. (2012). *Statistical method from the viewpoint of quality control*. The Graduate School The Department of Agriculture Washington, p. 303.

[15] Wiley, J. (2018). *How to Create Tech Products Customers Love*, Second Edition Marty Cagan Founder. Silicon Valley Product Group. New Jersey: John Wiley & Sons, Inc., Hoboken, p. 14.

THE FUTURE OF THE EU VIS-A-VIS COPENHAGEN CRITERIA

Dusan SOLTES [134]

Abstract: *The main aim of this paper is to deal with the future of the EU as it has been formulated by the EU in its strategy for the Future of the Europe which have been launched on 19 April 2021 and its main purpose has been to engage citizens of the EU into the particular digital debate about what kind of the EU they would like to have in the future.. The main method and approach to this theme is based on the critical analysis and evaluation of the current situation in the EU vis-a-vis its own future according to the Copenhagen criteria as being enshrined in the Amsterdam Treaty on the EU. As such they were adopted especially for the future new member states of the EU from the former socialist countries in the CEE – Central and eastern European Countries but in our opinion they have to be fully met by all EU member states not only the new ones..*

Key words: *European Union, Amsterdam Treaty, Copenhagen criteria, OMS – old member states, NMS – new member states*

JEL Classification: *K33, K37, F02, F53*

1. INTRODUCTION

On 21st April 2021 in preparation for the forthcoming European Day on 9th May the European Commission through their President Ursula van der Leyen has launched the multilingual platform : „Conference on the Future of Europe“ that according to the plans of the EU represents by itself a unique opportunity for European citizens to engage directly in the debate about the future of Europe and to exchange views with experts and EU institutions until spring 2022 on the future of the EU. In view of this invitation, this paper in the following parts is dealing with some issues and problem areas where this author sees an opportunity to contribute to these debates and at the same time present some results of their long term ongoing reserach on the European integration within the e-Europe Research & Development Centre at the Faculty of Management, Comenous University at Bratislava..

2. BASIC PROBLEM AREAS OF THE CURRENT SITUATION IN THE EU IN RESPECT OF THE NEEDS FOR THE FUTURE REFORMS IN THE EU

As the starting pad for our dealing with the future EU we are using the recent statement made by the Vice-President of the European Commission Ms. Vera Jourova (2021) that has in one of her recent statements declared that if now the so-called New Member States (NMS) would apply for a membership in the EU most of them would have now more problems and challenges in order to meet the particular accession criteria as they have been defined in the so called Copenhagen criteria EU (1993) that finally have become a special protocol of the Amsterdam Treaty EU (2007) on the EU. In this connection we could not fully agree with this statement but even further support it in such a way that it is fully justified to say that not only NMS but also many of the so called Old Member States (OMS) would have problems to meet all these criteria that are as follows:

The EU Summit in Copenhagen in June 1993 decided to open EU membership to the Central and East European countries. The then established criteria are those to be followed by all countries applying for membership of the EU. In this connection we could state that these criteria as they are defined in the particular Amsterdam Treaty are creating conditions for

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some „double standards“ by the fact that they are directly directed only for the NMS as it somehow is assuming that only NMS need to meet them while the OMS somehow are automatically assumed as those that they are meeting them in full. What unfortunately is absolutely not true and many OMS would hve many serious problem to meet them and thus be able to become regular member states of the EU. In this connection we have to state that according to the standard practice in the EU every Treaty is automatically becoming obligatory for all EU member states without any exemption if they being new or old ones. Therefore also the accession to the EU is so complicated and time consuming process that basically all NMS from the moment of their accession to the EU have automatically to respect and apply all the EU legislation even those that were enacted even before the NMS have joined the EU. It is a kind of a retroactivity, hence it is then quite strange that a part of the Amsterdam Treaty on the EU in its part as a Protocol on Copenhagen criteria is officially directed only to the NMS. As we now at least very briefly are going to state that many OMS would have many problems to meet all these Copenhagen criteria as they are as follows (EU, (1993):

- Stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities
- The existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union;
- The ability to take on the obligations of membership including adherence to the aims of political, economic & monetary union.

3. ANALYSIS AND EVALUATION OF THE BASIC THREE COPENHAGEN CRITERIA

In this part of this paper we are going through these Copenhagen criteria from the point of view of new EU strategy on the Future of Europe vis-a-vis these so called Copenhagen criteria that have been adopted for the future EU NMS especially those from the CEEC - Central and Eastern European Countires. But we believe that the same criteria have to be fully respected by all EU member state i.e. including all EU OMS. As otherwise it again looks like a kind of very unpopular but unfortunately still existing so-called „double standards“ between the EU NMS and their partners from the OMS.

3.1 Stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities

If we use only the simplest possible definition of the democracy what in general means that the democratic is what has been elected by people/citizens in a fair, free and open election then we immediately can see that many of the existing so called OMS are not meeting this minimum elementary democratic criteria as many of them have still e.g. heads of states represented still by unelected royals, knights, etc. And even now after the Brexit we have in the EU at least six member states that are constitutional monarchies and in no way they are meeting this criteria on the democratic institutions.

Subsequently, we could state that these six EU member states are not fully meeting the subsequent requirements on the rule of law as all laws including those belonging to the community legislation finally have to be enacted by the non-democratically elected heads of states. Although in our opinion it would be not a big problem to change the existing unelected heads of state to the democratic ones by a simple national referendum where people and citizens of those still six countries would decide if they want to have e.g. a king or knight as their head of state or not. For example, after some scandals in Spain regarding their former

king there is growing movement to reconsider and finally abolish their royal head of state and thus also their kingdom form of state.

A very special case of the stability of democratic institutions is the case of Belgium where in years 2010 -2011 they were without central federal government for 589 days i.e. for almost two years what by itself represents the world negative record of a country being without its own national governmant. But as a certain paradox during this period being without its own national government the country has - according to the EU institutions - managed successfully to perform its role as the Country of Presidency in the EU under the rotating Presidency in the EU. Another negative example of instability of democratically elected government is Italy where since the second World War there were altogether more than 66 by word sixty six (!) governments what means about 1.4 year for one government. Definitely that is nothing close to what could be called as a stability of a democratic instituion. But anyhow Belgium and Italy in spite of that were always considered as democratic countries although without anything close to the stability of democratically elected governments as it is required by the Copenhagen criteria officially only for the future new EU member states.

Another very often debated issues in connection with this first Copenhagen criterion is the requirement for respect for the human rights and protection of minorities. In this case we could also give the whole range of examples where the fundamental human rights are not respected in many EU OMS. That is even case in otherwise such traditional democratic countries like e.g. France where the movement of so called „yellow vests“ and their generally accepted right for peaceful gathering and expression of their views have been often drastically violated by the brutality of the riot police actions including beating, water cannons, rubber bullets or tear gas, et. Of course we are not talking about some hooliganism that was also happening during those gathering but as a rule, police was attacking all participants in these yellow vests peaceful demonstrations and gatherings that are absolutely legal and are without any doubts just practical application of one of the fundamental human and social rights on the rights of gethering and expression.

Even worse situation in the EU OMS is with the respect for and protection of minorities. While some minorities are in this respect enjoying so to say extra full respect and support like e.g LGBT and/or transvestites minorities but on the other hand not the same respect enjoy e.g, national minorities in some OMS like e.g. Catalunyans in Spain where leaders of the movement for independence are criminalized, jailed and otherwise scandalized although in this respect again their movement for independence and sovereignty are fully in line with the one of the fundamental rights according the the UN Charter (UN, 1945) where it is clearly stated that every people have right for self-determination and their right for self- governance. In this connection we have to mention not only policy of Spain that considers any movement for independence e.g. of Catalunya as a treason and by the national law forbidden separatism. But unfortunately also the EU has always been against any such fight for independence not only in the case of Catalunya but also of Scotland when the UK was yet the EU member state. That all in spite of the fact that right for self-determination and independence as we have already stated above is one of the fundamental rights for people according to the UN Charter that has to be respected by all UN member states and thus also of by Spain and all other EU member states. In this connection we have to add also that although the EU is repeating again and again how principles of democracy, rules of laws, etc. are so important values for the EU but when it comes for the respect for the international law as enshrined in the UN Charter then it is different approach and for example in case of separation of Catalunya from Spain, the EU is stating that in such a case Catulanya should apply for its membership in the EU although technically, physically, geographically, politically and legally it would still be in the EU, in the Eurozone, etc. What a difference it is in comparison with the entry of the former GDR into the EU when after the unification of Germany the former GDR with its more than 15 million citizens has from day to day become the member of the EU without any application,

negotiations, transitional periods and thus not meeting any Copenhagen and various other criteria and of course it has automatically became a member of the EU, of the Eurozone, Schengen, etc. Hence, also in the EU we are all equal but some like Germany or France or Italy as the founding members of the European integration are just simply more equal. As very precisely it has been expressed by one of the former presidents of France: „Nobody will be criticizing France“ And it is like that, simply nobody including the EU institutions is criticizing the country e.g. for beating „yellow vests“ during their demonstrations while the EU is very critical when the same is happening in Belarus by the brutal regime of the dictator Lukashenko.

But in order to be fair towards the EU member states not only they have problems with the first Copenhagen criteria but as it is well known also the EU institutions themselves are very often criticized for their democratic deficit especially because of the fact that they are not meeting general standards for a democratic institution as we have defined it at the beginning of this chapter. Especially, the European Commission is regularly criticized that its composition of the Commissioners is not created by the regular democratic elections. And it is true that Commissioners are nominated by their national governments and very often they are nominated either without any suitable qualification and/or very often as for some reasons they are politicians whom they do not want to have in their own countries or they are sent to „Brussels“ for unspecified and often otherwise unclear reasons, their former merits, etc. In many cases such politicians are unsuccessful in the national elections in their home countries and are then they sent to become a Commission. As often they are without any suitable qualifications they get e.g. two weeks to learn some at least basics about their future portfolio and when they „manage“ such short term two weeks „preparations“ they are ready to be as they call it to be „grilled“ in the European Parliament (EP) and after (mostly) being successful – as in the most cases it is for political reasons successfully completed – they become a Commissioner for a problem area they heard about for the first time when they were nominated for that particular post. Although, it would not be a big problem make it more democratic in such a way that the future potential nominees for the post in the Commission would have to be democratically elected in the national and/or preferably being elected to the European Parliament and then to be nominated to the post of a Commissioner.

However, the other similar problem of the democratic deficit exists also in the case of elections to the EP where there do not exist any threshold for the minimal percentage regarding to be democratically elected to the EP. There were already cases like e.g. in the case of Slovakia where the participation in the elections to the EU was only on the level of 14 per cent of eligible voters what by the way means that in those elections were to be elected 13 MEPs for Slovakia so in principle it was enough to get 1% of all votes and that candidate was elected to represent its country and/or party in such an important EU institution asi it is the case of the EP as the only EU institutions being elected directly by the citizens of the Union. But in connection with this democratically elected EP there is an other deficit and that being that there are differences in numbers of MEPs between big and small member states. So then we have in the EP e.g. from Germany as the EU largest country in terms of citizens 96 MEPs i.e. one MEP represents altogether more than 864 thousand German citizens, while on the opposite side, the smallest tiny Malta with less than 0.5 mil. citizens is represented in the EP by 6 MEPs and so each of them representing only about 82 thousand Maltese citizens i.e. ten times less than it is in the case of Germany. Of course we have to understand that all Maltese MEPs have no chance to over vote the MEPs from Germany but some kind of the democratic deficit has to be felt also in this very specific case of the only democratically elected EU institution but some doubts still exist about a kind of a democratic deficits also in this case.

In conclusion to this first Copenhagen criterion, we could only state that not only the NMS have some problems with meeting them, especially now it is in particular the case of Poland and Hungary but in practice we see that the most of OMS have the same and even much

bigger problems in this respect not to mention that the EU institutions themselves have also in may cases as we have demonstrated them in this chapter quite many democratic deficits but…

3.2 The existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union

This second Copenhagen criterion requires again only from all candidate countries in order to become eligible for the accession to the EU that they have to have a functioning market economy and as such they have to be economically strong enough to be able to withstand the competitive pressure of the EU Common market or as it is differently defined in different EU treaties also the competitive pressure of the Internal and/or also Single market of the EU.

In any case if we try to deal with this second Copenhagen criterion we have to deal with at least some macroeconomic indicators that could enable us to specify what it is the functioning market economy in the conditions of the Common, single or internal market of the EU as from the first day when the country would become the new member states of the EU it is becoming also an integral part of the EU market however we define it.in order to simplified it to some extant we have chosen the following three macroeconomic indicators for specifying the functioning market economy and they are as follows:

- GDP
- Employment and/or unemployment
- Price stability or inflation

If now we would try to characterize the EU from these three to some extent key macroeconomic indicators we could very easily to come to conclusions that the EU by itself is quite far from anything that could be characterized as a really functioning market economy.

If we first take as the first such important macroeconomic indicator as GDP and its growth which to some extent best characterises the efficiency of the economic performance, in general we could state that the growth of the GDP in the EU is definitely the lowest one in comparison with its main global competitors i.e. the USA and China (WB, 2021). For some comparison we have taken the decade between 2010 – 2020 and for comparison of the lowest and the highest percentage of the GDP growth:

EU -4.29 and 2.79

USA -2.54 and 2.93

CHI 2.27 and 9.47

Even from these more less illustrative figures it is clear that during the given period the EU has recorded the lowest growth and at the same time also the deepest recession in comparison with its main global competitors i.e. the USA and China. And as we can see especially China has had during that period the highest percentage of GDP growth on the level of 9.47% annually and the lowest but still positive growth of 2.27 % annually what is almost as high as the highest growth in the EU.

As for the second of the selected macroeconomic indicators (WB, 2021) i.e. employment or more precisely unemployment we may see the similar trend as in the case of the GDP i.e. that the EU has been suffering from the highest unemployment in comparison with its main global competitors and being them again the USA and China. The situation in the unemployment between 2010 and 2020 in per cent has been as follows between the lowest and highest ones:

EU 9.80 and 7.50

USA 9.63 and 3.68

CHI 4.10 and 3.80

From these figures it is again evident that the EU was in comparison with its main global competitors the USA and China the most negatively effected one regarding the percentage of unemployed people regarding the highest unemployment rate as well as in the final year 2020.

As far as the third selected macroeconomic indicator i.e. price stability or inflation is concerned it is very important indicator especially in the conditions of the EU as in addition to its main function to express the inflation itself it is at the same time also one of the key indicators for the eligibility of a country to enter into the Eurozone and thus be authorized to use Euro currency instead of its national currency. As for this indicator we see the following results in comparison again with its main competitors i.e. the USA and China and again for years 2010 and 2020 between the lowest and the highest ones during this period:

EU 0.10 and 3.10

USA 1.69 and 3.16

CHI 5.40 and 5.40

From these figures it is seen and evident that thanks to the fact, that inflation has been one of the key indicators for country become eligible for joining the Eurozone in this indicator is the EU more successful than its main competitors on the global scale. However, we have to state there has been existing some unwanted and contradictory paradox regarding this indicator. Although in case of the country applying for joining the Eurozone it is necessary to meet very precisely and strictly defined level of inflation that is calculated as the result of the best three countries in Eurozone plus 50%. However, in general in the EU nowadays there has been for some time a trend just completly contradictory to this Eurozone criterion and that being oriented towards an increase in the rate of inflation to such a level that it would support the macroeconomic growth in the EU. In practice this so called quantitative easing means nothing else than simply printing money and thus increasing inflation and through such cheaper and easier obtainable money support all various business activities in the whole EU and finally achieve more robust economic growth, creation of new jobs and thus reduce unemployment and achieve more effective functioning of the EU overall economic system. But right now we see the consequences of the whole quantitative easing as thanks to that now we are witnessing a record high inflation increase not only in the Eurozone but in the entire EU. However, of course that has nothing to do with anything like another global economic crisis but it is just simply the direct consequence of the above EU contradictory policy to its own Maastricht criteria on required low inflation. It is mainly result of the quantitative easing otherwise in the plain language just simple printing money.

But as many experts argue the main problem of the slow growth in the EU and not so efficient overall economic performance is not the problem of not enough money but first of all it is the problem of the overregulation in the internal market of the EU. Hence, this overregulation is caused especially by too many various EU directives, regulations, decisions, norms and standards, etc. All of them are the main reasons for insufficient and slow growth in the entire EU and the same also especially for the countries in Eurozone.

3.3 The ability to take on the obligations of membership including adherence to the aims of political, economic & monetary union

As it is quite clear from this third Copenhagen criterion, every new but as we have stated above also from all EU OMS it is expected and required that all of them will be able to become EU member states that are able to be an active participant in all three fundamental pillars of the EU regarding its political. economic and monetary union. However, in practice

we see that even the OMS and in particular also the founding six countries of the European integration in 1950s have quite serious problems to achieve and meet this third criterion.

As far as the political union is concerned the main problem is that the members of the EU have many differences regarding their history and overall political system. As we have already stated above there are still member states with the political system based on the absolute monarchies. In addition to that, there are traditional neutral countries that are for example not members of the main security system in Europe i.e. the NATO as e.g. Finland, Austria, Ireland, Malta or Cyprus. There is another group of states among the NMS i.e. the former socialist countries that even now after being already regular EU member states are still in some kind of transition from their original command economies to the modern market economies. In this case we have again to state that it is very difficult for them to become functioning market economies when, as we have stated in the previous part of this paper, even the OMS with long years tradition of market economies are not able to meet the second criterion on the functioning market economies. Hence, thus they are not able to create altogether anything like the unified political union and subsequently also the efficient economic union as many necessary preconditions have not yet been created for such an unified political and economic union.as we have documented it in the above categorization of EU member states with their very different political and economic history and overall development. These differences have been also the reason that already two basic Treaties viz. Maastricht (EU, 1992) and Nice Treaties (EU, 2000) has failed to be enacted in full or at all.

In case of the Maastricht Treaty, the EU was there defined as a construction standing on three pillars:

- CFSP – Common Foreign and Security Policy
- Internal market
- Justice and Home Affairs

But due to the above differences in the political background and history, the CFSP has not been possible to establish as an operative functioning pillar so finally had to be amended and renamed by the Lisbon Treaty (UN, 1945) to the EEAS – European External Action Service so something less explicit and more service only oriented than a kind of common policy. And as for the third pillar it has been also a quite similar that for example the EU has as yet not been able to establish an efficient common asylum policy as the existing one i.e. being based on the principle that the asylum procedures have to be carried out in the country where the asylum seekers for the first time entered to the EU territory has completely failed as neither Greece nor Italy are able to handle that agenda for all illegal migrants who are arriving to the EU in particular through those two countries.

The very similar problem in the area of achieving a closer political and economic union we can see in the case of the so called Nice (not nice as pretty, but according to the French city) Treaty that was supposed to bring the EU closer to a kind of more unified EU in the form of a kind of confederation. But when its ratification failed in referendums in France and the Netherlands the entire further process of ratification has been stopped and the Nice Treaty was stopped and later replaced by preparing a less federalized Lisbon Treaty (EU, 2007). But again there was a ratification process problem. While in all EU member states it was already not required to be ratified by a referendum but it was enough to ratify it by a national parliaments only. However, the only exception has been only Ireland. There according to their Constitution it was still needed to be also the Lisbon Treaty to be approved in the national referendum. And in this case the Lisbon Treaty was rejected in the Irish referendum. But in difference to the example of the Nice Treaty in this case the EU institutions insisted that the treaty cannot be abolished like the Nice Treaty but that people of Ireland need to approve it in an other referendum or the country cannot remain to be a member state of the EU. So finally after a massive propaganda campaign in the second referendum the Irish people have finally

approved the Lisbon Treaty and thus everything was as needed. Hence, we see that if France and the Netherland as founding members of the European integration do not approve a Treaty it is not the same like when it is not approved by a tiny Ireland. Of course it would be unfair to speak in this case about something like „double standards“ as in the EU we are all equal but some are only a bit more equal especially in case of France that still considers itself as the mother of the European integration.

These problems and many others we may see also in various practical political decisions to be made in the EU where in many decisions is needed to achieve such a decision unilaterally by consensus of all EU now 27 member states. As practical examples we could mention e.g. recognition of Kosovo that until now has not been recognized by all EU member state and thus also by the Union as a whole. The other such very sensitive discontent is the policy of the EU towards the illegal migrants, situation in Libya, Syria, Iraq, Afganistan, etc. Some member states have actively participated in this actions of the EU but many of them have been either in direct opposition or they remain neutral and have not participated in any such actions and activities.

One of the most different political approaches in the EU is the policy towards those illegal migration that to some extent is a clear violation of the EU policy on the protection of the external Schengen border of the EU especially its part at the Mediterranean sea. In principle it is clear violation of another of the basic Amsterdam Treaty of the EU (EU, 2007) of which the so called Schengen system of protection of external border of the EU is in the form of a protocol something like as a part of the EU Constitutional obligation of all member states of the EU. Especially, it is the case of those countries that are already participating in this Schengen system of protection of external borders of the EU that has been an integral part of the Amsterdam Treaty with very specific and strict rules and obligations regarding possibilities to enter to the EU. Hence, in view of this, any violation of this Schengen system is violation of the so-called unofficial Constitution of the EU. Moreover, there exist the UN Convention on the fight against international organized crime (UN, 2000) among which belong also the fight against smuggling of people what is now also a case of smuggling illegal immigrants by boats to the EU by smugglers gangs especially from Turkey and Libya. But in spite of these acts of international laws, there are not taken practically any measures against those smugglers although that UN Convention clearly states that in fight against organized international crime it is necessary to confiscate the tools of the smuggling i.e. in this case e.g. boats or trucks and the smugglers have to be put to jali. However, in the EU nothing like that is applied and there are stories about smugglers from Turkey who are able to make even 5-6 voyages from Turkey to the nearest Greek islands and always with the full load of illegal immigrants. Some NGOs are arguing that to be OK as the International humanitarian laws require to extend help to all those suffering or being in danger at seas. But no humanitarian international law requires to bring the saved people to their destination especially in the case if they need so called help immediately after leaving for example the shores of Libya. It is often a case that illegal migrants in such cases by their latest mobile phones call for help and very often Frontex patrol boats instead of protecting external EU borders against any illegal entry to the territory of the EU are bringing those illegal migrants to the EU. And in order to illustrate any such paradox in respect to the own legislation, the EU is still rejecting the applications e.g. of Romania, Bulgaria or Croatia to become the members of the Schengen system of protection of eternal borders of the EU while all the several millions of illegal migrants are illegally entering to the EU not through them but through Schengen member states especially Greece, Italy and Spain through its Canary islands or their enclaves in Melilla and Ceuta in Northern Africa.

These are just another good examples that in the EU the respect for laws even those of their own system of :”aquis cmmunautaire” is not always the reality and such examples we could give many more like about the Maastricht criteria for Euro or so called CAP – Common

Agriculture Policy, etc. but the limit of this paper do not allows us to continue in more such violations of its own EU legislation by not only EU member states but also the EU institutions themselves.

4. CONCLUSION

If at to the end of this paper we return back to the statement made by the Vice-President V. Jourova about the problems that the EU NMS from the CEEC would have to become the EU members now, we could only state that the same would have also OMS either to become or to remain member states of the EU. If we are closing our dispute about the Future of Europe as outlined for the general discussion by the people of the EU then first of all it is needed to demonstrate from all EU institutions their adherence to its own legislation as we have demonstrated that in the previous parts of this paper and especially to its so to say Constitutional duties as being enshrined in its own basic treaties especially those latest ones like Maastricht, Amsterdam and Lisbon Treaties and as an integral part of them also the Protocols on Maastricht criteria for Euro, Schengen for protection of the EU external borders as otherwise there could be a real danger that after Brexit there could be also Italexit, Polexit, Hunexit, etc. As nowadays people have enough information on the real situation not only in their own countries but also in the EU and globally and politicians have to respect i tis full as otherwise their various declarations and policy decisions are out of touch with the existing reality. Therefore we welcome this EU initiative to launch the debate on the Future of EU and this our paper is just our personal small contribution to that debate nothing more or less. It is up to the authorities

REFERENCES

[1] EU. (1992). Treaty on European Union (TEU). Maastricht Treaty. [online]. [cit.2021-9-17]. Available at: https://www.europarl.europa.eu/.../the-parliament-and-the-treaties/maastricht-treaty

[2] EU. (1993). Copenhagen Criteria established by the European Council in Copenhagen in June 1993. [online]. [cit.2021-9-17]. Available at: https://legal-dictionary.thefreedictionary.com/Copenhagen+criteria">Copenhagen criteria

[3] EU. (2000). Treaty of Nice. [online]. [cit.2021-9-17]. Available at: https://www.europarl.europa.eu/.../the-parliament-and-the-treaties/treaty-of-nice

[4] EU. (2007). The Treaty on European Union, Lisbon Treaty. [online]. [cit.2021-9-17]. Available at: https://www.europarl.europa.eu/ftu/pdf/en/FTU_1.1.5.pdf · PDF file

[5] EU. (2007). The Treaty on European Union, Amsterdam Treaty. [online]. [cit.2021-9-17]. Available at: https://europa.eu/.../body/treaty_of_amsterdam_en.pdf · PDF file

[6] Jourova, V. (2021). Accession to the EU by the new candidate countries (in Slovak), SME Daily 2021

[7] UN. (1945). The United Nations Charter. [online]. [cit.2021-9-17]. Available at: https://www.un.org/en/about-us/un-charter

[8] UN. (2000). United Nations Convention against Transnational Organized Crime, adopted by General Assembly resolution 55/25 of 15 November 2000. [online]. [cit.2021-9-17]. Available at: https://www.unodc.org/unodc/en/organized-crime/intro/UNTOC.html

[9] WB. (2021). World Bank Open Data. [online]. [cit.2021-9-17]. Available at: https://data.worldbank.org

MANAŽMENT KOMUNIKÁCIE ĽUDSKÝCH ZDROJOV V ŠTÁTNEJ PRÁVE

MANAGEMENT OF HUMAN RESOURCES COMMUNICATION IN STATE ADMINISTRATION

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Abstrakt*: Hlavným cieľom príspevku je zameranie sa na budovanie pozitívneho vzťahu Policajného zboru s verejnosťou formou komunikačného oddelenia ako novej koncepcie dopravnej polície. Analyzuje vzťah osôb v krízových situáciách z pohľadu dôvery v Policajný zbor na jednej strane a na druhej zlepšenie vyšetrovania a jeho transparentnosti vo vzťahu k policajtom v priamom výkone služby a prínos vo vzťahu k budovaniu pozitívneho vnímania polície prostredníctvom marketingu.. Metodológia príspevku sa zaoberá popisom realizácie vlastného kvantitatívneho prieskumu, ktorý v druhej časti vychádza z objektívnych faktov a dát zozbieraných v časovom slede jedného roka. Význam príspevku je v nadväznosti na výsledky skúmania, kde autori predkladajú vlastné návrhy opatrení a odporúčaní, a to osobitne vo vzťahu k strategickej úrovni riadenia ľudských* zdrojov.

Kľúčové slová: *komunikácia, ľudské zdroje, Policajný zbor*

Abstract*: The main goal of the paper is to focus on building a positive relationship between the Police Force and the public in the form of a communication department as a new concept of the traffic police. It analyzes the relationship of people in crisis situations in terms of trust in the Police Force on the one hand and on the other the improvement of investigations and its transparency in relation to police officers in direct service and contribution to building a positive perception of the police through marketing. own quantitative survey, which in the second part is based on objective facts and data collected in a time sequence of one year. The significance of the paper is in connection with the results of the research, where the authors submit their own proposals for measures and recommendations, especially in relation to the strategic level of human resource management*

Key words: *communication, human resources, Police Force*

JEL Classification: *M12, H83, J45*

1. ÚVOD DO PROBLEMATIKY KOMUNIKÁCIE POLICAJNÉHO ZBORU S VEREJNOSŤOU

V deväťdesiatych rokoch dvadsiateho storočia Policajný zbor začal s informatizáciou Policajného zboru. Dlhodobo však Policajný zbor ako celok pociťuje nižšiu dôveryhodnosť v očiach verejnosti, čo bolo aj hlavnou príčinou výberu témy. Príčiny sú viaceré, medzi ktoré patrí aj napriek informatizácii zastaraný informačný systém. Občania Slovenskej republiky môžu nahlasovať rôzne udalosti, pri ktorých majú pocit, že došlo k porušeniu zákona alebo došlo ku krízovej udalosti v zásade cez príslušné operačné strediská situované na krajských riaditeľstvách.

Pod zložitosť systému policajného zboru na úseku vyšetrovania ako aj dôveryhodnosti v transparentnosť sa podpísali aj negatívne skúsenosti z predchádzajúcich obdobiach, pri ktorých sa štatistiky zlyhania zo strany polície nevedú. Sprísňovanie podmienok pre

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motoristov a pravidiel a súvisiace s bezpečnosťou cestnej premávky majú často len dočasný alebo čiastočný efekt. Jednoduché až elementárne incidenty pri dopravných nehodách postupne nahradili sofistikovanejšie a prepracovanejšie schémy pochybení na strane polície ale aj zo strany motoristov, ktoré sú čoraz náročnejšie na odhaľovanie a dokazovanie. Neraz sa však stáva že včasná komunikácia policajného zboru pri nahlásení dopravnej nehody by významne zvýšila dôveryhodnosť policajného zboru.

S ohľadom na vyššie uvedené skutočnosti nie je jednoduché nájsť rovnováhu medzi systémom implementácie marketingovej komunikácie, ktorý bude jednoduchý pre občanov ako aj policajtov a systémom riadenia a kontroly, ktorý bude dostatočne flexibilný a dôveryhodný. V tejto súvislosti by mala byť dôležitá správna a odborná komunikácia policajného zboru s verejnosťou ako aj s policajtmi zasahujúcich na mieste dopravnej nehody.

1.1 Teoretické východiská verejnej správy

V posledných dvoch desaťročiach sa pozornosť čoraz viac upiera na nutnosť zmien vo verejnej správe. Ako píšu Pomahač a Vydlaková (2002), problematika administratívnych reforiem sa neustále vyvíja a je nutné brať ohľad na to, že je ovplyvnená aj politickými záujmami. Administratívna reforma sa zameriava na administratívne stránky verejnej správy a na to, ako čo najlepšie vykonať politické rozhodnutie (Marišová a kol., 2013; Mura & Machyniak, 2014). Hoci sú nedostatky vo verejnej správe často pripisované na konto správnym úradníkom, hlavným vinníkom sú politické rozhodnutia, ktoré reforma môže zlepšiť. Je teda nutné, aby reformy verejnej správy išli ruka v ruke s reformami politickými.

Zlé fungovanie verejnej správy a jej neefektívnosť sú aktuálnymi témami, ktorými sa spoločnosť zaoberá už niekoľko rokov. Súčasný neudržateľný systém volá po reforme a upozorňuje na potrebu väčšieho zamerania sa na konanie vo verejnej správe. Literatúra, zaoberajúca sa zlepšením fungovania verejnej správy a na jej špecifiká v oblasti riadenia, sa označuje ako public manažment čiže riadenie vo verejnom sektore. Ako píšu Pomahač a Vydlaková (2002), riadenie vo verejnom záujme je charakterizované ako teoretická na prax zameraná disciplína, umenie a poňatie politiky reforiem. Väčšina literatúry zaoberajúcej sa touto tematikou polemizuje nad rozdielnosťou riadenie vo verejnom záujme a verejnej správy. Riadenie vo verejnom záujme sa zvyčajne charakterizuje ako spôsob riadenia organizácie tak, aby pod vedením manažéra čo najlepšie využila zdroje, ktoré má k dispozícii. Verejná správa sa potom predstavuje ako súčasť systému manažérstva, plniaci úlohy zadané od manažérov. Tiež ekonomické tlaky na redukciu verejných rozpočtov, kríza ekonomických štruktúr a internacionalizácie verejných záležitostí, sa stali ústrednými motívmi pre reformu verejnej správy.

Článok musí byť úplne originálny, nikdy predtým publikovaný a nesmie byť súčasne zvažovaný alebo naplánovaný na publikáciu inde. Stretávame sa s viacerými aspektami nazerania na význam verejnej správy hlavne z pohľadu práva, ekonomiky, riadenia, ale aj s aspektom spoločensko-politickým a sociálnym.

Ich súhrn vytvára určitý postačujúci základ na porovnanie a prerastanie objektov verejnej správy a hospodárskej politiky (Balejová, 2021). Verejná správa je odvodená z výkonu funkcií štátnych a samosprávnych orgánov, ktorými sa zabezpečujú rozhodnutia zákonodarných zborov, súdnej a výkonnej moci v rôznej štruktúre a na mnohých stupňoch. Asi najjednoduchšou definíciou je tá, ktorá popisuje verejnú správu ako správu, ktorej cieľom je správa vecí verejných a jej vykonávanie je vo verejnom záujme (Bogumil, Kuhlmann, 2004).

Vzhľadom na vyššie uvedené je možné verejnú správu definovať aj širšie a možno zložitejšie, ako „rozhodovaciu činnosť vykonávanú na to zmocnenými orgánmi na základe zákona, v rozsahu prikázanej pôsobnosti a právomoci a zameranú na zabezpečenie správy verejných

vecí“, alebo verejná správa ako správa verejných záležitostí je správou vo verejnom záujme a subjekty, ktoré ju vykonávajú, ju realizujú ako právom uloženú povinnosť, a to z titulu svojho postavenia ako verejnoprávnych subjektov (Hamalová, 2007).

1.2 Digitálna komunikácia vo verejnej správe

Vo verejnej správe ako aj v úsilí verejnej inštitúcie vo veci budovania pozitívneho vzťahu s verejnosťou je mimoriadne potrebná komunikácia.

„*Všeobecne je to výmena informácii medzi ľuďmi, ktorí si chcú niečo oznámiť, niečo sprostredkovať, s niečím sa podeliť. Môžu to urobiť rôznymi spôsobmi: slovom, písmom, obrazom, gestikulovaním, kývnutím hlavy, pohybom tela i mlčaním. Tieto poznatky z komunikácie sa využívajú aj v oblasti marketingu, s tým rozdielom, že pri ich uplatňovaní sa zámer komunikácie podriaďuje firemnej stratégii*“ (Hamalová, 2007).

Komunikácia je jednou zo zložiek marketingového mixu (Svec & Mura, 2020). Marketingový mix je súbor taktických marketingových nástrojov, ktoré firma používa k úprave ponuky podľa cieľových trhov. Marketingový mix zahrňuje všetko, čo firma môže urobiť, aby ovplyvnila dopyt po svojom produkte. „*Možné spôsoby sa delia do štyroch skupín premenných, známych ako 4P*:

- *produktová politika (product),*
- *cenová politika (price),*
- *komunikačná politika (promotion),*
- *distribučná politika (place).*

Spoločnosť vo všeobecnosti prechádza na digitálne formy komunikácie s verejnou správou. Z toho hľadiska je potrebné si zadefinovať vytváranie si pozitívnych väzieb prostredníctvom online sveta medzi verejnosťou a verejnou správou. Z uvedeného vyplýva nasledovná digitálna marketingová komunikácia“(Bednárik, 2011).

Digitálna marketingová komunikácia je súčasťou ďalších oblastí digitálneho marketingu, ktoré sú niekedy vnímané ako totožné. Medzi týmito pojmami však existujú značné rozdiely, ktoré sú zadefinované nasledovné:

- „*Internetový marketing je súbor marketingových nástrojov a techník, ktorý využíva celú škálu služieb a nástrojov, ktoré sú dostupné na internete a využívané prostredníctvom zariadení pripojených k internetovej sieti* (Kotler, 2013).

- *Mobilný marketing je súbor nástrojov a techník, ktorý využívajú mobilné technológie a zariadenia, ktoré sú jednoducho prenositeľné a používateľ ich nosí stále pri sebe. Väčšina aplikácií mobilného telefónu využíva internet a existuje prekrytie medzi týmito skupinami, avšak existujú aj mnohé technológie a nástroje ktoré internet nepotrebujú a to SMS/MMS marketing, Bluetooth geolokalizácia cez GPS alebo natívne mobilné aplikácie*.“ (Kita, 2017).

Investovanie do vzťahov s verejnosťou pomôže organizácii dosiahnuť svoj cieľ efektívne a hladko. Vzťah s verejnosťou nevytvára „dobrý obraz pre zlý tím“. Keďže falošný obraz nie je možné udržať dlho. Aj keď organizácia produkt alebo služby sú dobré, na čo potrebuje účinnú kampaň s verejnosťou priťahovanie, motivovanie verejnosti k produktu alebo službe alebo k účelu programu. Nielenže to podporuje zapojenie verejnosti, ale tiež vedie k lepšiemu obrazu.

Efektívne vzťahy s verejnosťou môžu vytvoriť a vybudovať imidž jednotlivca alebo subjektu organizácie. V čase nepriaznivej publicity alebo keď je organizácia v kríze, efektívne vzťahy s verejnosťou môžu odstrániť „nedorozumenie“ a vytvoriť vzájomné porozumenie medzi organizáciou a verejnosťou (Slavík, 2014).

Vzťah s verejnosťou je sústavné premyslené pôsobenie na diferencovanú verejnosť s cieľom

vytvárať priaznivý obraz a pozitívne vzťahy. „*PR majú tri hlavné funkcie:*

1. *informovať ľudí*
2. *presviedčať ich*
3. *zlepšovať vzájomné vzťahy*“ (Slavík, 2014).

2. CIEĽ A METODOLÓGIA

Hlavným cieľom príspevku je na základe uskutočnenej analýzy a výskumu súčasného informačného systému Policajného zboru pozostávajúceho aj operačného strediska, navrhnúť efektívny systém komunikácie vytvárajúcej hlavnú podporu pri dopravných nehodách. Finálnym marketingovým efektom hlavného cieľa je prostredníctvom navrhnutého zlepšenia budovať pozitívny imidž polície na Slovensku.

Analýzou súčasných informačných systémov v Policajnom zbore ako aj súčasný stav riešenia dopravných nehôd je základom výskumu nezávislého overovania a hodnotenia. Preskúmaním jeho významu vidíme aj prínos z hľadiska nastavenia systému riadenia, kontroly a vykonávania procesov, operácií ako aj ostatných činností pri zásahoch na úseku dopravných udalostí. Týmto spôsobom sa budeme snažiť budovať dôveru obyvateľstva v očiach verejnosti na tomto úseku. Prácou navrhneme a odporučíme opatrenia, ktoré zvýšia efektívnosť pri komunikácii s účastníkmi dopravných nehôd na jednej strane ako aj zasahujúcich policajtov v teréne pri dopravných nehodách. Naše riešenia budú vplývať na zefektívnenie a zjednodušenie komunikácie pri dopravných nehodách a znížia chybovosť pri ich vyšetrovaní.

Hlavný cieľ príspevku bude dosiahnuté prostredníctvom hĺbkovej analýzy súčasného stavu fungovania policajného zboru a jeho zberu dát, preskúmaním teoreticko právnych a metodických východísk, ako aj prostredníctvom vlastného prieskumu založeného na kvantitatívnych a kvalitatívnych metódach analýzy výsledkov prieskumov vo vzťahu k reprezentatívnej a objektívnej vzorke civilného obyvateľstva ako aj príslušníkov policajného zboru a ich vnímania spracovania a zásahu polície na úseku dopravnej nehodovosti. Z dôvodu úspory príspevku vyberame iba niektoré.

Počas spracovania skúmanej problematiky bola použitá metóda abstrakcie, bez ktorej by sme prácu vzhľadom k značne širokému záberu mohli považovať za chaotickú a taktiež by v neposlednom rade mohla pôsobiť neprehľadne. V príspevku bola zvolená metóda logickej analýzy pre úspešné spracovanie a dosiahnutie cieľov. Pri nej sme vychádzali z predpokladu, že v nami analyzovanom celku je určitý systém, poriadok ako aj zákonitosť. Pri vedeckých metódach poznania bola tiež aplikovaná analytická metóda na analýzu *poznania* potrieb a želaní zákazníka v našom prípade potrieb účastníkov dopravných nehôd ako aj zasahujúcich policajtov.

3. VÝSLEDKY A DISKUSIA

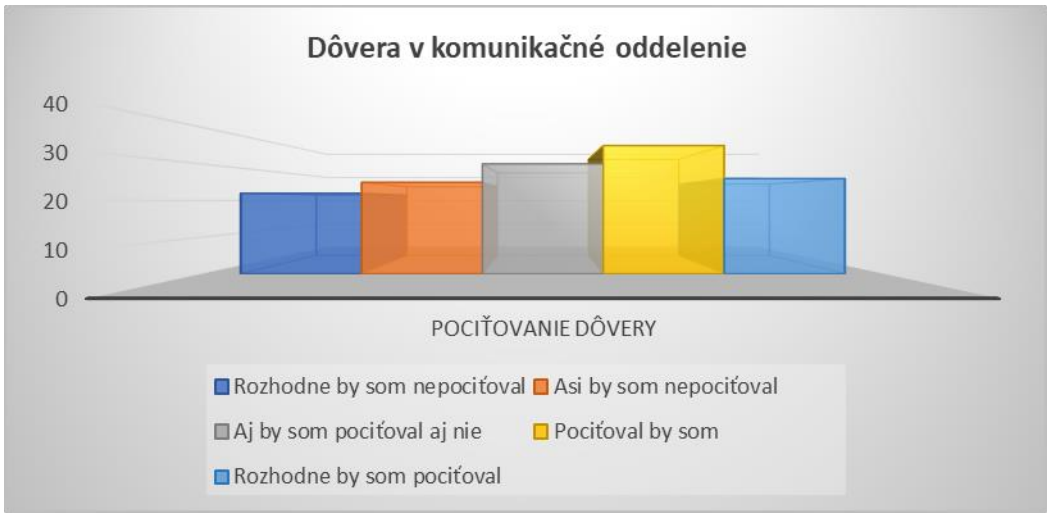
V prvej fáze prieskumu sme sa zamerali na to, do akej miery dopravné nehody ako aj situácie s nimi súvisiace subjektívne vnímajú respondenti prieskumu. Pri realizácii vlastného kvantitatívneho prieskumu sme sa rozhodli využiť dopytovaciu metódu a ako nástroj zberu vstupných dát sme zvolili dotazník.

Z hľadiska charakteru ide o štandardizovaný štruktúrovaný dotazník, obsahujúci spolu 22 otázok, spravidla uzatvorených otázok s dôvodom jasnej línie zodpovedania odpovedí. Z toho prvé 4 všeobecné otázky sú pre lepší prehľad orientované na identifikáciu respondentov. Ďalej sa už dotazník delí na 2 hlavné časti. Prvú časť dotazníka vypĺňa len účastník nehody (9 otázok) a druhú časť vypĺňa len príslušník policajného zboru (taktiež 9 otázok).

Prieskum sa vykonal v období 1.1.2019 do 31.12.2019 v tomto prípade išlo o prieskum realizovaný formou dotazníkov, kde boli distribuované na Okresnom riaditeľstve Policajného zboru v meste Nové Zámky. Dotazník bol rozdaný osobne Starším referentom oddelenia dopravných nehôd ktorým bolo vysvetlené o aký typ prieskumu sa jedná a za akým účelom. Cieľom tejto formy zberu dát bola možnosť vyplnenia dotazníka policajtom ako aj účastníkom dopravnej nehody. Pohľad na našu problematiku prostredníctvom zmiešaných osôb je dôležitý ako civilné osoby vnímajú udalosti, a ako udalosti doprave vnímajú profesionáli a to príslušníci polície.

Z prieskumu vyberáme nasledovné otázky 13 a 11.

Graf 1. Pohľad dôvery k nášmu cieľu DKO „*Pociťovali by ste dôveru ku komunikačnému oddeleniu ako k celku*?“



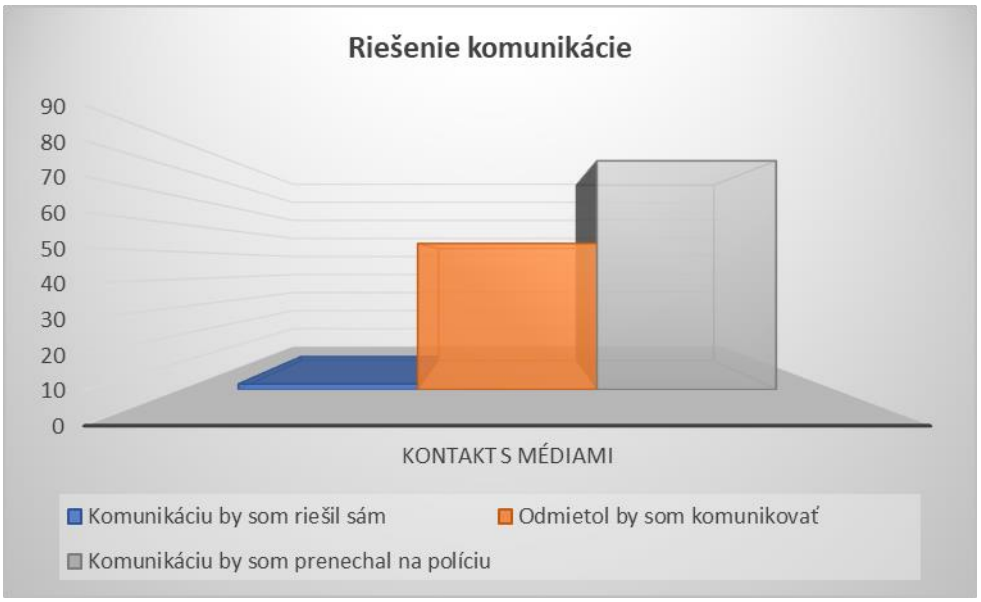
Zdroj: vlastné vypracovanie autorov

Nasledovný graf č. 1 môže pôsobiť subjektívnym dojmom, ako je pociťovanie dôvery. Je to príklad ako verejnosť celkovo môže vnímať formu pomoci zo strany policajného zboru. Budovanie dôvery je dlhodobým procesom, ktorý má za cieľ nadväzovať pozitívny vzťah s osobami. V našom prípade sa jedná o celú zložku obyvateľstva, kde každá jedna osoba mohla mať potrebu aspoň raz využiť služby policajného zboru. Dotazník bol rozdelený do jednotlivých stupňov, ktoré poukazujú na pocit dôvery osôb. Daným dopytovaním sme sa snažili zacieliť ako celkovo vnímajú osoby PZ u. Bez určitej dôvery obyvateľstva je náročné vytváranie potenciálne riešenia. Z uvedeného vyplýva, že daný graf odzrkadľuje multidiagonálne zobrazenie rôznych variácií umocnené o subjektívny pocit osôb ktoré by v budúcnosti mohli využiť ich služby zamýšľaného DKO.

Rozdelenie grafu na 5 úrovní umožňuje vyjadriť presnejšie pocity, ktoré je možné zaradiť medzi pozitívne hodnotenie a negatívne vnímame. V našej práci najpodstatnejšou zložkou je nami skúmaná problematika využitia dopravného komunikačného oddelenia jednajúceho v kolúzii s a to s policajnou zložkou. Z grafu je vidieť ako najpozitívnejšiu odozvu fialový stĺpec kde 35 respondentov (25,36%) by „pociťovali dôveru“. Na druhej priečke 30 respondentov (21,74%) sa ocitol zelený stĺpec vyjadrujúci čiastočne pozitívny aj negatívny postoj, čiže nerozhodnosť.

„Rozhodne by som dôveru pociťoval/a“ v azúrovo modrom stĺpci 26 respondenti (18,84%). Asi by dôveru pociťovali 25 respondenti 18,12% a „Rozhodne by nepociťovali“ v 22 prípadoch (15,94%).

Graf 2. Riešenie komunikácie *„V prípade dopravnej nehody a Vašej účasti v nej ako by ste riešili prípadnú následnú komunikáciu s médiami?“*



Zdroj: vlastné vypracovanie autorov

V grafe č. 2 je vidieť nezáujem respondentov o samostatnú komunikáciu s prípadnými médiami ktorú by akceptovali 2 osoby čo je 1,45%. Následne by kontakt s médiami odmietlo 53 respondentov čo tvorí 38,41%. Komunikáciu by prenechalo na PZ83 respondentov čo tvorí 60,14%.

4. ZÁVER

V našej práci sme prišli k záverom, že respondenti pri krízovej situácii v doprave vnímajú potrebu komunikácie intenzívne. Ich pohnútky sú rôznorodé - odlišné. V prípade policajta je prvoradý profesionálny postup, správne zdokumentovanie a neopomenutie stôp či ďalších okolností. U účastníka nehody prevládajú pocity úzkosti hlavne z nevedomosti ako postupovať v takejto udalosti. Obe skupiny osôb však vnímajú potrebu hoci aj vzdialenej pomoci napr. cez telefón veľmi intenzívne.

Zaznamenali sme, že respondenti očakávajú dostupnosť informácií, obzvlášť ak sa jedná o krízovú situáciu. Na mieste nehody je potrebné mať k dispozícií nepretržitý zdroj informácií s profesionálmi, ktorí vedia volaného upokojiť respektíve hneď mu poskytnúť vzdialenú podporu na správne jednanie.

Obe skupiny respondentov v dotazníkoch požadovali okamžitý prístup k profesionálnym informáciám a podporu špecializovanou formou podpory. Dané sa z legislatívneho rámca sa dá dosiahnuť práve dopravným komunikačným oddelením DKO. Celkovo z oboch skupín respondentov bolo v nadpolovičnej väčšine uvítaná možnosť online/telefonického zdroja odbornej pomoci.

Dodatok

Tento príspevok bol vytvorený v rámci projektu VEGA 1/0813/19 – „Riadenie rozvoja inovatívnych a začínajúcich foriem podnikania v medzinárodnom prostredí a overovanie koncepcie INMARK“.

LITERATÚRA

[1] Balejová, A. (2012). Dôvody a podmienky pre profesionalizovanie výkonu verejnej správy na Slovensku. In: *Kvalita samosprávneho manažmentu na miestnej úrovni, Zborník príspevkov*, Trenčín: Inštitút aplikovaného manažmentu.

[2] Bednárik, J. (2011). Krízová komunikácia ako súčasť marketingovej komunikácie podniku. *Marketing a obchod 2011: vplyv volatility a interdependencie v svetovom hospodárstve na marketing a obchod.* Zvolen: Bratia Sabovci.

[3] Bogumil, J. & Kuhlmann, S. (2004). Zehn Jahre kommunale Verwaltungsmodernisierung Ansätze einer Wirkungsanalyse. In: *StatusReport Verwaltungsreform - Eine Zwischenbilanz nach 10 Jahren*, Berlin: Edition sigma, p. 63.

[4] Eurostat (2017). Statistics [online]. [cit.2017-09-22]. K dispozícii na: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes.

[5] Hamalová, M. (2007*). Teória, riadenie a organizácia verejnej správy.* Bratislava: Merkury, p. 132.

[6] Hunger, J. D. & Wheelen, T. L. (2007). *Essential of Strategic Management.* New Jersey: Prentice Hall, p. 356.

[7] Kita, J. et al. (2017). *Marketing.* Bratislava: Wolters Kluver.

[8] Kotler, P. & Keller, K. L. (2013). *Marketing manažment.* Praha: Grada Publishing.

[9] Marišová, E., Malatinec T., Mariš M., & Schultzová, E. (2013). Public administration in Slovakia: shall the current reform solve. In: *Sovremennye problemy razvitija nacionaľnoj ekonomiki = Modern problems of national economic development : V International scientific-practical conference : sbornik statej k V meždunarodnoj naučno-praktičeskoj konferencii*, pp. 5-14.

[10] Mura, L. & Machyniak, J. (2014). Ethical aspects of public administration. *Hradec Economic Days 2014: Economic Development and Management of Regions, PT V*, pp. 59-65

[11] Slavík, J. (2014). *Marketing a strategické řízení ve veřejných službách*. Praha: Grada, p. 192

[12] Svec, M. & Mura, L. (2020). Impact of Covid-19 on innovation of internal communication and information sharing among employees. In: *Annual International Scientific Conference on Marketing Identity: COVID-2.0 Book Series: Marketing Identity*, pp. 592-600

[13] Vojtovič, S. & Krajňáková. E. (2014). Management approaches. In: *International Conference on Management*. Trenčín: TnUAD, pp. 465–475.

HOME OFFICE A JEHO ODKAZ NA ZMENY V SPÔSOBE VÝKONU PRÁCE DO BUDÚCNOSTI.

HOME OFFICE AND ITS REFERENCE TO CHANGES IN THE WAY YOU WORK IN THE FUTURE

František STRUNGA[137]

Abstrakt: *V príspevku sa venujeme forme vykonávania pracovnej činnosti z domáceho prostredia, resp. z prostredia, ktoré je bližšie k bydlisku zamestnanca, vykonávanú v úzkej skupine ľudí v závislosti od dostupnosti telekomunikačných služieb. Rozoberieme jej legislatívne vymedzenie a zanalyzujeme jej praktickú aplikáciu s perspektívou do budúcnosti. Načrtneme trendy v štruktúre pracovných miest uplatniteľných pre prácu na diaľku v rámci pracovného trhu. Zameriame sa na skĺbenie práce na diaľku s rodinným životom a prepojením na determinanty kvality života. Zhodnotíme zmeny v socializácii zamestnanca s vyústením do efektívnejšej tímovej spolupráce aktívnou účasťou zamestnávateľa pri využívaní nástroja internej sociálnej siete.*

Kľúčové slová: *trh práce, práca z domu, technologický pokrok*

Abstract: *In this paper we focus on home office work or work from a place that is closer to the employees´ place of living in a small group of people based on the broadband possibilities. We will analyze the legal part and the practical use in future. We will show the trends in the structure of job positions on the labour market which are applicable for home office work. We will concentrate to the joint of home office work and family life of employees and the influence on their life quality. We will assess the changes in social abilities of employees in connection with the effective team work by using the internal social network provided by the employer.*

Key words: *labour market, home office, technological progress*

JEL classification: *E24, J01, J88, O38*

1. ÚVOD

Príspevok sa zaoberá novou situáciou, ktorá nastala v ostatnom čase, hlavne v súvislosti s nástupom pandémie. Došlo k zmenám na trhu práce v súvislosti s miestom výkonu práce, nakoľko nebolo možné dodržať pôvodnú mobilitu stretávania sa ľudí naprieč rodinami a kolektívmi. Centrom záujmu sa stala vlastná domácnosť, kde vznikali bunky pozostávajúce z členov spoločnej domácnosti a zároveň táto domácnosť sa stala aj miestom výkonu práce, či vzdelávania - v prípade školopovinných detí.

Práca z domu sa počas pandémie stala novým štandardom fungovania v pracovnoprávnych vzťahoch a podľa odhadov zostane ako „dedičstvo pandémie“ v praxi už natrvalo. Keďže trend práce z domu možno označiť za celoeurópsky, až globálny a zamestnanci ako aj zamestnávatelia sa v mnohých prípadoch nachádzajú na území iných štátov, stúpa aj počet prípadov cezhraničnej práce z domu a tzv. virtuálnej pracovnej mobility. Novým trendom je nepochybne vznikajúca ponuka výlučne virtuálnych pracovných pozícií pre prácu z domu.

Home office je spôsob práce, ktorý nie je pre mnohých zamestnávateľov novinkou. Je využívaný najmä v niektorých profesných odvetviach (napr. právnici, účtovníci, architekti, programátori) alebo v špecifických skupinách zamestnancov (napr. matky s deťmi, handicapovaní zamestnanci). Využitie home office v jednotlivých krajinách v posledných

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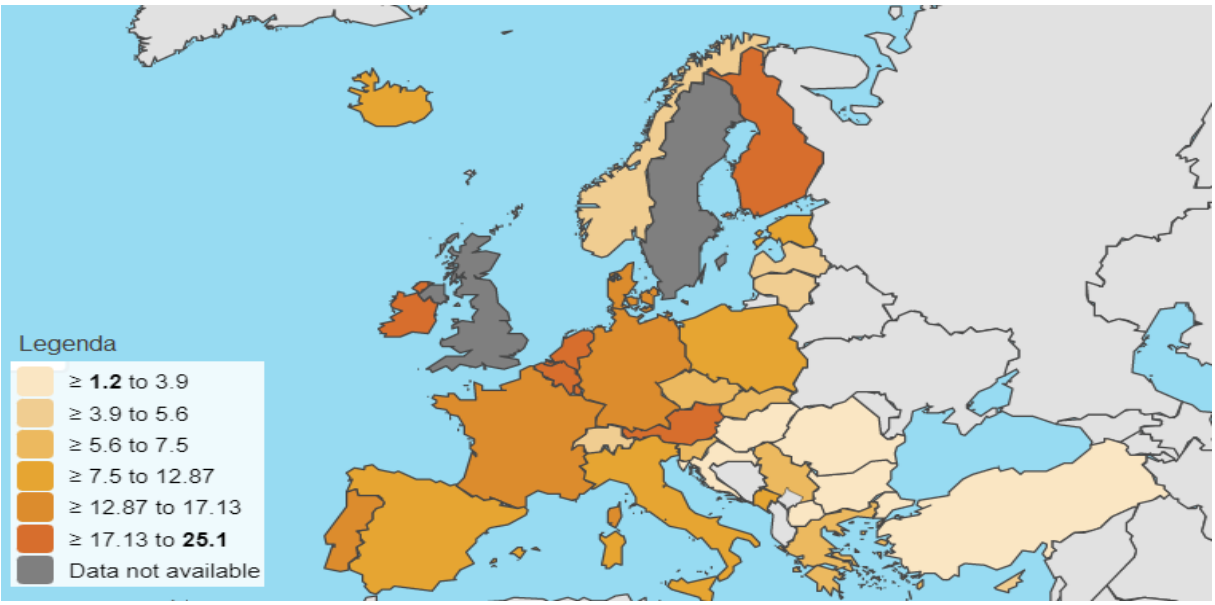
dvoch rokoch uvádza Eurostat. Home office vo veľkej miere závisí aj od samotnej povahy pracovnej náplne. Využívanie práce na diaľku pred pandémiou COVID-19 v európskych krajinách zobrazuje obrázok 1.

Obrázok 1. Využívanie práce na diaľku pred pandémiou COVID-19 v európskych krajinách v roku 2020



Zdroj: Eurostat, vlastné spracovanie

Nízku mieru využívania práce z domu môžu spôsobovať u zamestnancov rôzne dôvody, medzi ktoré zaraďujeme problémy spojené s rozvrhnutím pracovného dňa, prístupom ku podnikovému serveru, e-mailom, sťažená komunikácia s kolegami, obchodnými partnermi ako aj potrebou pokročilejšieho využívania technológií. (www.monitoringmsp.sk)

2. CIEĽ A METODOLÓGIA

Cieľom príspevku je rozanalyzovanie vykonávania pracovnej činnosti z domáceho prostredia, ktorá sa vo významnej miere rozšírila počas prebiehajúcej pandémie COVID-19 s vyústením jej perspektívy do budúcnosti. Parciálnym cieľom bude snaha o načrtnutie trendov v štruktúre pracovných miest uplatniteľných pre prácu na diaľku v rámci pracovného trhu. Budeme sa snažiť zhodnotiť zmeny v socializácii zamestnanca s vyústením do efektívnejšej tímovej spolupráce pri využívaní internej sociálnej siete. Údajová základňa bude čerpaná zo stránok Eurostatu, Ústredia práce, sociálnych vecí a rodiny, Štatistického úradu Slovenskej republiky, Ministerstva práce, sociálnych vecí a rodiny.

3. RIEŠENIE PROBLÉMU A DISKUSIA

Počas obdobia pandémie COVID-19 mnoho zamestnancov vykonávalo prácu alebo aj v súčasnosti vykonáva prácu v režime home office. Jeho právnu úpravu obsahuje náš aktuálne platný zákon č. 311/2001 Z. z. Zákonník práce (ďalej len ako „Zákonník práce"). V našom príspevku sa bližšie pozrieme na právnu úpravu pracovného režimu home office, ako aj na práva a povinnosti zamestnancov a zamestnávateľov s tým spojené. Jedná sa o dve novelizácie zákona č. 311/2001 Z. z.. V prvej sa prijali zmeny, ktorými sa upravuje práca z

domu. Donedávna práca z domu – tzv. home-office predstavovala jeden z najobľúbenejších zamestnaneckých benefitov. S tým súvisí aj jedno z opatrení, ktoré sa zavádza v záujme predchádzania šíreniu ochorenia COVID-19. Ide o právo zamestnávateľa nariadiť zamestnancovi prácu z domu za predpokladu, že práca vykonávaná zamestnancom to umožňuje. Rozvrhnutie pracovného času je zamestnávateľ v zmysle novely povinný oznámiť zamestnancovi najmenej dva dni vopred a s platnosťou najmenej na týždeň. Ponecháva sa však možnosť dohodnúť sa so zamestnancom podľa potreby na kratšej dobe. Novela Zákonníka práce rieši aj problematiku zatvorenia prevádzky zamestnávateľa z dôvodu rozhodnutia štátneho orgánu, resp. vyhlásenia núdzového stavu, znamená prekážku v práci na strane zamestnávateľa. V takomto prípade patrí zamestnancovi, ktorý nemôže vykonávať z týchto dôvodov prácu, náhrada mzdy v sume 80% jeho priemerného mesačného zárobku, najmenej však vo výške minimálnej mzdy.

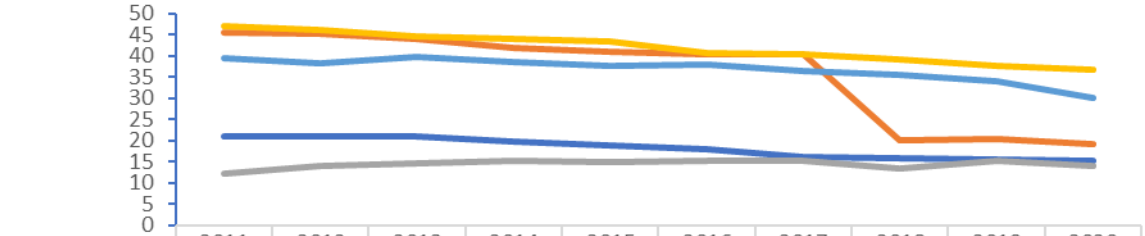
Druhá legislatívna zmena zákonníka práce sa venuje problematike tzv. Home office a konkrétne spresňuje pojmy pravidelnej a príležitostnej práce z domu, a to nasledovne:

1. Pravidelná práca z domu –zamestnanec vykonáva prácu výlučne z domu a tento spôsob si upravil so zamestnávateľom v pracovnej zmluve.
2. Príležitostná práca z domu –občasná práca z domu alebo za mimoriadnych okolností a je vykonávaná so súhlasom zamestnávateľa.

Ak požaduje zamestnanec využiť niektorý zo spôsobov, musí to povaha jeho práce umožňovať. Zároveň novela zavádza možnosť zamestnávateľa určiť rozvrh pracovného času, ktorý pred novelou bol výlučne v kompetencii zamestnanca. Novelou sa zavádza nové právo zamestnanca, jedná sa o „právo na odpojenie“, ktorého význam spočíva v tom, že zamestnanec nebude vykonávať mimo stanoveného pracovného času, okrem výnimiek. Medzi výnimky zaraďujeme prácu nadčas, pracovnú pohotovosť a počas prekážok v práci a dovolenky. Ak hovoríme o práci z domu, je potrebné zdôrazniť, že nemusí byť vykonávaná výlučne v domácnosti s trvalým pobytom. Výber tohto miesta je ponechaný na samotnom zamestnancovi, ale je nevyhnutné, aby spĺňalo základné pracovné podmienky (priestorové, technické a klimatické), aby nedošlo k zníženiu zdravotnej schopnosti zamestnanca. Jednou z príležitostí sú coworkingové centrá. Je potrebné upozorniť, že ak tento spôsob práce je vykonávaný zo zahraničia, má okrem právnych implikácií aj daňové aspekty. Táto problematika je relevantná napríklad pre slovenských zamestnancov žijúcich v rakúskom, českom a maďarskom pohraničí. (Cangárová, 2021)

Táto nová situácia donútila jednotlivcov sa zamyslieť nad prioritami a hľadaní riešení, ako dokázať svoje pracovné povinnosti vykonávať v čo najvyššej kvalite, čo znamenalo nájsť si vhodné miesto, určitý druh pracovne, kde bude pokoj a kľud na túto činnosť. Pracovňa štandardne nie je súčasťou slovenských domácností a preto požiadavka na takúto časť bytu zrejme zaskočila viacerých. Zamestnávateľ podporil svojich zamestnancov technickým vybavením, ale priestorové možnosti zostali na samotných pracovníkoch. Musíme však konštatovať, že priestorové a ergonomické požiadavky neboli dodržané, nakoľko preľudnenosť slovenských domácností jej jednoznačná. V roku 2018 žilo v preľudnených obydliach 17,1 % obyvateľov EÚ27. Z dát Eurostatu sme vytvorili selekciu krajín V4 a Rakúska a výsledky sú zaznamenané v grafe 1.

Graf 1. Miera preľudnenosti vo vybraných štátoch EÚ (v%)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Česko	21,1	21,1	21,0	19,9	18,7	17,9	16,0	15,7	15,4	15,2
Maďarsko	45,5	45,3	44,0	41,9	41,1	40,4	40,5	20,1	20,3	19,0
Rakúsko	12,3	13,9	14,7	15,3	15,0	15,2	15,1	13,5	15,1	14,1
Poľsko	47,2	46,3	44,8	44,2	43,4	40,7	40,5	39,2	37,6	36,9
Slovensko	39,5	38,4	39,8	38,6	37,8	37,9	36,4	35,5	34,1	30,1

Zdroj: Eurostat, vlastné spracovanie

Ako vyplýva z vyššie uvedeného grafu trend na Slovensku a v okolitých krajinách je klesajúci, ale len mierne. Slovensko od roku 2015 má len pozvoľné približovanie sa k priemeru EÚ krajín a to z 37,8% v roku 2015 na 34,1% v roku 2019. Problém, ktorý trápi Slovensko je nedostatočná ponuka bytov a s tým súvisiaca nízka vybavenosť obyvateľov bytmi. To má za následok, že v jednom byte býva väčší počet osôb, čo spôsobuje samotnú preľudnenosť. Výraznou mierou sa na tom podieľa aj fakt, že viac ako 50% obyvateľov SR vo veku 25-34 rokov býva stále so svojimi rodičmi. Zároveň výskumy uvádzajú, že čím viac ľudí žije v jednej domácnosti, tým vyššiu mieru stresu zažívajú (Slovenská akadémia vied (2021).

Tento stav je v krátkodobom horizonte pochopiteľný, ale vzhľadom k tomu, že epidemiologická situácia sa len veľmi pomaly zlepšuje, už môžeme hovoriť, že takto zamestnanci pracujú dlhodobo. Viac ako rok pretrvávajúca situácia nás núti zamyslieť sa, ako tento problém riešiť. Vznikajú tu dve strany pohľadu a to zamestnávateľa a zamestnanca. Zamestnávateľ okrem toho, že potrebuje plniť svoje poslanie, si nemôže dovoliť znížiť kvalitu, či dostupnosť svojich služieb. Na druhej strane sa mu zamestnanci takpovediac rozpŕchli a priestory nato určené sú prázdne. Doteraz zaužívané zvyky sa pozastavili a všetci musia reagovať na nové skutočnosti. Jeho snahou je správne manažovať jednotlivé tímy tak, aby efektivita práce neklesala, resp. nachádzať spôsoby ako zabezpečiť správnu komunikáciu, či informovanie o prebiehajúcich zmenách v spoločnosti. Toto je veľká výzva pre manažérov ako riadiť svoje tímy na diaľku. Podľa časopisu Forbes výskumy ukazujú, že manažéri nahradili dochádzanie do zamestnania ďalšou prácou. Ich pracovný deň sa predĺžil v priemere o 56 minút a čas strávený v spracovaní e-mailov o 13 minút denne. Tieto zmeny boli ešte výraznejšie u tých vedúcich pracovníkov, ktorí sú zamestnaní vo veľkých firmách a korporáciách. Na virtuálnych stretnutiach trávia denne o 22 minút viac a pri e-mailoch o 16 minút dlhšie. V porovnaní s predchádzajúcim obdobím, kedy v roku 2019 strávil priemerný Slovák 46 minút denne dochádzaním do práce. Pri 250 pracovných dňoch je to takmer 192 hodín, čo je asi 8 dní čistého času, ktoré sa mohli využiť produktívnejšie. Aktuálne z tohto výskumu vyplýva, že pracovným povinnostiam okrem samotného času dochádzania, ešte navyše venujeme asi 10 minút denne. Celkovo z domu pracujeme asi o 1 hodinu dlhšie. Tu bude zrejme priestor na zlepšenie vo forme tréningov, či školení, ako si správne rozvrhnúť čas a byť efektívnejší. Pre upresnenie ešte uvádzame údaje z výsledkov sčítania obyvateľov domov a bytov z roku 2001. Za prácou odchádzalo z miesta trvalého bydliska spolu 796 484 ekonomicky aktívnych obyvateľov. Z nich 47 542 pracovalo v zahraničí a 748 942 dochádzalo do zamestnania do inej obce na Slovensku, ako je miesto ich trvalého bydliska. Tento údaj predstavuje asi tretinu ekonomicky aktívnych obyvateľov a podľa našich

zistení a odhadov Wood & company sa jedná o číselne identickú množinu ľudí, ktorým práca umožňuje byť realizovaná na diaľku. Samozrejme štruktúra profesií je rozdielna a preto sa nedá povedať, že sa jedná o pracovníkov, ktorým to ušetrilo čas a uľahčilo dochádzanie.

Na to, aby sme vôbec takúto alternatívu mali, je dôležité spomenúť info-komunikačné služby či dostupnosť internetu. Tieto služby zabezpečuje jednotlivým domácnostiam provider (poskytovateľ) a to akú kvalitu či dostupnosť ponúka, závisí od nasadenej technológie, lokality domácnosti a investovanej ceny zákazníka. Významnou mierou sa podieľa na efektivite práce a možnostiach jednotlivých nástrojov pri jej výkone. Na druhej strane to výraznou mierou zrýchlilo digitalizáciu, čo je vítané, ale zvýšilo závislosť od telekomunikačných služieb.

Aká je situácia s dostupnosťou internetu je aj fakt, že telekomunikační operátori podpísali na úrade vlády SR záväzok, že zavedú širokopásmový internet do všetkých miest a obcí, kde doteraz nie je. Lokality, ktoré nemali plán pokrytia broadbandom, boli nazvané ako „biele miesta Slovenska“ (obrázok 2). Sú to typicky malé obce v odľahlých oblastiach. Nič lukratívne pre investorov, napriek tomu túto výzvu prijali a dohodli sa prijať tento záväzok a zrealizovať ho vo verejnom záujme na vlastné náklady ako investíciu do svojej infraštruktúry.

Obrázok 2. Lokality bez pokrytia broadbandom

Zdroj: www.hnonline.sk

Práca na diaľku a kvalitné telekomunikačné služby poskytujú aj coworkingové centrá, ktoré začínajú mať zaujímavé postavenie, nakoľko môžu ponúknuť pomerne významné riešenie. Máme na mysli situáciu, kedy domáce prostredie značne limituje vykonávanie práce v požadovanej kvalite a zároveň mobilita neumožňuje presuny do priestorov zamestnávateľa. Coworkingové centrá pôvodne slúžili k inému účelu, ale v tomto prípade môžu slúžiť ako kancelárie pre jednotlivcov, čo najbližšie k miestu bydliska pri vytvorení veľmi podobných podmienok ako u zamestnávateľa. Coworking je štýl práce, pri ktorom ľudia vykonávajú na sebe nezávislé aktivity v zdieľanom pracovnom priestore. Jedná sa moderný spôsob vykonávania práce a je samozrejmosťou, že jednotliví pracovníci nepracujú na spoločných úlohách a ani v jednej firme. Prenájom takýchto priestorov využívajú tí pracovníci, ktorí by pracovali z domu, ale na určitý čas potrebujú mať k dispozícii iný dispozičný priestor, prípadne iné technické možnosti alebo dočasnú zmenu prostredia.

Benefity coworkingu

- finančné úspory
- možnosť prenájmu na určitý čas, pracovné miesto si môžete prenajať už od jedného dňa,
- zaujímavé pracovné prostredie

- možnosť vzájomnej komunikácie a zdieľania nápadov
- kompletné kancelárske vybavenie
- odpočinková zóna na prípravu nápojov a občerstvenia, relaxáciu v chill out zóne
- možnosti prenájmu samostatných uzavretých kancelárií
- priestor na sústredenú prácu
- spoločenské vyžitie

Nevýhody coworkingu

- nedostatok súkromia
- otázky bezpečnosti
- vyrušovanie pri práci

To aké možnosti tohto spôsobu práce ponúka Slovensko je spracované v tabuľke 1

Tabuľka 1. Aktuálny stav coworkingových centier, ich lokalizácia a počet ponúkaných pracovných miest

Aktuálny stav coworkingových centier, ich lokalizácia a počet ponúkaných pracovných miest.		
Mesto	Pocet lokalít	Počet miest
Bratislava	14	1 521
Košice	3	73
Prešov	2	42
Lučenec	1	42
Trnava	1	34
Trenčín	2	> 20
Liptovský Mikuláš	1	20
Dolný Kubín	1	20
Žilina	1	-
Martin	2	> 6
Nitra	1	?
Levice	2	> 15
Banská Bystrica	2	> 19
Senec	2	> 15
Rimavská Sobota	1	-
Komárno	1	-
Revúce	1	10
Malacky	1	15
18	39	> 1 852

Zdroj: http://coworkingy.sk/, vlastné spracovanie

Z pohľadu zamestnanca to rozoberieme trochu osobnejšie, nakoľko tu okrem racionality, čím máme na mysli naučené a osvojené procesy, vstupuje faktor individuálny. Ten nám determinuje, ako sa jednotlivec vysporiada s novou situáciou. Socializácia je jeden z aspektov, kde v tomto dlhodobom horizonte môže dochádzať k defektom. Potláčaný stav

nemožnosti sa osobne stretávať, môže zamestnancom spôsobovať frustráciu. To následne vyúsťuje do narušenia väzieb a tým aj zhoršeniu kolektívnych vzťahov, či uzatváraniu sa. Následky takejto situácie sa odstraňujú ťažko a dlhodobo. Zamestnanec by v rámci duševného zdravia mal mať aktívny pohyb a socializáciu vykonávať v obmedzenej skupine iných buniek vo svojom okolí s nie príliš častou fluktuáciou. Samozrejme nie všetky povolania môžu takúto prácu vykonávať a nie vždy to aj zamestnávateľ schvaľuje.

Oslobodením sa od prísnej pracovnej rutiny, ktorá vládla pred pandémiou, zamestnanci prehodnocujú nový štandard práce inšpirovaný svižnejšou, ústretovejšou a ľudskejšou pracovnou kultúrou. „Nový globálny prieskum spoločnosti Kaspersky zameraný na pracovníkov malých a stredných podnikov z rôznych odvetví odhalil, že takmer tri štvrtiny zamestnancov (74 %) chce prehodnotiť spôsob, akým sa pracovalo pred vypuknutím pandémie koronavírusu. Takmer dvaja z piatich zamestnancov (39 %) nemajú záujem pracovať klasicky „od deviatej do piatej“, pričom u ľudí vo veku od 25 do 34 rokov sa toto číslo ešte zvyšuje (44 %), čo naznačuje rastúci trend aj do budúcnosti. Podobný počet zamestnancov (34 %) je pripravených na flexibilné miesto výkonu práce a zhruba tretina (33 %) chce skončiť s konceptom päťdňového pracovného týždňa. Namiesto návratu k bežnému chodu práce sa zamestnanci po celom svete snažia o vytvorenie nových podmienok, ktoré by viac zodpovedali ich predstavám, či už ide o trávenie dlhšieho času s blízkymi (47 %), šetrenie peňazí (41 %), alebo o práci na diaľku (32 %)“. Prieskum pre spoločnosť Kaspersky realizovala prieskumná agentúra Censuswide medzi vyše 8 000 zamestnancami malých a stredných podnikov. Z uvedeného vyplýva, že manažment firiem alebo riadiaci pracovníci by mali zohľadniť tieto trendy, aby ochránili svoje podnikanie.

Na to, aby sme lepšie analyzovali tieto zmeny v reálnom hospodárskom, ale aj osobnom živote, je dôležité si rozdeliť pracovný trh z hľadiska jednotlivých profesií. Cez toto rozdelenie budeme vedieť, kde je aplikácia možná, resp. žiadaná a kde určite nie je možná. U profesii, kde to možné nie je, by mohlo dochádzať k odlivu, nakoľko určitá skupina ľudí inklinuje k novej forme vykonávania svojej práce, jej benefitov pre seba či rodinu a bude sa snažiť zamestnať v oblasti, kde práca na diaľku bude možná. Cieľom tejto mikroanalýzy je povedať, o aké percento zamestnancov v štruktúre pracovných miest Slovenska potenciálne ide. Zo všetkých pracovných miest na Slovensku je iba 29 percent takých, ktoré je možné vykonávať na diaľku, teda z domu. (Wood & company) Zároveň prieskum spoločnosti Elanor Slovakia na vzorke viac ako 1 100 malých, stredných a veľkých firiem uvádza, že „slovenské firmy boli pre krízu spôsobenú pandémiou ochorenia COVID-19 donútené meniť svoju politiku ľudských zdrojov a systém odmeňovania“. Takmer 25% firiem už rieši transformáciu pracovných miest. Zodpovední manažéri a personalisti hľadajú možnosti ako zlúčiť pracovné pozície v administratíve, ale aj v iných odvetviach s cieľom zvýšenia efektivity ľudského kapitálu. Pri riešeniach hlavne zohľadňujú spôsob vykonávania práce z hľadiska možnosti jej výkonu na diaľku. Predpokladom je, že home office sa stane bežnou súčasťou výkonu práce a nie ako doteraz benefitom, aj keď finálnym riešením bude hybridný model, kde zamestnanec po dohode so zamestnávateľom bude určovať podmienky. Zamestnanec bude mať snahu si určiť pracovnú dobu a zamestnávateľ termíny a obsah pracovnej náplne.

Tabuľka 2. Podiel práce vykonávanej prostredníctvom Home office podľa jednotlivých sektorov.

Odvetvie	Podiel home office	Odvetvie	Podiel home office
Výrobné		**Nevýrobné**	
Priemysel	10 %	Školstvo	50 %
Poľnohospodárstvo	10 %	Kultúra	50 %
Lesné hospodárstvo	10 %	Zdravotníctvo	10 %
Stavebníctvo	25 %	Osobná doprava	25 %

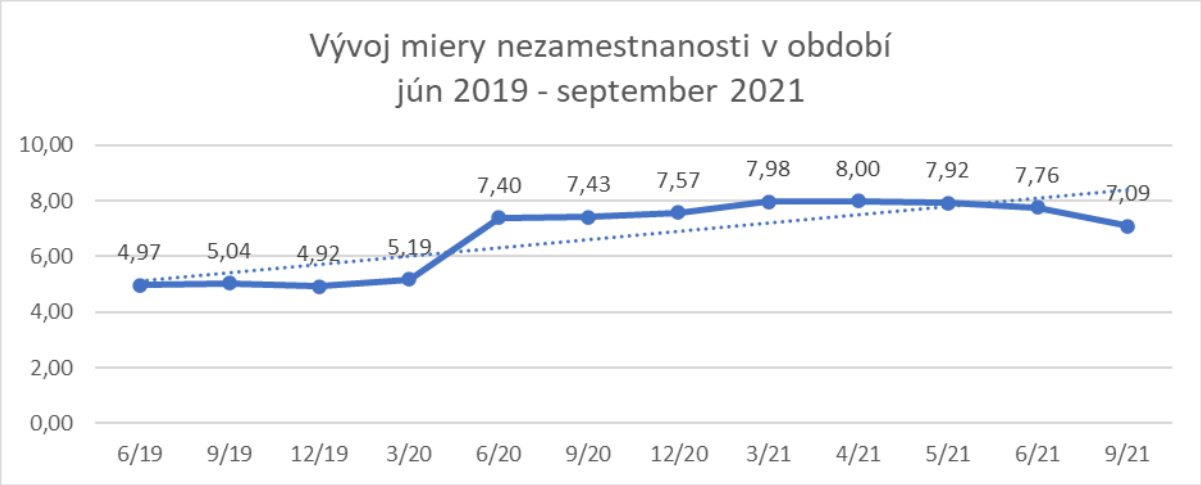
Nákladná doprava	30 %	Veda výskum	25 %
Výrobné služby	40 %	Štátna správa	50 %
		Finančný sektor	60 %
		Nevýrobné služby	50 %
Výstup: 28 %			

Zdroj: ekonom.sk, vlastné spracovanie

Naša mikroanalýza pre jednotlivé sektory hospodárstva potvrdzuje stanovisko Wood & company, že home office je vhodný len pre tretinu dnešných pracovných miest. Vychádzali sme empiricky z predpokladu, že každý sektor má svoju vnútornú štruktúru, kde sú profesie, ktoré si vyžadujú priamu prítomnosť na pracovisku a tie ktoré je možné vykonávať na diaľku. Výsledky tejto analýzy zobrazuje tabuľka 2. Aktuálna zamestnanosť v SR podľa údajov ŠU SR je na úrovni 2 552,3 tis. osôb, ide o skupinu asi 700 tisíc pracovníkov, čo je značná skupina a zaslúži si samostatnú pozornosť z hľadiska služieb. Myslíme tým napr. coworking, stravovanie, psychohygienu, či iné špecifické benefity od zamestnávateľa.

Desatina oslovených firiem v prieskume Elanor Slovakia už zamestnancov prepúšťala a deväť percent firiem naopak zvýšilo počty zamestnancov. Tento trend je zachytený aj Ústredím práce a sociálnych veci. Nezamestnanosť v marci 2020 bola evidovaná na úrovni 5,19% a k septembru 2021 dosiahla úroveň 7,09%, Medzitým atakovala aj svoje maximá v apríli 2021 na úrovni 8,00%, ktorá bola aj vďaka zmene štruktúry pracovných miest eliminovaná. Priebeh nezamestnanosti na Slovensku v sledovanom období je v grafe 2

Graf 2. Vývoj miery nezamestnanosti v období jún 2019 – september 2021 (v%)



Zdroj: Eurostat, vlastné spracovanie

V ďalšej časti príspevku sa pozrieme, ako tieto zmeny ovplyvňujú determinanty kvality života z hľadiska pozitívnych, či negatívnych atribútov, resp. externalít, ktoré táto zmena do spoločnosti priniesla. V prvom rade je dôležité zadefinovať si kvalitu života OECD definuje kvalitu života ako „súbor nefinančných atribútov jednotlivcov, ktorý spoluurčuje ich životné príležitosti a životné šance a má vlastnú hodnotu v rozličných kultúrach a súvislostiach.“ Eurostat prostredníctvom výsledkov merania kvality života definuje týchto deväť dimenzií:

1. materiálne životné štandardy, 2. zdravie, 3. vzdelanie, 4. osobnostné aktivity, 5. politická mienka a vládna moc, 6. sociálne kontakty, 7. environmentálne podmienky, 8. osobnostná neistota, 9. ekonomická neistota.

Pre účely príspevku sa budeme zaoberať dimenziou osobnostné aktivity a sociálne kontakty. Medzi osobnostné aktivity zaraďujeme prácu, komunikáciu, rôzne druhy rekreačných aktivít a distribúciu osobnostných aktivít. Oblasť práce v ostatnom období zaznamenala veľké zmeny, došlo k obmedzeniu a prerušeniu jej výkonu hlavne v priestoroch zamestnávateľa. Historicky takýto krok ešte učinený nebol. Na túto zmenu si museli zamestnanci a zamestnávatelia zvyknúť takpovediac z večera na ráno. Prechod nebol jednoduchý, ale zrealizoval sa, a to aké zmeny to prinesie na trhu práce do budúcna, je ťažké predikovať, nakoľko nevieme, aké zmeny tento stav vyvolá v preferenciách ľudí vo väzbe na ich ekonomické záväzky. Ako odrazovým mostíkom môžu byť aj údaje z globálneho prieskumu spoločnosti Kaspersky.

Ďalší aspekt je komunikácia. Tu je jednoznačné, že zmena ešte viac umocnila zvýšené používanie info-komunikačných prostriedkov. Všetko prešlo do online elektronickej roviny a to ešte viac narušilo priame väzby. Na túto skutočnosť sme síce mali predpoklady v súkromnej oblasti cez sociálne siete, ale v pracovnej to je značná novinka. Efektívna komunikácia v pracovnej oblasti je nevyhnutná, lebo jej opak sú utopené náklady zamestnávateľa a strata výkonnosti zamestnanca. Ďalej sa osobnostné aktivity venujú rekreačnej a relaxačnej oblasti a ich distribúcie. Tu by sme radi vyzdvihli pomer medzi časom stráveným v práci, dochádzkou do práce, povinnosťami v domácnosti a samotným voľným časom. Časová náročnosť týchto aktivít determinuje kvalitu života. „V roku 2019 strávil priemerný Slovák už spomenutých 46 minút denne dochádzaním do práce, čo predstavuje približne 8 dní čistého času. Prieskum Harvard Business Review o trávení voľného času na vzorke 12-tisíc ľudí v USA a v Európe počas pandémie však ukázal, že tieto hodiny navyše dnes doslova strácame neproduktívnou prácou.“ (www.forbes.sk) Tu je priama väzba na voľný čas, denný či týždenný harmonogram definuje, aké rozpätie a kedy je možné sa venovať aktivitám, ktoré súvisia so záujmami a koníčkami. Tieto aktivity sú častokrát náročné na čas, ktorý pri nich beží veľmi rýchlo pretože sú nám príjemné. Následná distribúcia je len obraz týchto aktivít smerom k okoliu iných ľudí, ktorí nás vnímajú a ovplyvňujú. Touto vzájomnou interakciou je možné dosiahnuť novú úroveň kvality života ako pozitívne tak aj negatívne. Našou snahou by malo byť cez voľnočasové aktivity dávať budúcej generácii pozitívne vzory a pokúsiť sa eliminovať vplyvy, ktoré predstavujú riziko. Ďalšou nami spomínanou dimenziou je oblasť sociálnych vzťahov a väzieb. Tu hovoríme o rodinných vzťahoch, priateľoch a o ich intenzite. Vo všeobecnosti sa dajú pomenovať ako sociálne kontakty a ich väzby. Toto je oblasť, ktorá priamo súvisí s predchádzajúcou, ak sa realizujú v kolektíve. Nová situácia tieto väzby prerušila a ich absencia môže viesť dvomi smermi. Jeden hovorí o potrebe ich čo najskôr obnoviť a do toho času ich nahradiť virtuálnymi a druhý utlmiť a následne ich nerealizovať v takej intenzite ako predtým. Tu ešte vstupuje do úvahy otázka, či sa nenahradia a človek sa stáva sociálne izolovaný, alebo sa nahradia inými vzťahmi s inými ľuďmi, ktoré môžu priniesť nové priateľstvá a s tým spojené aj nové zážitky či skúsenosti. Táto oblasť priamo ovplyvňuje naše duševné zdravie.

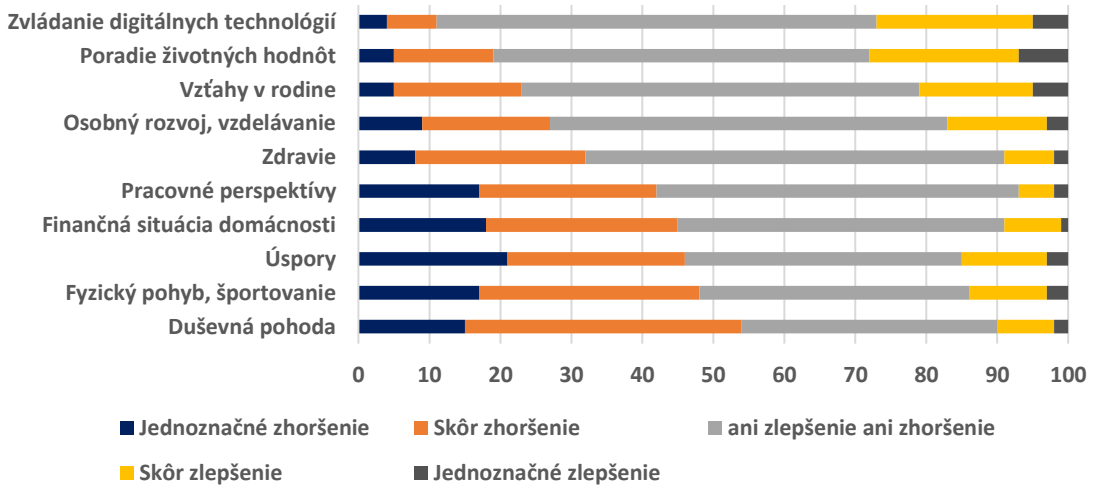
Touto témou sa zaoberal inštitút pre stratégiu a analýzy úradu vlády SR a upozornil na to, „že pandémia vytvorila akútnejšiu krízu psychického zdravia, ktorá môže mať signifikantné dlhodobé implikácie. Zavedenie reštriktívnych opatrení ako lockdown, či povinná karanténa, má priame dôsledky na spôsob života obyvateľov a je predpokladom pre zintenzívnenie pocitov osamelosti, depresie, ale aj nadmerného užívania alkoholu či omamných a psychotropných látok.“ Viac ako 70% týmto trpiacich obyvateľov nebola poskytnutá žiadna pomoc.

Svetová zdravotnícka organizácia očakáva dopad pandémie v troch oblastiach. Prvá má priame účinky vo forme strachu a úzkosti. Druhá nepriame, spôsobené opatreniami a ich vplyvom na izoláciu jednotlivcov, strácaním bežných denných návykov a nedostupnosť terapií. Tretia (tiež nepriame) sa zameriava na sociálno-ekonomické dopady vo forme rastúcich dlhov, zvýšenia nezamestnanosti, prehĺbením chudoby a rozšírením sociálneho vylúčenia. Tieto dopady sa nebudú dať eliminovať v krátkom období a otázkou je, či vôbec k

náprave dôjde. Predpokladáme, že sa to pretransformuje do nových fenoménov, kde nastane vytváranie izolovaných skupín obyvateľstva s podobnou sociálno-ekonomickou situáciou. V prípade chudobných obyvateľov možno vznik nových tzv. „Gett“ alebo vytvorením paralelnej spoločnosti, tzv. nezaočkovaných, ktorí ako sociálno-spoločensky vylúčené osoby s vysokým ľudským a spoločenským kapitálom, si zriadia vlastné inštitúcie, obchody, spolky, základný zdravotný či školský systém vrátane firiem, ktoré budú akceptovať ich slobodné rozhodnutie.

Zároveň podľa prieskumu „Ako sa máte, Slovensko?“ z mája 2020, viac než štvrtina obyvateľstva pociťuje úpadok svojho duševného zdravia kvôli koronakríze a 48 % respondentov zažíva občasné či časté pocity depresie. Tento stav monitorovala agentúra Actly a jej výsledky sú uvedené na obrázku 3.

Obrázok 3. Ako zasiahla pandémia COVID-19 do vášho života v nasledujúcich oblastiach? (v %)



Zdroj: Agentúra Actly, 2020

Tento výskum potvrdzuje analýzu úradu vlády v mnohých oblastiach, ale my by sme radi upozornili na kategóriu „Poradie životných hodnôt“ a „Zvládanie digitálnych technológií“. Pandémia v týchto dvoch oblastiach priniesla najvyšší prospech. Oproti ostatným kategóriám sa jednoznačné zlepšenie blíži k 30%, to je nádej napriek ostatným negatívnym oblastiam. Digitálne zručnosti môžu výrazne prispieť k produktivite práce a poradie životných hodnôt je individuálnou kategóriou jednotlivcov, ktoré nemusia priniesť pozitíva pre spoločnosť, ale načrtáva sa jednoznačný odkaz, že ľudia pociťujú veľkú potrebu zmeny doterajšieho života.

Vyššie analyzované trendy, ktoré nastali v súvislosti s pandémiou COVID-19 priniesli novú situáciu aj v oblasti medziľudských vzťahov, nakoľko pracovníci nenavštevujú svoje doterajšie pracoviská a pravidelne sa nestretávajú osobne so svojimi kolegami. Vzťahy na pracovisku sú dané individuálnymi charakteristikami a záujmami ľudí v danom kolektíve. Zároveň zamestnávateľ požaduje špecifické zručnosti, a preto pri prijímaní pracovníkov neprihliada v takej miere na to, či novoprijatý zamestnanec plnohodnotne zapadne do kolektívu, dokonca nemusí to byť pre zamestnávateľa vždy žiadané, pretože homogénny kolektív môže zamestnávateľovi komplikovať ním presadzované zmeny Tu môže vznikať situácia, kedy samotný pracovný tím bude rozdelený na zamestnancov čisto z domu a zamestnancov pevne na pracovisku. Tento stav si vyžaduje nové manažérske metódy, nakoľko bude náročnejší ako v období pandémie, kedy boli všetci doma a prístup a komunikačné nástroje sa zjednotili. Pri tzv. hybridnom kolektíve bude potrebné zladiť

efektívne prácu a komunikáciu zamestnancov. Táto neľahká úloha pripadne na manažérov, ktorí, ak túto výzvu nezvládnu, môžu prikročiť k určitému druhu príkazov, čo sa môže prejaviť tak, že nariadia kedy, ako a kde musia byť pracovníci k dispozícii a to môže na opačnej strane vytvoriť vzdor, ktorý môže vyústiť aj do odchodu samotných zamestnancov. Aby k takejto situácii nedošlo, je nevyhnutné, aby firmy mali určené rámcové pravidlá TOP manažmentom. Ako jedným z možných nástrojov je sociálna sieť uzatvorenej skupiny ľudí, tzn. pracovného tímu, príp. celej firmy. Tento spôsob nadviaže na návyky ľudí vo verejných sociálnych sieťach, čím sa vyhneme zdĺhavej implementácii vo firme. Zároveň na túto formu komunikácie je kladená veľká výzva, ako to urobiť obsahovo atraktívne, komunikačne efektívne, jednoduché a prehľadné. Takáto sociálna sieť vytvorí nové prepojenia, ktoré znížia emocionálnosť osobného kontaktu už len preto, že sa realizujú cez elektronické prostriedky a nemajú zaručenú anonymitu. Vytvoria sa nové profesionálne väzby a zjemní sa aj forma komunikácie. Môže nastať situácia, že ľudia budú mať väčšiu snahu vybaviť veci rýchlejšie, efektívnejšie a priamočiarejšie. Dnes pozorujeme trend, že zamestnanci sú otrávení a vyťažení z obrovského náporu online mítingov. Sami pociťujú potrebu ich eliminácie a stručnosti. Tu je veľký priestor pre zamestnávateľa poskytnúť pomocnú ruku, či už vo forme školení, komunikačných tréningov, ale hlavne zjednodušenia procesov. Vyžaduje si ti procesné riadenie bez príliš širokej improvizácie a na to potrebuje tieto procesy zaviesť, resp. správne implementovať.

4. ZÁVER

Príspevkom sme sa pokúsili priblížiť, aká je aktuálna situácia na pracovnom trhu z hľadiska možností práce na diaľku. Upozornili sme na nástrahy dnešnej situácie, ako sú nedostatočné pracovné priestory v domácnostiach, zdieľanie priestoru s ostatnými členmi domácnosti, obmedzenia dostupnosti a rýchlosti internetu, či stratu sociálnych kontaktov. Z článku vyplývajú niektoré odporúčania pre prax. V oblasti legislatívnej by mal zamestnávateľ uskutočniť nasledovné kroky pri zavádzaní práce z domu. Jednoznačne určiť skupiny zamestnancov, kde je práca z domu možná a žiadaná a správne klasifikovať zamestnancov pracujúcich z domu pravidelne a príležitostne. Zároveň skupine zamestnancov, ktorí pravidelne pracujú z domu upraviť výkon v pracovnej zmluve, a tým, ktorí príležitostne pracujú z domu upraviť výkon v internej smernici. Prácou z domu dochádza k sociálnej izolácii, ktorú je potrebné citlivo vnímať a overovať si so zamestnancom, či nedochádza k deformáciám, ktoré by mohli z dlhodobého hľadiska spôsobiť ujmu zamestnancovi, ale aj zamestnávateľovi. Prostredníctvom online školení zabezpečiť odborné rady a cez individuálne konzultácie ponúknuť riešenie na mieru, konkrétnemu zamestnancovi. Ako jedno zo základných odporúčaní je vytvoriť si tzv. „Priestorovú kotvu“ jedná sa o to, aby mozog vedel, akú aktivitu má preferovať, či prácu alebo odpočinok. Ďalším nevyhnutým základným predpokladom je vytvoriť si príjemné pracovné prostredie podľa preferencií, ale nemali by rozptyľovať pozornosť, napr. kvety, poriadok, či farby. Práca na diaľku však nie je pre všetkých novou skúsenosťou. Niektorí ľudia si zvolili túto formu už v minulosti, pretože sa rozhodli využívať výdobytky digitálnych technológií, hlavne dostupnosti internetu a benefitov z hľadiska zlepšenia ich kvality života. Hovoríme o tzv. digitálnych nomádoch. Sú to ľudia, ktorí majú svoju prácu so sebou kdekoľvek na svete a to im umožňuje veľmi efektívne spájať pracovný a osobný čas, nakoľko prakticky vždy vo voľnom čase dovolenkujú. Vieme, že to znie trochu prehnane, ale ak si uvedomíme, že človek nekde dlhodobo býva, má tam centrum svojich záujmov, nemôže na dlhší čas toto miesto opustiť, zároveň, ak vykonáva závislú prácu u zamestnávateľa v jeho priestoroch, má ďalšie obmedzenia. Takýto človek si dovolenkou kompenzuje tento spôsob života v rozsahu 4-6 týždňov v roku. Uvedomme si, ako by sa mohla zmeniť kvalita života aj vo väzbe na vyššie uvedené determinanty, ak by sme neboli tak pevne pripútaní k trvalému bydlisku a statkom, ktorých vlastníctvom nám pribúdajú nové a ďalšie starosti. Tu naznačujeme iný prístup k životu, využívať možnosti, ktoré nám svet

okolo nás ponúka. Realizovať svoje sny, chcieť vytvárať nové a inšpiratívne veci, konfrontovať sa s inými ľuďmi, národmi, či kultúrou. To všetko nás posúva, robí lepšími a kvalitnejšími ľuďmi. Ľuďmi zodpovednými za seba, svoje rodiny a okolie. Tolerantnejšími voči prírode, ale aj názorovým oponentom. Mať možnosť výberu je prejav najvyššej úrovne slobody a preto slobodnejší a šťastnejší ľudia sú aj výkonnejší, vidia väčší zmysel života, sú otvorenejší, tolerantnejší a v neposlednom rade životaschopnejší.

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LITERATÚRA

[1] AO Kaspersky Lab. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://media.kasperskydaily.com/wp-content/uploads/sites/92/2020/11/12034625/2020_Kaspersky_Own-Your-Future_report.pdf

[2] Azzopardi-Muscat, N. (2020). *Mental health need in the context of the COVID-19 pandemic*. Briefing European Parliament. [online]. [cit.2021-05-05]. Dostupné na: https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/658213/IPOL_BRI(2020)658213_EN.pdf 5.

[3] Brazinova, A., Hasto, J., Levav, I. & Pathare, S. (2019). Mental Health Care Gap: The Case Of The Slovak Republic". Administration And Policy. *Mental Health And Mental Health Services Research,* 46 (6), pp. 753-759. DOI:10.1007/s10488-019-00952-z.

[4] Cangárová, K. (2021). Nová práva úprava práce z domu. EY, 2021. [online]. [cit.2021-05-05]. Dostupné na: https://www.ey.com/sk_sk/tax/ey-danove-a-pravne-novinky/nova-pravna-uprava-prace-z-domu

[5] Cushman & Wakefield Property Services Slovakia, s.r.o. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://cushwakeoffices.sk/novinky/2020/co-je-to-coworking-ako-funguje-a-ake-su-jeho-plusy-a-minusy

[6] Ernst & Young Global, Ltd. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www.ey.com/sk_sk/tax/ey-danove-a-pravne-novinky/nova-pravna-uprava-prace-z-domu

[7] Európska Komisia. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://ec.europa.eu/eurostat/databrowser/view/lfsa_ehomp/default/map?lang=en

[8] Forbes. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www.forbes.sk/dochadzanie-do-prace-nas-stalo-8-dni-rocne-ako-ziskany-cas-nepremarnit/

[9] Hospodárske noviby. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://komentare.hnonline.sk/komentare/1693790-slovensko-bez-bielych-miest

[10] MDVRR SR. (2015). Koncepcia štátnej bytovej politiky do roku 2020. Bratislava. ISBN 978-80-971914-2-9.

[11] Monitoringmsp. (2021). [online]. [cit.2021-05-05]. Dostupné na: http://monitoringmsp.sk/wp-content/uploads/2020/08/Podpora-zamestnanosti-v-obdob%C3%AD-koronakr%C3%ADzy-v-SR-a-v-okolit%C3%BDch-krajin%C3%A1ch.pdf

[12] Slovenská akadémia vied. (2021). Plné Domácnosti Spôsobujú Počas Pandémie Najviac Stresu. [online]. [cit.2021-05-05]. Dostupné na: https://www.sav.sk/?lang=sk&doc=services-news&source_no=20&news_no=9451.

[13] ŠÚ SR. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www7.statistics.sk/wps/wcm/connect/80f1f759-05e7-4810-a19d-7cc7453043fc/Slovenska_statistika_a_demografia_3_2016.pdf?MOD=AJPERES

[14] TA3 TV. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www.ta3.com/relacia/22167/dokazete-pri-home-office-oddelit-pracu-od-sukromia-zhovarali-sme-sa-s-biznis-psychologom

[15] TouchIT. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://touchit.sk/vacsina-zamestnancov-sa-uz-nikdy-nechce-vratit-k-sposobu-prace-spred-pandemie/318766

[16] Trend. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www.trend.sk/spravy/stvrtina-firiem-pre-pandemiu-riesi-transformaciu-pracovnych-miest

[17] Vláda SR. (2021). [online]. [cit.2021-05-05]. Dostupné na: https://www.vlada.gov.sk/share/uvsr/isa/komentare/skryta_pandemia-_kriza_dusevneho_zdravia_ako_dosledok_covid-19.pdf

[18] Zákon č. 311/2001 Z. z. Zákonník práce v znení neskorších predpisov

EDUCATION SYSTEM TRANSFORMATION IN THE DIGITAL ECONOMY

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Abstract: *A comparative analysis of empirical data allows us to formulate a conclusion about the accelerated pace of the online education market development. The forecast value of the online education growth rate index in the future for the next few years is determined. The author's vision of the digital educational ecosystem is formulated as a network infrastructure that forms a single technological educational platform using digital technologies. The digital economy creates conditions for effective interaction of stakeholders through the provision of personalized educational services based on consumer interests. Extrapolation of the research results made it possible to determine the prospects for the development of education in the context of educational products intensive digitalization and an ecosystem educational environment formation.*

Key words: *education system transformation, digital economy, online education, digital educational ecosystem*

JEL Classification: *O33, O34, O35*

1. INTRODUCTION

The transformation of the educational system took place for a number of reasons. Industry 4.0 has significantly changed the requirements for the development of human capital. Technological changes creates a new value system that is constantly changing. It transforms the existing culture and the way of lifestyle, the education system, through which new knowledge, skills and abilities are transmitted.

All this predetermined the relevance of replacing the traditional model of human capital development with a new model. The old model relies on the transfer of a standard set of highly specialized skills necessary for an employee to perform a specific function or a limited group of functions. The new model focuses on the development of flexible skills and is based on the idea of inter- and trans-disciplinary approaches to learning. This explains the objective need for the transformation of the traditional education system. The COVID-19 pandemic turned out to be the main reason for the active transition to the distance learning format. The distance learning format has accelerated the processes of intensive development of digital educational technologies and the online education market. The growing pace of socio-economic transformations has determined the directions for the development of the educational space, which are based on intellectual educational platforms and digital tools for the transfer and control of knowledge. The active development of online education has led to an increase in competition between IT companies, educational organizations and other stakeholders. This led to the personalization of the educational process and the creation of multivariate educational tracks.

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In this paper we will identify the reasons for the transformation of the traditional hierarchical education system and the rapid development of the online education market. We will define the features of the formation of the concept of a digital educational ecosystem as a modern network approach to the organization of educational space in the context of the digital transformation of society and the active introduction of digital technologies into the educational process.

2. PROBLEM FORMULATION AND METHODOLOGY

The formation of new approaches to the organization of the modern educational system is a consequence of the transformation processes taking place in society and in modern education in the context of the active introduction of digital technologies and networks into the global educational space. The concept of a digital educational ecosystem is a response to modern social needs and is a network infrastructure that forms a single technological educational platform with digital tools. It creates conditions for the most effective interaction of stakeholders through the provision of personalized educational services based on the needs of students (Pokrovskaia, Petrov, Molodkova, 2018; Kordos, 2020).

System analysis and empirical data grouping made it possible to determine trends in the development of the online education market, their distinctive features and factors in the formation of a digital educational environment that characterizes the current state of the organization of the educational space. Extrapolation of the research results made it possible to determine the prospects for the development of online education in the context of intensive digitalization of educational products and the formation of the concept of an ecosystem educational environment.

Discourse analysis of the concept of a digital educational ecosystem made it possible to form the author's vision of this phenomenon as a network infrastructure focused on creating conditions through the development of digital educational technologies. These technologies ensure effective interaction of interested participants in the online education market through the provision of personalized educational services that take into account the needs of students.

3. RESULTS

In modern conditions digital technologies are the leading factor in the development of the economy. According to K. Schwab and N. Davis, the reasons for large-scale digitalization are associated with the development of Industry 4.0 technologies, which led to a radical change in the existing system of values, the established way of life, the traditional education system [9; Zakharov, Britvina, Kuznetsov, 2019). The new conditions predetermined the urgency of replacing the current model of the development of human capital with a new one aimed at developing digital and flexible skills. The new model is based on the ideas of inter- and trans-disciplinary approaches to teaching (Maksimtsev et al. 2019; Suleimankadieva, Petrov, Popazova, 2020).

Online education is an innovative way to transfer and control knowledge. The large-scale development of online education began in 2001, when the Massachusetts Institute of Technology launched the first online project on an educational platform (Kuznetsov, 2019). The projected volume of the global online education market in 2021 will be $ 241 billion, and by 2023 this figure will grow by another 16.4% (Research of the Russian Online Education Market, 2020) (Table 1).

Table 1. Market size of online education

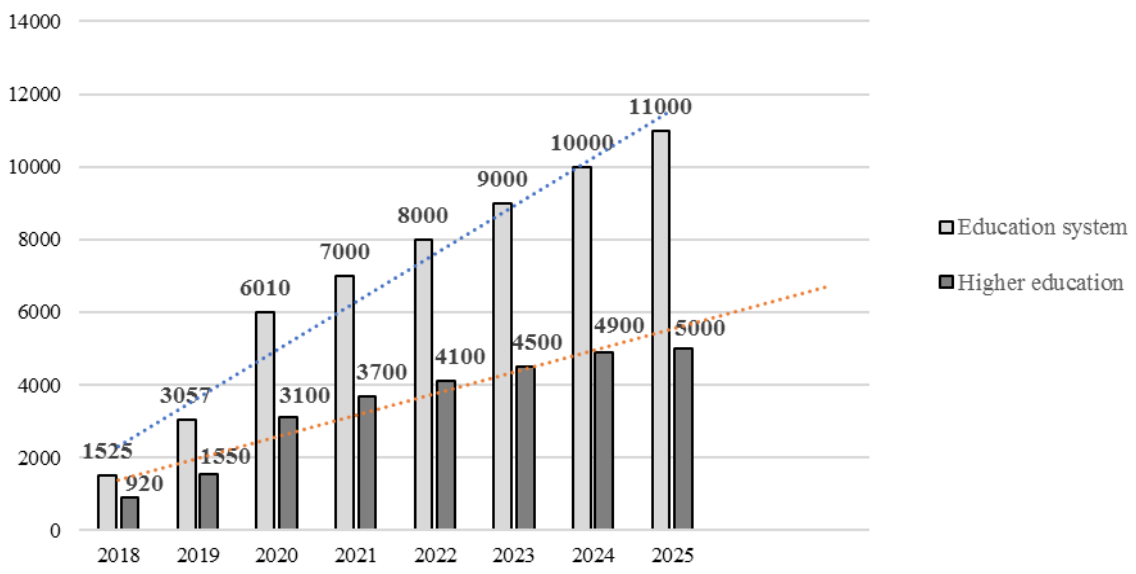
	Volume of online education, USD billion	Growth rate, %
2017	159	100
2018	190	119.5
2019	205	107.9
2020	222	108.3
2021 projection	241	108.5
2022 projection	260	107.9
2023 projection	282	108.5

Source: EdTechXGlobal, Global Market Insights, Education International (2020)

The authors calculated the forecast index of the growth rate of online education in 2025, taking into account the average annual growth rate of online education at the level of 8.2% and the forecast volume of the world educational services market at the level of USD 8.0 trillion. The online education market will grow in the coming decades. According to some data, in 2017, the share of online education in the volume of the world market of educational services was 3.0% (Research of the online education market in Russia, 2020). According to our calculations, by 2025 this figure may grow to 4.0%.

A comparative analysis of the Russian education system in the formats of traditional and online education allows us to note that there is an increase in the volume of education in general, and the share of online education tends to grow rapidly. In general, the volumes of both the entire educational services market and the online education market are growing (Figure 1). In 2021, the online education market is expected to grow 2.6 times, while the education market will grow by only 11%. The growth rate of the online education market indicates the unsaturation of this segment of Russian education. According to experts, the online education market in Russia in 2021 will continue to grow, the growth rate will be 20-25% compared to 2020 (Kolesnikova, 2021).

Figure 1. Online education development trends in Russia, thousand people



Source: Research of the online education market in Russia (2020)

A comparative analysis of the development trends of Russian and world online education allows us to note that different countries focus on different segments of it. In Russia language training and additional vocational education are developing, the share of which in the total volume of the online education market in 2021 will amount to almost 28%, while in China in 2020 this indicator did not exceed 12%, and in the world it is amounted to 26%. On the other hand, 60% of Chinese EdTech companies successfully operate in the market of school and additional school education, while in Russia, according to various sources, this figure does not exceed 24%. In terms of the global online education market, this figure was 38% (Research of the online education market in Russia, 2020).

The most stable positions in the online education market are in the United States, the countries of the Asia-Pacific region (APAC) and the countries of Latin America. The APAC countries were the most successful in 2020, with 54% of the online education market. The growth rates of the online education market of the world leaders are different. Average annual US CARG for the period 2017–2022 is 5%, European countries - 14%, APAC countries - 19.4%, and the growth of the global online education market is 10.26% (Schwab, Davis, 2018).

4. DISCUSSION

A comparative analysis of the main directions of development of the modern education system allows us to note that its main and specific characteristic is the introduction of digital technologies and platforms. New forms and methods of generating, accumulating, storing, analyzing, processing, contextualizing and controlling knowledge significantly reduce material and time costs, make knowledge more accessible and easily updated. For the digital educational environment, the digital educational platform plays an important role. It provides unlimited opportunities for the integrated work of stakeholders - participants in the digital network structure. As a result of joint work on a single platform, a synergistic effect is created that significantly increases the value of intellectual capital. A digital educational platform in the context of Industry 4.0 should have a number of features:

a) breaks down geographic boundaries and audience limitation of listeners;

b) significantly reduces financial costs and eliminates the loss of time associated with the physical movement of the teacher and student;

c) enables the educational system to provide personalized educational services;

d) provides students with unlimited access to library resources, sources and databases;

e) rids the teacher of the routine process of continuous lecturing and reduces the workload, since there is the possibility of a one-time recording of a lecture and its replication using information and communication technologies. The lecturer has free time for other types of scientific and pedagogical activities.

1. Acceleration of the process of obsolescence of knowledge has led to the fact that the average period of relevance of new knowledge is only two years and every year their life cycle is shrinking (Suleimankadieva, Petrov, Popazova, 2020).

2. The intensively developing digital economy constantly imposes new requirements on the competencies of graduates of educational institutions. The traditional education system (higher and secondary vocational education) does not keep pace with the trends in the development of the economic system, which ultimately leads to a crisis in the education system. Consequently, we need a system for transferring new knowledge that is able to quickly catch changes in the environment, maneuver in these conditions, analyze large amounts of data, identify general trends, and therefore, is able to meet the requirements of a changing economic environment. The current situation requires: first, digitalization of the

process of creating new knowledge and its transmission to students; secondly, the variety of educational services offered to consumers.

3. The active process of transformation of the traditional education system and the development of a digital ecosystem format of education is due to several reasons: firstly, this phenomenon is caused by the general digitalization of the economy, which gave rise to the extensive process of transferring the traditional educational process to digital; secondly, from the beginning of 2020 to the present, the COVID-19 pandemic has accelerated the digitalization of the educational environment by 2-3 times. For example, 56% of respondents note that the COVID-19 pandemic made a great contribution to the development of online education, since thanks to it they saw new opportunities for business development in online education; 43% of respondents note that they had to adapt the product to new conditions. Because of the pandemic, 22% of respondents changed their business model, and 11% of respondents were forced to master an online project, as there was a significant drop in sales (Pandemic of digital education, 2020). Thus, it can be noted that the active development of the online educational services market is also caused by the arrival of business on this market. So, if in 2016 the share of online education in the system of all Russian education was 2.2% (or 0.6 billion rubles), then by 2021 this figure increased to 5.5% (or 1.7 billion rubles) (Research of the Russian market of online education and educational technologies, 2020). According to our calculations, the volume of Russian online education during the analyzed period increased by more than 2.8 times.

4. The digital ecosystem of education functions as a network infrastructure that is supported by digital technologies and creates conditions for stakeholders to work together and effectively interact with each other on a single technological platform, where each of the participants has access to common educational resources that he did not have before or had in insufficient quantities.

5. The digital educational environment is increasingly acquiring an innovative and project-based nature and thereby contributes to the achievement of a synergistic effect as a result of coordinated and joint work of the system elements of the triad "Science - Education - Business Environment" on a single digital platform. This principle of work unites the processes of creating new knowledge, transferring it to students, using and utilizing knowledge in the real sector of the economy. In general, the real sector can also initiate the generation of new knowledge or its renewal. In this case, the triad "Science - Education - Business Environment" is a closed circuit with feedback, or a kind of "mix", where each element of the triad is a participant in a single process, and all elements closely interact with each other.

6. The technological revolution in the educational process is actively and intensively converting all communications of the educational system into digital ones. An example is the intense growth of the EdTech segment.

7. The outstripping development of the online education market in Russia and the world has caused intense competition between players, which ultimately leads to an increase in investment in the online sector of the economy, innovation and an improvement in the quality of offered online educational services.

The digital educational system should be formed on the basis of trends in the development of the world educational space and take into account the characteristics of the modern digital economy. This process should proceed in the following directions:

- creation of a personalized educational environment (human-IT), creation of unique personalized educational technologies and trajectories;
- the development of global educational platforms (the so-called "universities for million students");

- the formation of a collective educational environment (person-person), groups of specialists providing support or mentoring;
- creation of a local educational environment, which is a local ecosystem of lifelong education;
- creation of an environment for self-education of students at any time and in any place.

5. CONCLUSION

The modern digital economy, based on the use of knowledge as the main intangible asset, is characterized by the ability to use intellectual resources to meet human needs and create breakthrough solutions for its development. Modern technological determinism creates conditions for such changes, dictates the logic of the development of human civilization, determines the dynamics and contours of possible transformations of socio-economic systems. Intellectual resources have acquired an important strategic importance for both individual organizations and society as a whole, since they form the core of modern economic relations, allow to create new added value and ust them as a long-term sustainable competitive advantage.

The new intellectual economy, based on the use and active dissemination of knowledge, is characterized by the rapid growth of knowledge-intensive products; shortening the life cycle of goods and relevant professional skills; intellectualization of the used technologies, which provide a multiple increase of labor productivity; as well as the formation of a large segment of the market of intellectual products and services.

The exponential development of the modern intellectual economy (that is, the intensive growth of the intellectual capital of the modern economy) depends on the intellectual intensity of the educational environment, its readiness to use knowledge-intensive techniques and technologies in teaching. This situation obliges modern society to build a new educational model that relies on the use of digital technology platforms. These platforms should provide unlimited access to sources of information and digital content and promote the intensive development of intellectual capital as the main resource for economic development. The new view substantiates the objective expediency of revising the structure and content of the traditional education system and the inevitability of its consistent and systemic digitalization, which is built on the principles of inter- and trans-disciplinary approaches to learning.

REFERENCES

[1] Kolesnikova, K. (2021). Learning-site. [online]. [cit.2021-06-15]. Available at: https://rg.ru/2021/01/12/v-2021-godu-rynok-onlajn-obrazovaniia-v-rossii-prodolzhit-vzryvnoj-rost.html

[2] Kordos, M. (2020). Aspects of Robotics Implementation within the Changes on Labor Market in Poland. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 200-212.

[3] Kuznetsov, N. V. (2019). Online education: key trends and obstacles. *E-Management*. vol. 2. iss. 1, pp. 19-25.

[4] Maksimtsev, I. A. et al. (2019). *Theory and practice of bioeconomy development: innovation, digitalisation, transformation*. St. Petersburg: SPbGEU, p. 154.

[5] Pandemic of digital education (2020). [online]. [cit.2021-06-15]. Available at: https://vc.ru/education/153144-pandemiya-cifrovogo-obrazovaniya

[6] Pokrovskaia, N. N., Petrov, M. A. & Molodkova, E. B. (2018). Organizational Management Factors for Universities and Business Infrastructure Communication: Russian-Italian Partnership Case. In: *Proceedings of 2018 17th Russian Scientific and Practical Conference on*

Planning and Teaching Engineering Staff for the Industrial and Economic Complex of the Region (PTES). St. Petersburg: Institute of Electrical and Electronics Engineers Inc, pp. 205-208.

[7] Research of the online education market in Russia. (2020). [online]. [cit.2021-06-15]. Available at: https://drive.google.com/file/d/1LWKKJVpUTYZCFF9xOs_hzGW7KNmEnWR1/view

[8] Research of the Russian market of online education and educational technologies. (2020). [online]. [cit.2021-04-05]. Available at: https://estars.hse.ru/mirror/pubs/share/211448255

[9] Research of the Russian Online Education Market (2020). [online]. [cit.2021-04-05]. Available at: https://innoagency.ru/files/Issledovanie_rynka_rossiyskogo_online_obrazovania_2020.pdf

[10] Schwab, K. & Davis, N. (2018). *Technologies of the Fourth Industrial Revolution*. Moscow: Eksmo, p. 320.

[11] Suleimankadieva, A. E., Petrov, M. & Popazova, O. (2020). Strategic prospects for the development of human capital in the context of singularity and intellectualization of the Russian economy. In: *IOP Conf. Series: Materials Science and Engineering*. vol. 940, pp. 012092.

[12] Zakharov N., Britvina I. & Kuznetsov, A. (2019). The dilemma of job creation and loss before of industry 4.0. In: *Proceedings of scientific papers from the international scientific conference The Impact of Industry 4.0 on Job Creation.* Trenčín: TnUAD, pp. 457–462.

KOMPARÁCIA MINIMÁLNEJ MZDY V RÁMCI KRAJÍN EÚ V KONTEXTE VPLYVU NA ZAMESTNANOSŤ

COMPARISON OF MINIMUM WAGE WITHIN EUROPEAN UNION IN CONTEXT OF IMPACT ON EMPLOYMENT

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Abstrakt: *Minimálna mzda je najnižšie peňažné plnenie, ktoré je povinný zamestnávateľ poskytovať zamestnancom, spravidla najnižšej kvalifikácie a výkonnosti. Je to najnižšia cena práce zamestnanca, zabezpečujúca mu určitý primeraný životný štandard, a to na minimálne uznanej spoločenskej hranici. Inštitút minimálnej mzdy je zvyčajne legislatívne vymedzený pre celú krajinu, čo platí aj vo väčšine krajín Európskej Únie. Sú však známe aj minimálne mzdy stanovené kolektívnymi zmluvami, pre konkrétne profesie, regióny, prípadne odvetvia. Pripravili sme štúdiu, ktorého cieľom je zistiť, ako sa vyvíjala minimálna mzda v EÚ a v krajinách V4. Na dosiahnutie cieľa sme identifikovali nasledovné úlohy: zistiť výšku minimálnej mzdy v krajinách EÚ, vypočítať percentuálnu zmenu minimálnej mzdy v sledovanom období. Inštitút minimálnej mzdy je súčasťou všetkých členských krajín EÚ v dvoch formách. Je to buď takzvaná zákonná minimálna mzda, alebo minimálna mzda vyplývajúca z kolektívneho vyjednávania. Minimálna mzda v podmienkach SR v podstate kopíruje vývoj minimálnych miezd v krajinách V4.*

Kľúčové slová: *minimálna mzda, trh práce, krajiny EÚ*

Abstract: *The minimum wage is the lowest pecuniary benefit that the employer is obliged to provide to employees, usually of the lowest qualification and performance. It is the lowest price of the employee's work, ensuring a certain reasonable standard of living, at the minimum admitted social boundary. The institute of the minimum wage is usually legally defined for the whole country, which also applies in most countries of the European Union. However, the minimum wages set by collective agreements are also known, for specific professions, regions or sectors. We have prepared a study to find out how the minimum wage has developed in the European Union and in the V4 countries. To achieve the goal, we identified the following tasks: to determine the amount of the minimum wage in countries of European Union, to calculate the percentage change in the minimum wage in the observed period. The Institute of the Minimum Wage is a part of all European Union member states in two forms. It is either the so-called legal minimum wage or the minimum wage resulting from collective negotiation. The minimum wage in the conditions of the Slovak Republic basically copies the development of minimum wages in the V4 countries.*

Key words: *minimum wage, labor market, European Union countries*

JEL Classification: J0, *J3, J39, E24*

1. ÚVOD

Mzda má v trhovom hospodárstve viacero foriem a plní niekoľko funkcií, je základným prostriedkom, ktorý umožňuje uspokojovanie potrieb ľudí. V predkladanej štúdii sa

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zameriame konkrétne na minimálnu mzdu, ktorej problematika je aktuálna, je stále predmetom diskusií, má svojich zástancov, ale i odporcov. Slovenská republika je súčasťou priestoru Európskej únie, v rámci ktorého je možný voľný pohyb tovarov, služieb, kapitálu a pracovnej sily. To tvorí aj otvorený spoločný trh práce, avšak z dôvodu rozličnej vyspelosti a úrovne ekonomík jednotlivých štátov, ich kultúrno-spoločenských a politických podmienok, spôsob realizácie politiky zamestnanosti a politiky trhu práce, môžeme sledovať viacero regionálnych disparít. V súvislosti s diverzifikáciou štátov únie vidíme často neporovnateľné rozdiely aj vo výške miezd, v našom prípade úrovne minimálnych miezd.

Minimálna mzda je podľa Barošovej (1999) najnižšie peňažné plnenie, ktoré je povinný zamestnávateľ poskytovať zamestnancom, spravidla najnižšej kvalifikácie a výkonnosti. Je to najnižšia cena práce zamestnanca, zabezpečujúca mu určitý primeraný životný štandard, a to na minimálne uznanej spoločenskej hranici. Inštitút minimálnej mzdy je zvyčajne legislatívne vymedzený pre celú krajinu, čo platí aj vo väčšine krajín Európskej Únie. Sú však známe aj minimálne mzdy stanovené kolektívnymi zmluvami, pre konkrétne profesie, regióny, prípadne odvetvia. V podmienkach Slovenskej republiky minimálnu mzdu definuje Zákon č. 663/2007 Z. z.. Zákon o minimálnej mzde upravuje určovanie a poskytovanie minimálnej mzdy zamestnancovi v pracovnoprávnom vzťahu alebo v obdobnom pracovnom vzťahu na zabezpečenie minimálnej úrovne príjmu zamestnanca za vykonanú prácu.

Jednou z veľmi diskutovaných problematík, je aj vplyv minimálnej mzdy na úroveň zamestnanosti. Autori Neumark a Wascher (2006) podávajú súhrn empirických dôkazov o účinkoch minimálnych miezd na zamestnanosť. Ukazujú, že veľká väčšina skúmaných štúdií poskytuje relatívne konzistentné (aj keď nie vždy štatisticky významné) náznaky negatívnych účinkov minimálnych miezd na zamestnanosť. Tí istí autori Neumark a Wascher (2008) poukázali, že účinky minimálnej mzdy na zamestnanosť sú menej priaznivé, znižujú počet pracovných príležitosti pre menej kvalifikovaných pracovníkov.

Sturn (2018) sa zaoberal meraním účinkov minimálnych miezd u nízko kvalifikovaných a mladých pracovníkov. Jeho analýza údajov pozostáva z dát 19 krajín OECD od roku 1997 do roku 2013 u nízko kvalifikovaných pracovníkov, a od roku 1983 do 2013 u mladých pracovníkov. Výsledky dávajú len málo dôkazov o negatívnych účinkoch na zamestnanosť týchto dvoch skupín. Podľa Medzinárodnej organizácie práce (2016) je vplyv minimálnej mzdy na zamestnanosť takmer nulový a príliš malý na to, aby ho bolo možné pozorovať v agregovaných štatistikách zamestnanosti alebo nezamestnanosti.

Viacero autorov však hovorí aj o pozitívnych vplyvoch minimálnej mzdy na zamestnanosť. Napríklad Schmitt (2013) ako hlavný dôvod uvádza zvýšenie pracovných motivácií na strane ponuky práce. Christl a kol. (2019) prezentuje výsledky svojej štúdie, kde naznačuje, že minimálna mzda môže mať v skutočnosti pozitívny účinok, pretože stimuluje mieru prijatia do zamestnania (podiel počtu prijatých pracovných ponúk a celkového počtu pracovných ponúk vyjadrený v percentách). Na druhej strane poukazuje aj na skutočnosť, kedy vysoká úroveň minimálnej mzdy môže znižovať dopyt po pracovnej sile, a ničiť príležitosti zamestnať sa. Tak isto dokázal, že vzťah medzi minimálnou mzdou a zamestnanosťou je podmienený ďalšími charakteristikami trhu práce, najmä úrovňou produktivity práce a reguláciami pracovného trhu. Nepriaznivý vzťah medzi vysokými minimálnymi mzdami a mierou zamestnanosti je obzvlášť silný, ak je sprevádzaný nízkou produktivitou, prípadne pomerne prísnymi zásahmi vstupujúcimi do fungovania trhu práce.

Betcherman (2015) dospel k záveru, že hoci sa rozsah odhadov jednotlivých autorov môže značne líšiť, v literatúre sa objavuje trend, ktorý ukazuje, že účinky minimálnych miezd na zamestnanosť sú zvyčajne malé alebo nevýznamné (a v niektorých prípadoch pozitívne).

Analýza odbornej literatúry a štúdií autorov venujúcim sa tejto problematike nám poukazuje na nie celkom jednoznačné a totožné závery. Domnievame sa, že skutočný efekt minimálnej

mzdy môže byť štatistický významný len pri určitých odvetviach, prípadne konkrétnych skupinách pracovnej sily, prihliadajúc na odlišné regionálne podmienky.

2. MINIMÁLNA MZDA V KRAJINÁCH EÚ

Európska komisia v priebehu roku 2020 začala diskutovať o úrovni minimálnych miezd v jednotlivých členských krajinách. Ursula von der Leyen - predsedníčka Európskej komisie, sa v súvislosti s touto problematikou vyjadrila nasledovne: „Pravdou ale je, že mnohým ľuďom sa už jednoducho prestalo vyplácať, aby vôbec pracovali. Dumpingové mzdy likvidujú dôstojné pracovné podmienky, trestajú podnikateľov, ktorí platia slušné mzdy, a narúšajú spravodlivú hospodársku súťaž na jednotnom trhu. Preto Komisia predloží legislatívny návrh, ktorý by mal byť pre členské štáty oporou pri stanovovaní rámca pre minimálne mzdy. Každý musí mať prístup k minimálnej mzde, či už na základe kolektívnej dohody alebo zákonom stanovenej minimálnej mzdy.“

Na tento podnet bol v októbri 2020 predložený návrh smernice Európskeho parlamentu a Rady o primeraných minimálnych mzdách v Európskej únii. Jej cieľom je zabezpečenie ochrany pracujúcich v EÚ prostredníctvom primeranej minimálnej mzdy, ktorá umožní dôstojný život, bez ohľadu na miesto výkonu práce. Kmec (2020) uvádza, že okrem pozitívneho sociálneho dosahu, môže primeraná minimálna mzda priniesť aj laterálne nie menej dôležité výhody – hospodárske, práve z dôvodu, že znižuje nerovnosť v odmeňovaní, napomáha udržiavať domáci dopyt, a zároveň zvyšuje motiváciu pracovať. Ďalej môže zotierať rozdiely v odmeňovaní žien a mužov, keďže minimálnu mzdu poberá viac žien. Ďalšou pozitívnou funkciou je aj ochrana zamestnávateľov, ktorí vyplácajú dôstojné mzdy, keďže by sa zabezpečila spravodlivejšia hospodárska súťaž.

Istým základným pilierom, na ktorom stojí táto smernica je predovšetkým podpora kolektívneho vyjednávania o mzdách vo všetkých členských štátoch. Práve v krajinách, kde je kolektívne vyjednávanie na relatívne vysokej úrovni, je nižší podiel pracovníkov s nízkymi mzdami, či nižšia mzdová nerovnosť. Krajiny pre ktoré je typická zákonom stanovená úroveň minimálnej mzdy, by mali postupne zavádzať podmienky, ktoré by stanovovali úroveň zákonných minimálnych miezd na primeranej úrovni, samozrejme prihliadajúc na odvetvové a regionálne disparity, ako i sociálno-ekonomické podmienky. Prostredníctvom presných a stabilných kritérií, a súčinnosti sociálnych partnerov, by mala byť zabezpečená pravidelná a včasná aktualizácia stanovovania primeranej úrovne zákonnej minimálnej mzdy.

Treba samozrejme podotknúť, že predložený návrh smernice rešpektuje vnútroštátne právomoci a zmluvnú slobodu sociálnych partnerov. Nezaväzuje členské štáty k stanoveniu minimálnej mzdy zákonom, ani sa v ňom nestanovuje výška minimálnych miezd.

Hlavnými výhodami primeraných minimálnych miezd podľa smernice sú: posilnenie spravodlivosti na trhu práce EÚ, spravodlivé pracovné podmienky vytvárajú odolné hospodárstva, zníženie rozdielov v odmeňovaní žien a mužov, ochrana zamestnávateľov, ktorí svojim pracovníkom vyplácajú dôstojné mzdy, zníženie chudoby pracujúcich, investície do ľudí = zvýšenie productivity, zníženie mzdovej nerovnosti.

3. CIEĽ A METODOLÓGIA

Trh práce predstavuje abstraktný priestor, kde dochádza ku vzájomnej interakcií jeho subjektov. Vo svojej podstate je súčasťou trhu výrobných faktorov, avšak je sprevádzaný mnohými príznakmi, ktoré ho vymedzujú, robia špecifickým. S trhom práce si môžeme spájať viaceré ukazovatele, ako napríklad miera nezamestnanosti, miera zamestnanosti, počet zamestnaných osôb, dĺžka pracovného života, miera ekonomickej aktivity, migrácia pracovnej

sily, ale i mzda, ktorá vyjadruje cenu práce, respektíve je odmenou za vykonanú prácu. Jej úroveň – výška závisí od mnohých faktorov, ktoré na ňu vplývajú rôznymi spôsobmi.

Cieľom predkladanej štúdie je identifikovať zmeny v minimálnych mzdách v krajinách Európskej únie, pričom komparujeme rok 2011 a 2021 a zároveň svoju pozornosť orientujeme na krajiny V4, kde analyzujeme vývoj minimálnej mzdy od roku 2014.

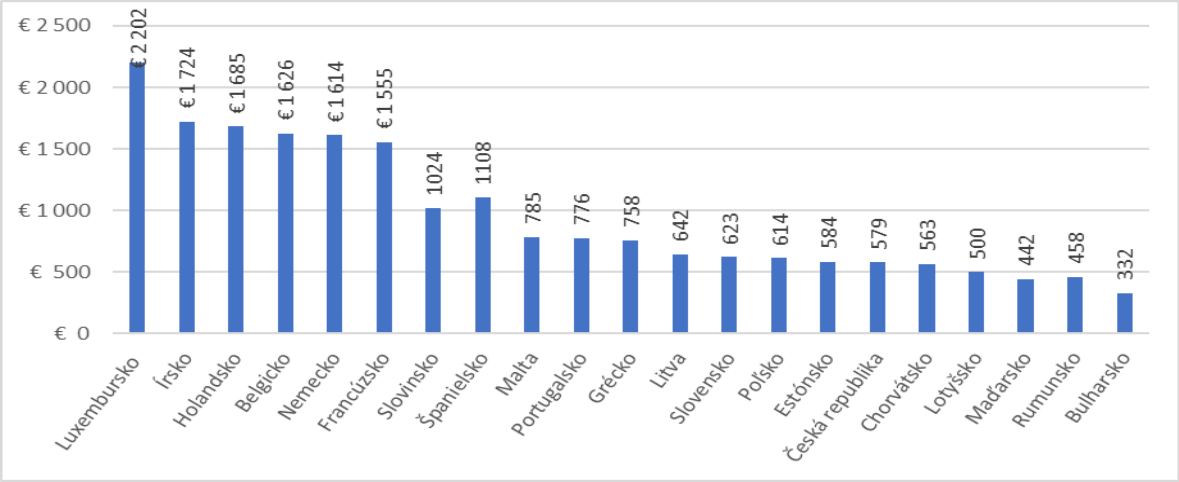
Pre potreby sledovania zmien minimálnej mzdy sme využívali metódu popisnej štatistiky, analýzy časových radov, komparáciu a syntézu. Údaje pre analýzu časových radov sme čerpali z údajov EUROSTATu a OECD.STATu. Celkové zmeny sme vyjadrovali nasledovnými elementárnymi charakteristikami: absolútny prírastok, percentuálna zmena, percentuálny podiel.

4. VÝSLEDKY KOMPARÁCIE MINIMÁLNEJ MZDY V KRAJINÁCH EÚ

Inštitút minimálnej mzdy má v jednotlivých krajinách EÚ svoje osobité podoby a špecifiká. Určovanie výšky a jej úprava nie je priamo v pôsobnosti orgánov Európskej únie, legislatívne si ju vymedzujú konkrétne členské štáty individuálne, a nie všetky ju majú plošne zakotvenú v zákone.

V 6 štátoch únie (Taliansko, Rakúsko, Dánsko, Fínsko, Švédsko, Cyprus) je minimálna mzda určovaná na základe kolektívnych zmlúv, ktoré ju upravujú pre rôzne skupiny zamestnávateľov a druhov profesií, často i s ohľadom na regionálne podmienky a odlišnosti (v rámci rovnakej profesie môže byť v rôznych regiónoch úroveň minimálnej mzdy odlišná. Vo zvyšných 21 krajinách je výška minimálnej mzdy ukotvená v zákonoch. Jej stanovená úroveň za rok 2021 vyjadruje nasledujúca obrázok 1.

Obrázok 1. Minimálna mzda v krajinách EÚ v eurách



Zdroj: Vlastné spracovanie na základe údajov Eurostat

V obrázku 1 môžeme pozorovať výraznú diferenciáciu úrovne minimálnej mzdy v jednotlivých krajinách EÚ. Hlavným dôvodom je určite vyspelosť ekonomík, životná úroveň, či cenová hladina. Krajiny môžeme rozdeliť na 3 skupiny, prvá kde výška minimálnej mzdy presahuje 1 000€, ide o krajiny Španielsko, Slovinsko, Francúzsko, Nemecko, Belgicko, Holandsko, Írsko a Luxembursko, kde je ustanovená až na 2 202 €. V rozmedzí od 500 € do 1 000 € sa nachádza 10 členských krajín medzi ktorými je aj Slovenská republika s minimálnou mzdou na úrovni 623 €. Len v troch krajinách je minimálna mzda nižšia ako 500 € a to Maďarsko, Rumunsko a Bulharsko.

Tabuľka 1. Percentuálna zmena úrovne minimálnej mzdy medzi rokmi 2011 a 2021

	2011	2021	Percentuálna zmena	Absolútny prírastok
Belgicko	1 415 €	1 626 €	15%	211 €
Bulharsko	123 €	332 €	170%	209 €
Česká republika	319 €	579 €	82%	260 €
Nemecko	-	1 614 €	-	-
Estónsko	278 €	584 €	110%	306 €
Írsko	1 462 €	1 724 €	18%	262 €
Grécko	863 €	758 €	-12%	-105 €
Španielsko	748 €	1 108 €	48%	360 €
Francúzsko	1 365 €	1 555 €	14%	190 €
Chorvátsko	381 €	563 €	48%	182 €
Lotyšsko	282 €	500 €	77%	218 €
Litva	232 €	642 €	177%	410 €
Luxembursko	1 758 €	2 202 €	25%	444 €
Maďarsko	280 €	442 €	58%	162 €
Malta	665 €	785 €	18%	120 €
Holandsko	1 424 €	1 685 €	18%	261 €
Poľsko	349 €	614 €	76%	265 €
Portugalsko	566 €	776 €	37%	210 €
Rumunsko	157 €	458 €	192%	301 €
Slovinsko	748 €	1 024 €	37%	276 €
Slovensko	317 €	623 €	97%	306 €

Zdroj: Vlastné spracovanie na základe údajov Eurostat

Zaujímavý pohľad nám ponúka tabuľka 1, kde je vyjadrená zmena úrovne minimálnej mzdy medzi rokmi 2011 a 2021. Jedinou krajinou, kde je tento údaj neúplný, je Nemecko, a to z dôvodu, že inštitút minimálnej mzdy tu bol uzákonený až v roku 2015. Pozrime sa ale na hodnoty ostatných štátov. Najvýraznejší nárast, až o 192 % evidujeme v Rumunsku, nárast zo 157€ na 458€. Avšak aj napriek takejto výraznej priaznivej zmene, podobne ako v Bulharsku – 170%, sa tieto dve krajiny nachádzajú neustále na chvoste EÚ. V Litve máme možnosť sledovať vzrast o 177%, z 232€ na 624€. V súčasnosti je to najvyššia minimálna mzda z pobaltských krajín. Štáty, kde sa minimálna mzda drží dlhodobo na najvyššej úrovni, takéto výrazné zvýšenia nezaznamenali. V Luxembursku to bolo o 25%, v Írsku a v Holandsku o 18%, v Belgicku o 15%, a vo Francúzsku o 14%. Na Slovensku sledujeme zvýšenie o 97%. Jedinou krajinou, v ktorej úroveň minimálnej mzdy medzi rokmi 2011 a 2021 poklesla bolo Grécko a to o 12%. Za hlavný dôvod tejto skutočnosti považujeme vypuknutie krízy v tomto štáte v roku 2010. V rozmedzí rokov 2013-2019 bola úroveň minimálnej mzdy zastabilizovaná na 683€, až v roku 2019 sa ju podarilo zvýšiť na 758€, čo platí aj pre rok 2021.

Už sme uviedli krajiny, kde minimálna mzda nie je celoplošne ukotvená v legislatíve. Napríklad v Taliansku hovoria o minimálnej mzde – hodinovej, dennej alebo mesačnej, na ktorú má zamestnanec nárok, avšak nie je stanovená zákonom. Jej úroveň stanovujú sociálni partneri prostredníctvom národných kolektívnych zmlúv pre jednotlivé sektory a odvetvia. Je možnosť prihliadať aj na regionálny aspekt, keďže krajina dlhodobo bojuje so značnou regionálnou disparitou medzi bohatým severom a chudobnejším juhom.

Čo sa týka Rakúska, tak tu taktiež nemožno hovoriť o minimálnej mzde. Všetko závisí väčšinou na dohode medzi zamestnancom a zamestnávateľom, u tých väčších bývajú minimálne mzdy pre konkrétne pracovné pozície stanovené kolektívnou zmluvou.

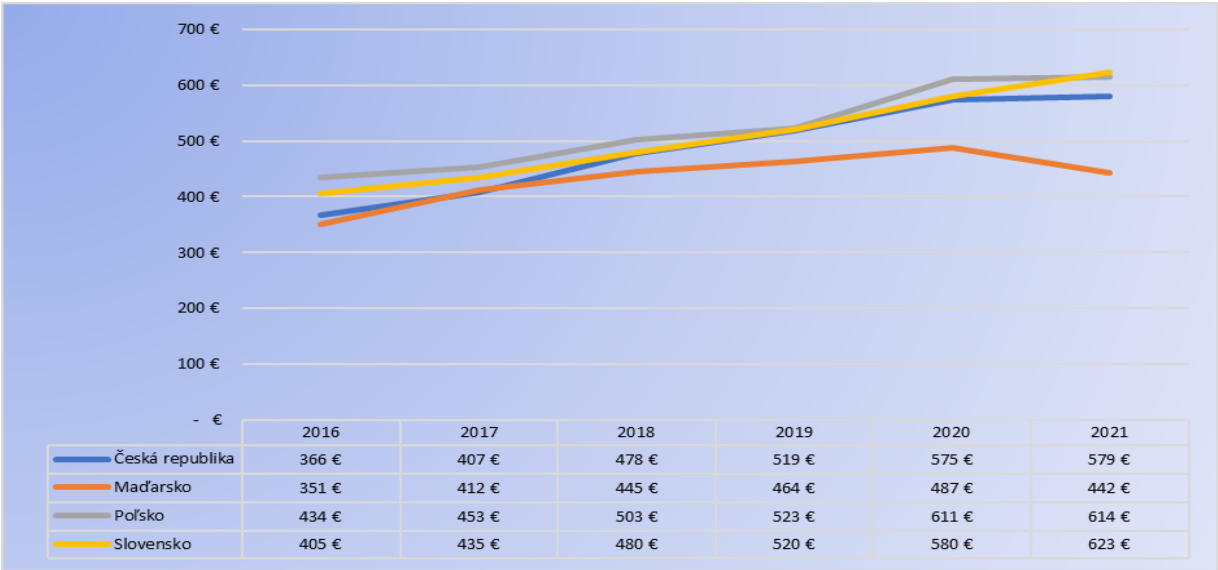
Dánsko je ďalšou krajinou bez stanovenej minimálnej mzdy. Avšak tak isto je priestor na úpravu výšky miezd prostredníctvom kolektívnych zmlúv. Existujú aj takzvané individuálne zmluvy, ktoré môžu špecifikovať minimálnu mzdu pre konkrétne odvetvie/sektor.

Na Cypre síce nie je stanovená jednotná minimálna mzda, avšak v legislatíve nájdeme zákon o minimálnej mzde, ktorý upravuje mzdy úradníkov, asistentov v obchodoch a opatrovateľov. Ostatné mzdy môžu byť stanovené kolektívnymi zmluvami, alebo dohodami medzi zamestnancom a zamestnávateľom.

V severských krajinách Švédsko a Fínsko sú minimálne mzdové tarify určované na základe kolektívnych zmlúv, pričom zamestnanci majú možnosť bližšie informácie od viacerých odborových organizácií. Platobné podmienky určené kolektívnou zmluvou vo Fínsku je možné aplikovať na akýkoľvek druh pracovnej činnosti, pričom nie je určujúce, či zamestnávateľ je, alebo nie je viazaný kolektívnou zmluvou.

Vzhľadom na relatívne široký balík dát súvisiacich s úrovňou a vývojom minimálnej mzdy v členských krajinách EÚ a rozsahom príspevku sa zameriame na vývoj v krajinách V4 za roky 2016-2021.

Obrázok 2. Vývoj úrovne minimálnej mzdy v krajinách V4 2016-2021



	2016	2017	2018	2019	2020	2021
Česká republika	366 €	407 €	478 €	519 €	575 €	579 €
Maďarsko	351 €	412 €	445 €	464 €	487 €	442 €
Poľsko	434 €	453 €	503 €	523 €	611 €	614 €
Slovensko	405 €	435 €	480 €	520 €	580 €	623 €

Zdroj: Vlastné spracovanie na základe údajov Eurostat

V sledovanom období si môžeme všimnúť krivku znázorňujúcu vývoj úrovne minimálnej mzdy na Slovensku, ktorá mala relatívne konštantný rastúci charakter. V absolútnom vyjadrení došlo k celkovému nárastu o 218 €. Rastúcu tendenciu sledujeme do roku 2020 vo všetkých krajinách s výnimkou Maďarska, kde došlo k poklesu úrovne zo 487 € na 442 €. Tento zaujímavý fakt nám ponúkol námet na bližšie analyzovanie príčiny zníženia minimálnej mzdy v tejto krajine, práve z dôvodu, že vo väčšine krajín EÚ medziročná zákonom stanovená úroveň minimálnej mzdy narástla, alebo ostala na konštantnej úrovni. Eurostat vykazuje úroveň minimálnej mzdy v jednotlivých členských krajinách vyjadrenú v eurách. Viacero štátov však používa vlastnú národnú menu, tak je tomu i v Maďarsku. Z toho dôvodu sme na maďarských webových portáloch hľadali stanovenú výšku minimálnej mzdy pre roky

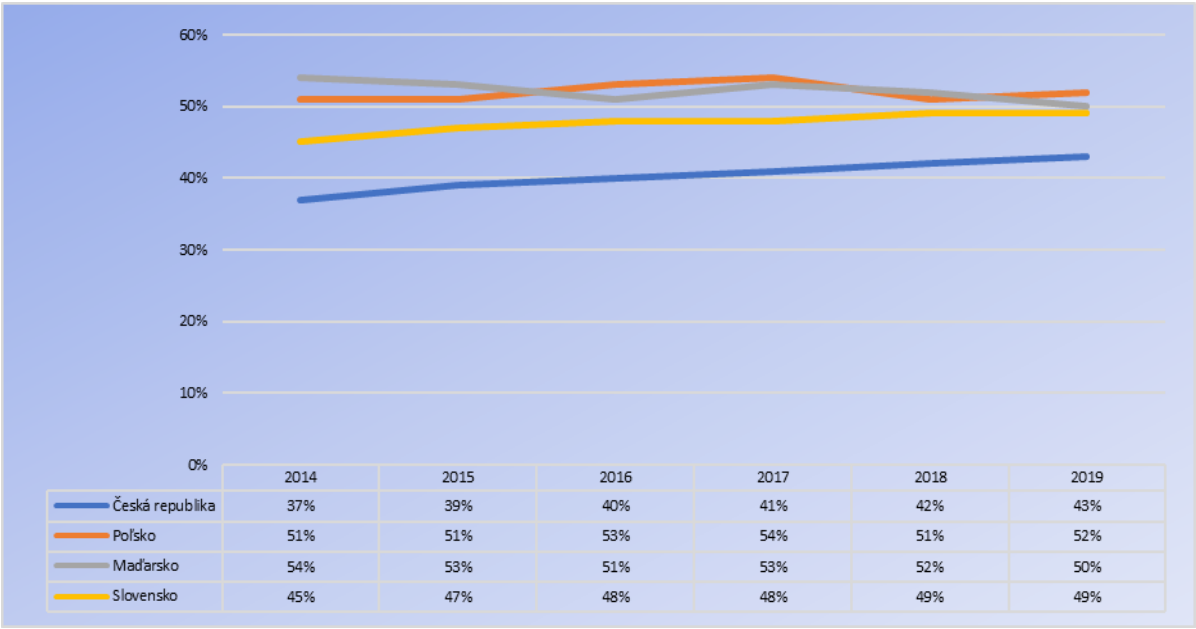
2020 a 2021. Prišli sme na zaujímavú skutočnosť, kedy zákonom stanovená úroveň vyjadrená v maďarských forintoch medziročne narástla. V roku 2020 to bolo 161 000 HUF, v 2021 nárast na 167 400 HUF. Ďalej sme preto nahliadli na vývoj kurzu medzi menou EURO a HUF za ostatné dva roky. Tu sme práve našli príčinu poklesu stanovenej úrovne minimálnej mzdy v Maďarsku vyjadrenú v eurách. Do roku 2021 kurz maďarského forintu ku euru narástol, to znamená, že jeden maďarský forint vyjadrený v eurách má nižšiu hodnotu. To spôsobilo aj pokles úrovne minimálnej mzdy vyjadrenej v eurách, aj napriek tomu, že došlo k jej nárastu vyjadrenej v maďarských forintoch. V prípade, ak by sme využili na prepočet výšky minimálnej mzdy kurz z obdobia, kedy bol uskutočnený prepočet pre rok 2019 dostali by sme sa na hodnotu približne 502 €.

Uvedené zistenia nás naviedli sa bližšie pozreli aj na vývoj kurzu českej koruny a poľského zlotého voči euru. Práve medziročný rastúci trend vývoj úrovne minimálnej mzdy sa akoby medzi rokmi 2020 a 2021 mierne zoslabil. Tu došlo k podobnej situácií, kedy meny dvoch spomenutých krajín voči euru mierne oslabili, čo aj spôsobilo spomalenie medziročného rastu.

Na základe analýzy údajov prichádzame ku skutočnosti, ktorá potvrdzuje, že z istého uhla pohľadu môže mena euro prinášať krajinám väčšiu mieru stability. Treba ďalej konštatovať, že oslabenie napríklad maďarského forintu voči euru, má dopad na úroveň príjmov slovenských občanov dochádzajúcich za prácou do Maďarska. V prípade ak poberajú minimálnu mzdu, ktorej úroveň narástla, v ich príjme sa to prejaví poklesom.

Jedným z ukazovateľov týkajúcich sa úrovne miezd v krajinách je aj takzvaný medián. V súvislosti s minimálnou mzdou OECD vykazuje podiel minimálnych miezd na mediáne zárobkov zamestnancov na plný úväzok. OECD píše v komentári ku uvádzanej štatistike, že práve mediánová mzda na rozdiel od priemernej poskytuje lepší základ pre medzinárodné porovnanie, pretože zohľadňuje rozdiely v rozptyle zárobkov v jednotlivých krajinách. Aj napriek tomu, že mediánová hodnota je pre medzinárodné porovnávanie ideálna, nie je bohužiaľ k dispozícií za všetky krajiny. My sa opäť zameriame na krajiny V4, ktoré spomenutá databáza eviduje.

Obrázok 3. Percentuálny podiel minimálnych miezd na mediánovej hodnote miezd zamestnancov na plný úväzok v krajinách V4



	2014	2015	2016	2017	2018	2019
Česká republika	37%	39%	40%	41%	42%	43%
Poľsko	51%	51%	53%	54%	51%	52%
Maďarsko	54%	53%	51%	53%	52%	50%
Slovensko	45%	47%	48%	48%	49%	49%

Zdroj: Vlastné spracovanie na základe údajov OECD.STAT

Percentuálny podiel minimálnej mzdy na mediáne mzdy v uvedených krajinách sa v sledovanom období vyvíjal odlišným spôsobom. Približne podobný trend aj keď s rozdielnymi hodnotami vidíme v Českej republike a na Slovensku. V roku 2019 to bolo 43% v prvom prípade a 49% v prípade druhom. Pri Maďarsku evidujeme kolísavý vývoj, kedy dochádzalo k medziročným rastom a poklesom na úrovni od 1 do 2 percentuálnych bodov, pričom sa posledný evidovaný údaj zastavil na hodnote 50%. Najvyšší podiel v roku 2019 dosiahlo Poľsko, a to 52%.

Viacero odborníkov dlhodobo diskutuje o spôsobe stanovovania úrovne minimálnej mzdy. Aj na úrovni Európskej únie si diskutovalo o nastavení takzvanej európskej minimálnej mzdy, ktorá by predstavovala 60 % mediánu mzdy. Na základe horeuvedených dát je jasné, že vo všetkých 4 štátoch V4 by musela úroveň minimálnej mzdy výrazne vzrásť.

4. ZÁVER

Analýza úrovne minimálnej mzdy v jednotlivých krajinách nám poukázala na skutočnosť, že západné vyspelejšie krajiny majú dlhodobo minimálnu mzdu na vyššej úrovni. Vo väčšine členských krajín EÚ, ktoré patria do skupiny štátov bývalého východného bloku je úroveň minimálnej mzdy na výrazne nižšej úrovni, čo môže byť dôsledkom kedysi centrálne plánovanej ekonomiky. Na základe údajov sledovaných v príspevku môžeme konštatovať, že vývoj minimálnej mzdy na Slovensku v podstate je podobný ako v väčšine krajín V4.

V predkladanej štúdii sme analyzovali prístupy viacerých autorov a odborníkov, ktorí skúmali jej vplyv na zamestnanosť. Stotožňujeme sa s názorom, že práve správne nastavená výška minimálnej mzdy môže mať motivačný charakter. Tu sa však musí brať ohľad predovšetkým na pomer výšky podpory v nezamestnanosti, plus rôznych ďalších príspevkov a výšky minimálnej mzdy. Pokiaľ tento rozdiel bude dostatočne vysoký, práve jednotlivci bez práce budú motivovaní sa zamestnať a zabezpečiť si tak vyšší príjem.

Vo svete exituje niekoľko mechanizmov a rozdielnych procesov pre stanovenie výšky minimálnej mzdy: niekde rozhodujú výlučne verejné autority, najčastejšie vláda (prípadne s parlamentom) bez verejných konzultácií a komunikácie so sociálnymi partnermi, inde verejné autority spoločne alebo po konzultáciách so sociálnymi partnermi, prípadne nahrádzajú sociálnych partnerov v prípade, že nedosiahnu dohodu (tento systém používa Slovenská republika). Sú aj krajiny, kde minimálna mzda stanovená nie je (do roku 2015 to bolo aj Nemecko). Za hlavné pozitívum zavedenia minimálnej mzdy ako dolnej hranice výšky odmeny za vykonanú prácu sa považuje najmä ochrana zamestnancov. Zástancovia zvyšovania minimálnej mzdy ďalej argumentujú, že spolu s tým súvisíi zvyšovanie životnej úrovne pracovníkov na hranici chudoby. Jedným z najsilnejších argumentov proti zvyšovaniu minimálnej mzdy je následný dopad na zvyšujúcu sa nezamestnanosť (resp. znižujúcu sa zamestnanosť). Ďalším argumentom proti navyšovaniu minimálnych miezd je ich negatívny dopad na vytváranie tlaku na zvyšovanie výdavkov zamestnávateľov, celkovým zvýšením ceny práce.

Problematika minimálnej mzdy je široká. Je dôležité, aby bol prijtý mechanizmus, ktorý bude dostatočne reflektovať na stav ekonomiky v štáte, na aktuálnu situáciu na trhu práce, aby príliš vysoké navýšenie minimálnej mzdy nebolo pre zamestnávateľov, najmä pre malé a stredné podniky, likvidačné.

LITERATÚRA

[1] Betcherman, G. (2015). *Labor Market Regulations: What do we know about their Impacts in* Developing Countries?. The World Bank Research Observer, Vol. 30, Iss. 1., 124-153 s. [online]. [cit.2021-8-23]. K dispozícií na: https://doi.org/10.1093/wbro/lku005

[2] Christl, M., Köppl-Turyna, M. & Kucsera, Dé. (2019). Employment Effects of Minimum Wages, ifo DICE Report, ISSN 2511-7823, Institut – LeibnizInstitut für Wirtschaftsforschung an der Universität München, München, Vol. 16, Iss. 4, pp. 1-8. [online]. [cit.2021-9-8]. K dispozícií na: https://www.econstor.eu/handle/10419/199040

[3] Európska komisia. (2020). [online]. [cit.2021-8-14]. K dispozícií na: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2020:0682:FIN:SK:PDF

[4] Európska komisia. (2020). Primerané minimálne mzdy, [online]. [cit.2021-8-23]. ISBN 978-92-76-23852-2 K dispozícií na: doi: 10.2767/765083

[5] Eurostat. (2021). [online]. [cit.2021-9-12]. K dispozícií na: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_mw_cur&lang=en

[6] ILO. (1970). Dohovor č. 131 o minimálnej mzde. [online]. [cit.2021-8-30]. K dispozícií na: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C131

[7] ILO. (2016). Minimum Wage Policy Guide: Full Chapters., [online]. [cit.2021-8-9]. K dispozícií na: https://www.ilo.org/global/docs/WCMS_508566/lang--en/index.htm

[8] ILO. (2021). [online]. [cit.2021-9-12]. K dispozícií na: https://www.ilo.org/global/topics/wages/minimum-wages/definition/lang--en/index.htm

[9] Kmec, P. (2020). Európska komisia navrhla smernicu o minimálnej mzde. Pravda, [online]. [cit.2021-7-13]. K dispozícií na: https://peter2020.blog.pravda.sk/2020/11/01/europska-komisia-navrhla-smernicu-o-minimalnej-mzde/?print

[10] Macková, Z. (2013). Funkcie mzdy a história minimálnej mzdy. *Poradca podnikateľa.* ISSN 2644-5301 [online]. [cit.2021-9-11]. K dispozícií na: https://www.mzdovecentrum.sk/odborny-clanok/funkcie-mzdy-a-historia-minimalnej-mzdy.htm

[11] Neumark, D. & W. Wascher (2006). *Minimum Wage and Employment*: A Review of Evidence from the New Minimum Wage Research. NBER Working Paper Series, Working Paper no. 12663.

[12] Neumark, D. & W. Wascher (2008). *Minimum Wages*, The MIT Press., 392 s., ISBN: 9780262515085

[13] OECD. (2021). [online]. [cit.2021-9-12]. K dispozícií na: https://stats.oecd.org/Index.aspx?DataSetCode=AV_AN_WAGE#

[14] Ondruš, B., Štefánková, I., Líška, P. & Kramer, T., (2017) *Minimálna mzda – empirické zistenia kontra ideologické mýty*. IA MPSVR SR. [online]. [cit.2021-9-12]. K dispozícií na: https://www.employment.gov.sk/files/slovensky/uvod/informacie-media/aktuality/analyza-mm.pdf

[15] Schmitt, J. (2013): *Why does the minimum wage have no discernible effect on employment?* Working paper, Centre for Economic and Policy Research. [online]. [cit.2021-9-11]. K dispozícií na: https://cepr.net/report/why-does-the-minimum-wage-have-no-discernible-effect-on-employment/

[16] Sturn, S. (2018). Do minimum wages lead to job losses? Evidence from OECD countries on low-skilled and youth employment. *Industrial and Labor Relations Review*, 71 (3), 647-675.

[17] Zákon č. 663/2007 Z. z.. Zákon o minimálnej mzde v znení neskorších predpisov

MODELING THE LEVEL OF FINANCIAL SECURITY OF ENTERPRISES IN THE AGRICULTURAL SECTOR OF THE ECONOMY AS A CONDITION FOR INCREASING THE LEVEL OF EMPLOYMENT OF THE RURAL POPULATION

***Zoia TITENKO*[144]**

Abstract. *The relevance of the research topic is due to the fact that in modern economic conditions ensuring the appropriate level of financial security of agricultural enterprises is a prerequisite for sustainable development of rural areas, increasing employment and the basis for ensuring financial security of the state as a whole. Therefore, the issues of improving the assessment of financial security of enterprises in the modern economic development are gaining special importance today. The aim of the article is to improve methodological approaches to assessing the financial security of different types of enterprises in the agricultural sector of the economy. The paper analyzes the level of financial security of enterprises in the agricultural sector of Ukraine using an integrated indicator that takes into account not only the available financial resources, but also the level of production potential of these enterprises. The result of the study are clearly defined proposals for improving the financial security of these enterprises as a prerequisite for the development of rural areas.*

Key words: *agricultural sector, financial security, industrial revolution, national security, rural population.*

JEL Classification: *J21, Q14, Q18*

1. INTRODUCTION

In conditions of financial and political instability, intensive spread of negative phenomena in the economy, threatening the financial condition of the enterprise and its competitive position in the market, the issue of increasing financial security is becoming increasingly important. It should be noted that for enterprises in the agricultural sector, the level of financial security is evidence of the efficiency and effectiveness of its activities. Taking into account external and internal environmental factors, assessing the level of financial risks plays a primary role in ensuring an appropriate level of financial security.

In Ukraine, the agricultural sector is a leading industry and one of the strategic directions of national economy development. The industrial revolution directly affected the number of jobs in the countryside, displacing small businesses and increasing the presence of large ones. However, small business is an integral part of the world market economic system. In economics have long been axiomatic concepts that, firstly, small business plays a crucial role in solving problems of economic and social development of the state, and secondly, that active government support for small business development in the future provides more jobs, increases the tax base and the growth of national income (Entrepreneurship development in Ukraine, 2021; Davydenko, 2020; Kordos, Sokol, 2020). Therefore, assessing the level of financial security of enterprises, it is advisable to conduct it in terms of certain types of enterprises.

The issue of ensuring the appropriate level of financial security of enterprises in the agricultural sector is extremely important because it has a direct impact on the financial security of the state as a whole. In order to reduce or eliminate the negative effects of global financial crises and their impact on financial relations in the country, it is necessary to

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develop effective measures to improve the financial condition of enterprises in priority sectors of the economy, including the agricultural sector.

Studies of literature sources show that scientists in their works provide a variety of methods for assessing the financial security of enterprises. We believe that the urgency of the problems associated with a comprehensive assessment of the level of financial security of agricultural enterprises is due to the crucial importance of identifying shortcomings in their financial condition and avoid them, as well as the need to develop a comprehensive statistical model of financial security management system using a multiplicative multifactor model.

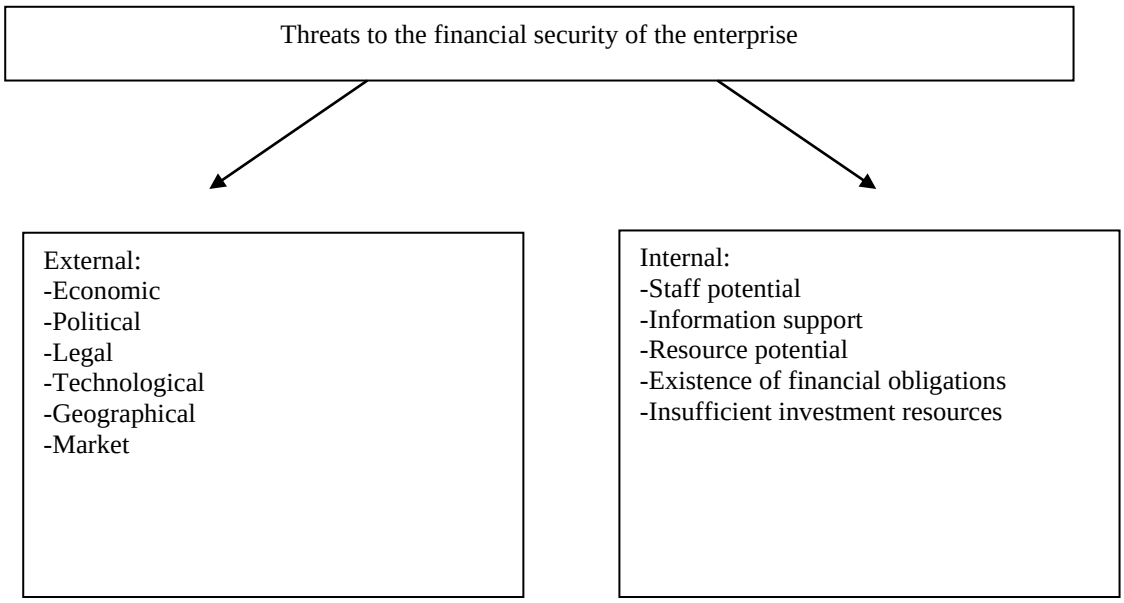
2. PROBLEM FORMULATION AND METHODOLOGY

In the current crisis in the economy of Ukraine, the issue of ensuring the appropriate level of financial security of the enterprise comes to the fore, because the company's ability to develop stably and carry out effective economic activity is determined by the stability of its financial condition, financial efficiency, ensuring these basic principles of Ukrainian enterprises. to increase the level of financial security of Ukraine.

The concept of financial security of the enterprise is quite complex and there is no single interpretation among scientists. Most scientists define financial security as the ability to counteract internal and external threats, its main criteria are the protection of all structural elements of the enterprise from threats (Blank I.,2006; Afanasyeva D., 2018; Mulik Y., 2013; Davydenko N. 2015).

A number of scientists offer a different approach, which is based on achieving the goal of economic activity of the enterprise as an object of priority. The essence of the concept of financial security and the task of the financial security system is the ability of the enterprise to function effectively. The criterion of financial security is the achievement of the goal by the enterprise (Bondarchuk N., 2018; Lysa O., 2016; Zhuravka O., 2012; Berdar M., 2011.

Figure 1. Threats to the financial security of the enterprise



Source: formed by the author on the basis of (Kudrytska Zh., 2012)

The main condition of financial security of the enterprise - the ability to withstand existing and emerging financial dangers and threats (Fig. 1), which can cause financial damage to the company. Timely identification and systematization of threats to the financial security of the enterprise makes it possible to counteract these threats or prevent them in general, which will have a significant positive impact on strengthening the financial security of the enterprise.

Assessment of the financial security of an enterprise involves, first of all, identification of its financial condition. The research conducted by scientists allowed us to take certain steps towards the formation of a system of indicators for assessing financial security, but it is necessary to further clarify it. In principle, such a system should include various groups of quantitative indicators that characterize a particular direction in ensuring the financial security of the business entity. The financial condition of an enterprise is assessed on the basis of indicators that reflect the financial and economic activities of the enterprise, the availability, placement, use and movement of resources of the enterprise. As you know, the main areas of analysis of the financial condition of an enterprise include: assessment of asset liquidity, solvency and creditworthiness, financial stability, business activity and profitability of the enterprise. The characteristics of an enterprise in such areas allow us to assess its financial condition (ability to finance its activities) and its financial resources (Golovko, 2016).

It should be noted that there is no single approach to determining the criteria for assessing the financial security of business entities. Most scholars believe that the assessment of financial security should be reduced to a simple analysis of the financial condition of the enterprise. Under this approach, the indicators of stability, liquidity, business activity, financial leverage and others are compared with the limit values of financial indicators. Other methods of assessing the financial security of business entities include the following: rating model of financial security assessment, model of financial security analysis based on STEP analysis, SWOT analysis SPACE analysis, methods of financial security analysis based on methods of assessing the propensity of entrepreneurship to bankruptcy (Altman's five-factor model, Spingain's model, Fulmer's model, matrix method of estimating the bankruptcy of an enterprise using fuzzy sets), econometric methods of assessing the financial security of business entities, etc. (Dimitrov I., 2019; Sudoplatov A., 2011).

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

The analysis of financial security of the enterprise of agrarian sector will be carried out on the basis of economic and mathematical modeling of mechanisms of financial safety of subjects of business which provides:

- definition of research objects (comparison) - large, medium, small and micro enterprises;
- determination of the system of indicators for economic security by types of enterprises of Ukraine;
- calculation of selected indicators for the period 2013-2019 years;
- rationing of averages;
- calculation of integrated indices separately for each block of indicators;
- calculation of the significance of factors;
- determination of an integrated assessment of financial security of different types of enterprises.
- analysis of results.

Adequate mathematical models for managing the financial security of enterprises provide for comprehensive consideration of factors related to the peculiarities of the functioning of

enterprises in modern market conditions. The influence of these factors is not the same, so the weight of each individual indicator in the general population is slightly different. Therefore, when making informed decisions, it is important to take into account the practical importance of processing fuzzy data and the need to use a fuzzy-multiple approach. The author has developed a multi-factor model for analyzing the level of financial security of an enterprise in the agricultural sector, which makes it possible to calculate an integral indicator of financial security of an enterprise based on various groups of factors that are distributed by fuzzy levels, in particular production, financial stability, profitability and business activity.

At formation of the generalizing indicator it is necessary to provide information unidirectionality of indicators.

For comparability and comparison requires preliminary rationing of selected indicators. Normalization of indicators by the formula

$$I_{ij} = \frac{x_{max\,i} - x_{ij}}{x_{max\,i} - x_{min\,i}}, \tag{1}$$

where I_{ij} – normalized value of the i-th indicator of the j-th type of enterprises;

x_{ij} – the value of the i-th indicator of the j-th type of enterprises;

$x_{max\,i}$ – maximum value of the i-th indicator;

$x_{min\,i}$ – the minimum value of the i-th indicator.

It is proposed to include the following groups of indicators in the indicators of financial security assessment of the enterprise of the agricultural sector, taking into account their importance (Table 1).

Table 1. Calculation of weights for groups of indicators

Group name	Group weight	Coefficient	Weight indicator
Assessment of production potential	0,4	income (revenue) per 1 employee	0,1
		production per 1 employee	0,1
		value added per 1 employee	0,1
		net income per 1 employee	0,1
Assessment of financial stability	0,3	coverage ratio	0,075
		financial stability ratio	0,075
		coefficient of independence	0,075
		asset mobility	0,075
Profitability assessment	0,2	return on assets	0,05
		return on equity	0,05
		profitability	0,05
		profitability of operating activities	0,05
Assessment of business activity	0,1	asset turnover	0,033
		return on equity	0,033
		investment attraction ratio	0,033

The next step was to calculate the significance of the factors by the Fishburne rule.

$$a_i = \frac{2 \cdot (n - i + 1)}{n \cdot (n + 1)} \tag{2}$$

$$\left\{ \begin{array}{l} \sum_{a_i=1}^{n} a_i = 1 \\ a_i \geq 0, i = 1, n \end{array} \right\}, \tag{3}$$

where, *ai* - weight of the i-th group of indicators;

i – group number;

n –number of groups.

After receiving the weights, the calculation of integrated indicators by groups of coefficients and the integrated indicator of financial security assessment of each type of enterprises was performed.

For each period of time for all types of enterprises for all groups of indicators we get the collapse of these indicators within their groups according to the formula:

$$A_{j\,k} = \sum_{i=1}^{m} I_{ij} \cdot r_i \ , \tag{4}$$

where I_{ij} – normalized i-th indicator of the j-th type of the enterprise;

r_{ij} – weight of the i-th indicator;

m – the number of indicators of the k-th group.

An integrated assessment of the financial security of the enterprise is calculated by the formula:

$$A_j = \sum_{k=1}^{n} A_{jk} \ , \tag{5}$$

We will assess the financial security of different types of enterprises in the agricultural sector in accordance with the proposed methodology (Table 2).

Table 2. Assessment of financial security of different types of enterprises in the agricultural sector of the economy

Indicators	Large		Medium		Small		Micro	
	2013	2019	2013	2019	2013	2019	2013	2019
Assessment of production potential								
income (revenue) per 1 employee	603,58	1721,56	235,44	1041,13	248,93	1124,08	197,79	977,11
production per 1 employee	636,61	1880,86	284,44	1185,34	308,57	1238,93	242,54	1120,67
value added per 1 employee	254,74	229,91	87,68	429,91	130,65	435,02	107,83	429,54
net income per 1 employee	98,32	116,72	19,59	273,50	21,90	108,06	15,07	87,90
Integral index	0,01	0,18	0,37	0,19	0,34	0,25	0,39	0,30
Assessment of financial stability								
coverage ratio	1,79	1,31	1,73	1,64	1,72	1,55	1,54	1,32
coefficient of financial stability	1,00	1,25	0,94	1,16	1,13	0,85	1,00	0,65
coefficient of independence	0,50	0,56	0,48	0,54	0,53	0,46	0,50	0,39
asset mobility	2,54	0,86	1,60	1,75	1,53	2,06	1,40	2,59
Integral indicator	0,10	0,15	0,23	0,06	0,09	0,14	0,25	0,22
Profitability assessment								
return on assets	8,81	3,05	4,16	15,11	4,21	4,85	2,99	3,50

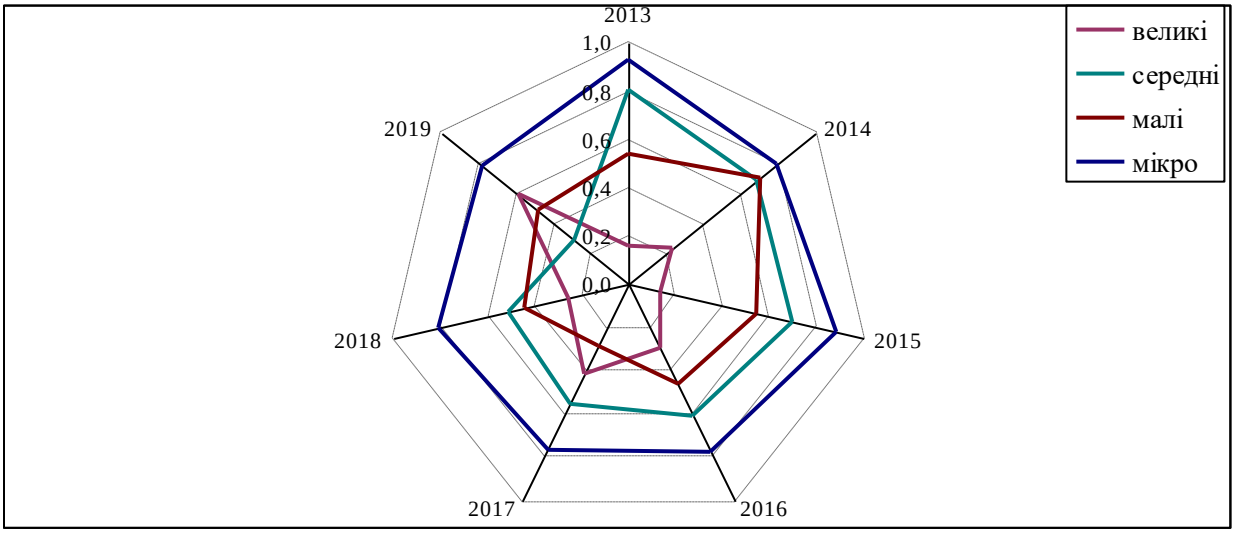
return on equity	17,65	5,49	8,60	28,17	7,93	10,57	5,97	8,86
profitability	20,05	8,28	8,89	27,69	13,11	13,47	13,34	15,65
profitability of operating activities	15,25	6,11	6,63	24,98	8,26	9,62	7,27	8,98
Integral indicator	0,01	0,20	0,18	0,01	0,15	0,16	0,18	0,16
Assessment of business activity								
asset turnover	0,54	0,45	0,50	0,58	0,48	0,50	0,39	0,39
return on equity	1,08	0,81	1,03	1,07	0,90	1,10	0,78	0,98
investment attraction ratio	0,10	0,15	0,13	0,11	0,11	0,09	0,09	0,05
Integral indicator	0,03	0,06	0,01	0,02	0,05	0,03	0,10	0,08
General integrated indicator	**0,12**	**0,59**	**0,80**	**0,26**	**0,63**	**0,58**	**0,91**	**0,77**

Source: Calculated by the author according to the data (Official site of the State Statistics Service of Ukraine)

The analysis of financial security of different types of enterprises in the agricultural sector of the economy shows that in 2013 the highest level was held by large enterprises. The integrated indicator was 0.12, according to the proposed method, the closer the value is to 0, the higher the level of financial security, because we carried out the rationing of this set of indicators. It should be noted that this group of enterprises in 2013 had the most optimal value of integrated indicators for assessing production potential and assessing profitability. In 2019, the situation changed somewhat, as the most optimal value of the integrated indicator (approaching 0) had medium-sized enterprises, its value was 0.26, for comparison in 2013 in these enterprises, this indicator was 0.80. For large enterprises, in 2019 the integrated indicator of financial security was 0.59, the decrease in the level of financial security is mainly due to a significant decrease in profitability and business activity.

The dynamics of changes in the integrated indicators of financial security of different types of enterprises in the agricultural sector can be seen in Figure 2.

Figure 1. Dynamics of change of the integrated indicator of financial security of different types of enterprises of the agricultural sector, 2013-2019 years.



Source: Calculated by the author according to the data (Official site of the State Statistics Service of Ukraine)

The research (Fig. 2) clearly shows that during the study period, the highest level of financial security had large enterprises, only in 2019 there is a slight decrease in this indicator. The lowest level of financial security from the proposed set of enterprises had micro-enterprises,

because during the study period the integrated indicator fluctuated in the range of 0.8-0.9, and its approach to the unit indicates a negative trend.

4. CONCLUSION

The financial security of agricultural enterprises is related to their ability to effectively use available financial resources while reducing the impact of negative external and internal factors. Given that the risks associated with the financial activities of the enterprise are among the most dangerous in their negative consequences, it is advisable to ensure their constant monitoring and timely diagnosis.

The article conducts an integrated assessment of financial security of different types of agricultural enterprises, taking into account four groups of indicators, including assessment of production potential, assessment of financial stability, assessment of profitability and business activity, pre-rationing for 2013-2019. Ukraine allowed to state that there is an imbalance in the level of financial security of enterprises of different types, which is due to the peculiarities of the use of available financial resources.

To increase the level of financial security of small enterprises, it is advisable to introduce financial support, soft loans, ensuring access of small businesses to modern technologies of "know-how" and involvement in government procurement, which will promote rural development and employment.

In the process of financial security management, an important place should be given to the development and implementation of reliable indicators, which will allow to objectively assess the level of financial security of the enterprise and make effective management decisions in a timely manner. The use in practice of the proposed methodological approach to measuring the level of financial security of enterprises will help to achieve this goal.

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REFERENCES

[1] Afanasyeva D. A. (2018). *The main indicators of financial security of the enterprise.* Bryansk: Publishing house of the Bryansk branch of RANEPA. 332 p.

[2] Berdar M. (2011). Ensuring financial security of business entities. *Bulletin of Kyiv National University. T. Shevchenko. Economy*. vol. 124/125. pp. 73-76.

[3] Blank I. A. (2006). *Financial security management of the enterprise*. K.: Nika Center, Elga, 776 p.

[4] Bondarchuk N. V. (2018). Management of the company's financial security system. *A young scientist.* 2018. vol.9 (1). pp. 237-240.

[5] Davydenko N.M. (2015). Modern paradigm of agrarian units' financial security assessment. *Economic Journal XXI.* №5- 6. С. 90 – 93.

[6] Davydenko N., Dibrova A., Onishko S. & Fedoryshyna L. (2020). The Influence Of The Gross Regional Product On The Formation Of The Financial Potential Of The Region. *Journal of Optimization in Industrial Engineering* (JOIE). [online]. [cit.2021-10-17]. Available at: http://www.qjie.ir/article_677843.html.

[7] Dimitrov I., Davydenko N., Lotko A. & Dimitrova A. (2019). Comparative study of environmental determinants of entrepreneurship intentions of business students. *International Conference on Creative Business for Smart and Sustainable Growth*, CreBUS. [online]. [cit.2021-10-17]. Available at: https://www.scopus.com/record/display.uri?eid=2-s2.0-85073230707&origin=resultslist&sort=plf-f&src=s&sid=fe49486a375106cf302880a044b82674&sot=autdocs&sdt=autdocs&sl=18&s=AU-ID%2856912202600%29&relpos=0&citeCnt=0&searchTerm=.

[8] Entrepreneurship development in Ukraine. (2021). Internet conference. [online]. [cit.2021-10-17]. Available at: http://www.br.com.ua/ referats / pidpriemnictvo / 5550.htm? Dl .

[9] Golovko O.G. (2016). Modeling the level of financial security of the enterprise. *Scientific Bulletin of Kherson State University.* issue. 16 (4). p. 148-151.

[10] Kordos, M. & Sokol, J. (2020). The Synergy of Tourism and Industry 4.0 in Spain within the Example of AirBnB and Collaborative Economy. In: Vplyv Industry 4.0 na tvorbu pracovnych miest 2019, pp. 213-222.

[11] Kudrytska Zh. V. (2012). Enterprise financial security management system. *Efficient economy.* vol.1. [online]. [cit.2021-10-17]. Available at: http://www.economy.nayka.com.ua.

[12] Lysa O. V. (2016) Financial security of business entities in modern conditions. *Economic analysis: sat. scientific works. Ternopil: "ekonomichna dumka"*. Vol. 26. No 1. pp. 58-64.

[13] Mulik Y.I. (2013). The essence of the concept of "Financial security of an enterprise": systematization of scientific views. *Collection of scientific papers of VNAU. Series: Economic Sciences.* vol. 3 (80). pp. 195-206.

[14] Official site of the State Statistics Service of Ukraine (2020). [online]. [cit.2021-07-30]. Available at: http://ukrstat.gov.ua.

[15] Zhuravka O. S. (2012). Theoretical aspects of the formation of the financial security system of the enterprise. *Innovative economy.* vol. 4.pp. 234-237.

VÝVOJ MIEZD V ZDRAVOTNÍCTVE A ICH VPLYV NA UDRŽATEĽNOSŤ PERSONÁLNEHO ZABEZPEČENIA ZDRAVOTNÍCKYCH ZARIADENÍ V SLOVENSKEJ REPUBLIKE

DEVELOPMENT OF HEALTH IN HEALTHCARE AND ITS IMPACT ON THE SUSTAINABILITY OF PERSONNEL SECURITY OF MEDICAL FACILITIES IN THE SLOVAK REPUBLIC

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Abstrakt: *Nesúlad na trhu práce v odvetví zdravotníctva na Slovensku sa dlhodobo prehlbuje. Počet lekárov a sestier v zdravotníckych zariadeniach v systéme zdravotníctva SR sa znižuje a udržateľnosť personálneho zabezpečenia v nich je ohrozené. Zdroje pracovnej sily predstavujú absolventi a pracovní imigranti, pre ktoré je výška mzdy dôležitým motivačným faktorom. Cieľom predkladanej štúdie je zistiť vplyv miezd na udržateľnosť personálneho zabezpečenia zdravotníckych zariadení v Slovenskej republike. Analýza trhu práce v odvetví zdravotníctva sa uskutočnila prostredníctvom analýzy časových radov štatistických dát získaných z databáz ŠÚ SR, OECD, WHO, CVTI a NCZI. K určeniu parametrov regresnej funkcie boli použité metódy regresnej a korelačnej analýzy s testovaním štatistickej významnosti.*

Kľúčové slová: *lekári, mzdy, sestry, udržateľnosť, zdravotnícki pracovníci*

Abstract: *The mismatch in the labor market in the healthcare sector in Slovakia has been deepening for a long time. The number of doctors and nurses in health care facilities in the Slovak health care system is decreasing and the sustainability of staffing in them is endangered. Sources of labor are graduates and immigrant workers, for whom wages are an important motivating factor.The aim of the presented study is to determine the impact of wages on the sustainability of staffing of medical facilities in the Slovak Republic. The analysis of the labor market in the health care sector was carried out through the analysis of time series of statistical data obtained from the databases of the Statistical Office of the Slovak Republic, OECD, WHO, CVTI and NCZI. Methods of regression and correlation analysis with statistical significance testing were used to determine the parameters of the regression function.*

Key words *healthcare workers, nurses, physicians, sustainability, wages*

JEL Classification: *I19, J21, J22*

1. ÚVOD

Migrácia zdravotníckych pracovníkov v globálnych súvislostiach počnúc vyspelými krajinami so stabilným rastom ekonomík až po rozvojové krajiny, zmietajúce sa viac či menej v hospodárskych problémoch je problematikou, ktorej odborná verejnosť venuje svoju pozornosť od konca druhej svetovej vojny (Valiani, 2012; Yeates, 2010; Bach, 2010; Connell, 2012). Hospodárske, politické i spoločenské zmeny v Európskej únií v posledných dvoch desaťročiach poukazujú na potrebu uchopiť problém v kontexte demografických zmien, rastu

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kvality života z pohľadu rokov dožitých v zdraví a zmien na trhu zdravotnej starostlivosti (Hardy, J. at al. 2016).

Starnutie obyvateľstva, znižovanie počtu produktívneho obyvateľstva, zvyšovanie kvality života vytvára tlak na zdravotné systémy v krajinách Európskej únie, čo sa prejavuje v rastúcom dopyte po pracovnej sile v oblasti zdravotníctva a sociálnej pomoci. Uvedené potvrdzujú štatistiky krajín OECD, ktoré zaznamenávajú rast zamestnanosti v tomto odvetví hospodárstva priemerne na úrovni 12 až 15% (WHO, 2019). Rozdiely v kvalite a rozpočtoch zdravotných systémov, v mzdovej úrovni a pracovných podmienkach viedli k zvýšeniu migrácie pracovnej sily v tomto odvetví.

Podľa neoklasickej teórie na makroúrovni možno pracovných migrantov považovať za najracionálnejších zástupcov reagujúcich na ekonomické stimuly (Hodgson, 2008). Tu sa prejavujú nerovnosti (Valiani, 2012) v makroekonomických ukazovateľoch krajín HDP, mzdovej úrovni, úrovni zamestnanosti a nezamestnanosti, a to s dôrazom na odvetvie zdravotníctva a sociálnej pomoci.

Ak vychádzame z tézy, že hospodárske väzby sú zakotvené a vychádzajú zo sociálnych väzieb, potom zdravotníctvo nie je určované len ekonomicky ale i sociálne a politicky. Uvedené dokazuje aproximácia práva v prístupových procesoch, smernice a nariadenia Európskej únie liberalizujúce uznávanie kvalifikácii zdravotníckych profesií (ES 2005 a 2012) a zjednodušujúce podmienky migrácie zdravotníckych pracovníkov počas prechodných opatrení, aj v krajinách ktoré svoje pracovné trhy uzavreli. Vplyv formálnych a neformálnych inštitúcií a štátu pri riadení migrácie zdravotníckych pracovníkov môžeme vidieť na Slovensku ale i v ostatných krajinách V4 v oblastiach inštitucionalizácie vzdelávania, náborových stratégií vlád či spôsobmi ako „prinútiť“ absolventov odpracovať náklady štátu na ich vzdelanie. Na druhej strane prilákanie chýbajúcich pracovných síl z tretích krajín, prostredníctvom národnej a inštitucionálnej podpory.

Ďalší rozmer pohľadu na pracovného migranta je psychologický. Potenciálny migrant hľadajúci si prácu v zahraničí je subjektom vytvárajúcim si vlastnú životnú cestu s cieľom zlepšiť svoj život (Kureková, Žilinčíková; 2016).

Pracovná migrácia zdravotníckych pracovníkov je rastúcou funkciou zahraničných miezd a pracovných podmienok v zahraniční a klesajúcou funkciou domácej mzdy, domácich pracovných podmienok a priamych nákladov na prácu. Emigrácia pracovnej sily v odvetví zdravotníctva je zároveň klesajúcou funkciou kompenzačného diferenciálu tvorená vplyvom politických rozhodnutí a osobných komponentov. Očakáva sa, že zlepšenie domácich životných podmienok bude pozitívne pôsobiť na stabilizáciu zdravotníckych pracovníkov v domácej krajine, príp. na návratovú migráciu zdravotníckych pracovníkov s know-how zo zahraničia.

2. CIEĽ A METODOLÓGIA

Cieľom predkladanej štúdie je skúmať vplyv výšky miezd na udržateľnosť personálneho zabezpečenia zdravotníckych zariadení v Slovenskej republike lekármi a sestrami. Na základe zistenia závislosti medzi výškou miezd a počtom zdravotníckych pracovníkov (lekárov a sestier) do 29 rokov poukážeme na významnosť výšky miezd pri rozhodovaní absolventov v odbore všeobecná medicína a ošetrovateľstvo zamestnať s na Slovensku alebo emigrovať za prácou do zahraničia.

Pre realizáciu stanoveného cieľa boli vytýčené nasledovné úlohy:

- analýza súčasného stavu poznania,
- spracovanie vývoja personálneho zabezpečenia zdravotníckych zariadení v SR,

- skúmanie prítoku absolventov všeobecného lekárstva a ošetrovateľstva do stavu perosnálu zdravotníckych zariadení v SR,
- skúmanie vplyvu výšky miezd na počet zdravotníckych pracovníkov do 29 rokov.

K zisteniu závislosti medzi úrovňou miezd a počtom lekárov a sestier do 29 rokov sme využili regresnú analýzu, vyčísili sme korelačný koeficient, koeficient determinácie, i ukazovateľ ANOVA. Závislosť premenných počet absolventov a počet lekárv a sestier do 29 rokov sme uskutočnili prostredníctvom korelačnej analýzy.

Analýza trhu práce v odvetví zdravotníctva sa uskutočnila prostredníctvom analýzy časových radov štatistických dát získaných z databáz ŠÚ SR, OECD, WHO, CVTI a NCZI za dostupné obdobie.

3. RIEŠENIE PROBLÉMU

3.1 Personálne zabezpečenie zdravontíckych zariadení na Slovensku

Zdravotnícky personál podľa klasifikácie profesií môžeme rozdeliť na viacero pracovných pozícií. Pre účely našej štúdie sme si vybrali dve – lekárov a zdravotné sestry, ktorí tvoria základ poskytovania zdravotníckych služieb. V zdravotníckych zariadeniach v SR v roku 2019 pracovalo 19454 registrovaných lekárov, t. j. 3,57 lekára na 1000 obyvateľov. Vývoj celkového počtu od roku 2000 bol relatívne stabilný (Tabuľka 1). Pri hlbšej analýze zistíme, že v dôchodkovom veku je v súčasnosti takmer štvrtina z nich. V prípade, že by zdravotnícke zariadenia nedisponovali týmto počtom, potom by na 1000 obyvateľov pripadalo len 2,75 lekára, čo je hlboko pod priemerom Európskej únie (3,6 lekára/1000 obyvateľov).

Tabuľka 1. Vývoj počtu lekárov na Slovensku v období 2000 - 2019

	Lekári spolu	20 - 29	30 - 39	40 - 49	50 - 59	60 - 64	65 +
2000	19894	3139	4022	7030	4528	1098	628
2001	19489	2379	4155	6390	5081	917	567
2002	19205	1942	4286	5949	5450	1034	544
2003	16211	1477	3957	4687	4672	962	456
2004	16707	1336	4145	4428	5048	1179	571
2005	16318	1207	3970	4009	5280	1198	654
2006	17040	1402	4191	3862	5529	1321	735
2007	18219	1597	4361	4031	5808	1497	925
2008	18121	1816	4142	3881	5676	1563	1043
2009	17798	1794	4003	3753	5483	1591	1174
2010	18110	2065	3908	3844	5273	1755	1265
2011	17849	2091	3594	3968	5056	1842	1298
2012	18193	2128	3501	4188	4844	2083	1449
2013	18355	2180	3479	4397	4420	2247	1632
2014	18574	2076	3613	4496	4103	2498	1788
2015	18719	2067	3736	4491	3824	2653	1948
2016	18864	2093	3808	4502	3582	2702	2177
2017	18608	2094	3834	4376	3349	2588	2367
2018	19178	2196	4035	4425	3398	2404	2720
2019	19454	2274	4160	4367	3525	2114	3014

Zdroj: NCZI

Medzi zdroje pracovnej sily, ktoré by chýbajúcich lekárov doplnili patria predovšetkým absolventi vysokých škôl a imigranti.

Imigrujúcim zdravotníkom, ktorí získali odborné vzdelanie v krajinách EÚ, EHP a vo Švajčiarsku, sa na Slovensku automaticky uzná diplom a ďalšie doklady o kvalifikácii. Jedinou podmienkou, ktorú musia splniť, je ovládanie štátneho jazyka. Zdravotnícki pracovníci, teda aj lekári, s kvalifikáciou z tretej krajiny, musia mať za štandardných podmienok uznaný doklad o vzdelaní Ministerstvom školstva, vedy, výskumu a športu SR. Následne sú povinní urobiť doplňujúcu skúšku na slovenských lekárskych fakultách, ktorou preukážu rovnakú úroveň získaných vedomostí a zručností, ako sa vyžaduje v SR. Zároveň musia preukázať jazykové znalosti potrebné na konverzáciu s pacientom a s kolegami v slovenskom jazyku. Po splnení podmienok požiadajú o registráciu v Slovenskej lekárskej komore. Tento proces je pre imigrujúcich zdravotníckych pracovníkov nesmierne náročný, čím klesá záujem o výkon uvedených povolaní na území SR. Riešením nedostatku lekárov v systéme zdravotníctva SR sú absolventi lekárskych fakúlt. Z tabuľky 2 môžeme vidieť, vývoj počtu absolventov všeobecného lekárstva na Slovensku. Počet študentov so slovenským občianstvom od roku 2015 len mierne rástol, pričom počet zahraničných študentov rástol veľmi výrazne.

Tabuľka 2. Vývoj počtu absolventov všeobecného lekárstva na Slovensku v období 2000 - 2020

	absolventi všeobecného lekárstva					
	spolu	**reťazový intex**	**slovenskí**	**reťazový intex**	**zahraniční**	**reťazový intex**
2000	x	x	523	x	x	x
2001	x	x	477	0,912046	x	x
2002	x	x	487	1,020964	x	x
2003	588	x	519	1,065708	69	x
2004	548	0,931973	520	1,001927	28	0,405797
2005	540	0,985401	496	0,953846	44	1,571429
2006	538	0,996296	509	1,02621	29	0,659091
2007	535	0,994424	507	0,996071	28	0,965517
2008	487	0,91028	458	0,903353	29	1,035714
2009	460	0,944559	421	0,919214	39	1,344828
2010	635	1,380435	577	1,370546	58	1,487179
2011	684	1,077165	590	1,02253	94	1,62069
2012	735	1,074561	621	1,052542	114	1,212766
2013	863	1,17415	721	1,161031	142	1,245614
2014	732	0,848204	563	0,78086	169	1,190141
2015	848	1,15847	663	1,17762	185	1,094675
2016	871	1,027123	640	0,965309	231	1,248649
2017	918	1,053961	654	1,021875	264	1,142857
2018	962	1,04793	637	0,974006	325	1,231061
2019	938	0,975052	584	0,916797	354	1,089231
2020	1054	1,123667	658	1,126712	396	1,118644

Zdroj: CVTI SR

V zdravotníckych zariadeniach v SR v roku 2019 pracovalo 31309 registrovaných sestier, t. j. 5,74 sestry na 1000 obyvateľov. Vývoj celkového počtu od roku 2000 neustále klesá a personálne zabezpečenie zdravotníckych zariadení na Slovensku sestrami je ohrozené (Tabuľka 3). Pri hlbšej analýze zistíme, že v dôchodkovom veku je v súčasnosti 10 % z nich. V prípade, že by zdravotnícke zariadenia nedisponovali týmto počtom, potom by na 1000

obyvateľov pripadalo len 5,09 sestry, čo je hlboko pod priemerom Európskej únie (8,4 sestry/1000 obyvateľov).

Tabuľka 3. Vývoj počtu sestier na Slovensku v období 2000 - 2019

	Sestry spolu	20 - 29	30 - 39	40 - 49	50 - 59	60 - 64	65 +
2000	39283	11109	10990	11662	5262	219	41
2001	38962	10007	10706	11614	6289	287	59
2002	38047	9213	10737	11595	6206	254	42
2003	36332	7908	10696	11183	6222	273	50
2004	35577	6876	10795	10753	6594	461	98
2005	33998	5827	10454	10269	6708	595	145
2006	34109	5130	10643	10288	7140	732	176
2007	35682	4942	11363	10525	7744	879	229
2008	35533	4640	11127	10270	8216	1001	279
2009	32708	4110	10647	9987	8415	1013	299
2010	32739	3713	10052	9425	8088	1119	342
2011	32043	3418	9667	9274	8215	1075	394
2012	31478	3107	9079	9426	8250	1176	440
2013	31128	2821	8600	9625	8325	1292	465
2014	31166	2471	8102	10118	8399	1555	521
2015	30904	2227	7403	10496	8495	1719	564
2016	31183	2243	6569	11101	8767	1856	647
2017	30732	2278	5541	11457	8672	2083	701
2018	31061	2394	5042	11708	8743	2390	784
2019	31309	2430	4777	11748	8779	2669	906

Zdroj: NCZI

Z tabuľky 4 môžeme vidieť, vývoj počtu absolventov ošetrovateľstva na Slovensku. Počet študentov so slovenským občianstvom v posledných dvoch rokoch výrazne klesá. Preto nie je predpoklad, že by sa situácia stabilizovala bez výraznej intervencie štátu.

Tabuľka 4. Vývoj počtu absolventov ošetrovateľstva na Slovensku v období 2003 - 2020

	absolventi ošetrovateľstva - spolu				slovenskí		zahraniční	
	I. stupeň	reťazový index	II. stupeň	reťazový index	I. stupeň	II. stupeň	I. stupeň	II. stupeň
2003	19	-	93	-	19	93	-	-
2004	172	9,052632	148	1,591398	172	148	-	-
2005	652	3,790698	112	0,756757	652	112	-	-
2006	2096	3,214724	165	1,473214	2096	165	-	-
2007	2360	1,125954	695	4,212121	2358	695	2	-
2008	1386	0,587288	1432	2,060432	1386	1432	-	-
2009	1538	1,109668	2010	1,403631	1536	2009	2	1
2010	1590	1,03381	836	0,41592	1589	836	1	-
2011	1452	0,913208	974	1,165072	1450	965	2	9
2012	1423	0,980028	925	0,949692	1419	925	20	4
2013	1316	0,924807	912	0,985946	1312	907	45	4
2014	1026	0,779635	762	0,835526	1024	761	2	1

2015	1030	1,003899	867	1,137795	1024	699	6	3
2016	1036	1,005825	510	0,588235	991	472	45	38
2017	1073	1,035714	573	1,123529	1005	512	68	61
2018	1030	0,959925	391	0,682373	921	391	67	-
2019	595	0,57767	486	1,242967	552	481	43	5
2020	511	0,858824	426	0,876543	503	352	8	74

Zdroj: CVTI SR

Korelačnou analýzou sme zisťovali tesnosť závislosti medzi počtom absolventov v príslušných študijných odboroch a počtom registrovaných lekárov a sestier vo vekovej skupine do 29 rokov. Korelovaním vývoja počtu absolventov a počtu lekárov vo veku do 29 rokov v období od roku 2003 do roku 2019, sme vypočítali stredne silnú závislosť na úrovni 0,77194. Pri korelácií počtu absolventov ošetrovateľstva a počtu sestier vo veku do 29 rokov v období od roku 2005 (zjednotenie systému vzdelávania v odbore ošetrovateľstvo) do roku 2019, sme zistili rovnako stredne silnú závislosť na úrovni 0,67504.

3.2 Výsledky

Z uvedenej analýzy vyplýva, že časť absolventov sa v zdravotníckych zariadeniach v Slovenskej republike nezamestnáva. Najčastejším dôvodom je emigrácia absolventov po ukončení vzdelávania za prácou do zahraničia. Podľa dekana Lekárskej fakulty Univerzity Komenského v Bratislave, že osem z desiatich medikov chce po ukončení medicíny pracovať v zahraničí. Odvoláva sa pritom na výskum Reichovej a kol. (2006), v ktorom pre Inštitút pre výskum práce a rodiny najvýraznejší sklon k odchodu za prácou do zahraničia majú práve absolventi lekárskych a farmaceutických vied, kde ochotu emigrovať vyjadrilo osem opýtaných respondentov z 10. Uvedené potvrdzujú ďalšie štatistiky vypracované Inštitútom finančnej politiky MF SR skúmajúce migračné toky absolventov vysokých škôl v rokoch 2010 až 2013. Údaje analyzovali na základe dát zdravotných poisťovní, preto môžeme výsledky považovať za relevantné a plne odrážajúce skutočnosť. Záverom je zarážajúca skutočnosť a to, že v sledovanom období emigroval za prácou do zahraničia každý desiaty absolvent vysokej školy, pričom dominovali absolventi medicíny.

Z nami realizovaného výskumu motívov migrácie slovenských lekárov a sestier do zahraničia sme extrahovali a identifikovali niekoľko faktorov, ktoré ovplyvnili respondentov v procese rozhodovania migrovať. Najvýznamnejším motívom emigrácie v skupine lekárov boli prístup k praktickému výkonu úkonov súvisiacich so zdravotnou starostlivosťou, vzdelávanie a rozvoj a tretím faktorom bola výška mzdy. U sestier bola jednoznačne faktorom s najvýznamnejším vplyvom výška mzdy. Uvedené potvrdzujú aj ďalšie odborné a vedecké štúdie, ktoré za zaoberajú motívmi emigrácie zdravotníckych pracovníkov (Tupá, 2020).

Na skúmanie závislosti medzi absolventmi všeobecného lekárstva a počtom lekárov vo veku do 29 rokov sme využili regresnú analýzu. Výška miezd je nezávislá premenná X, počet lekárov a sestier do 29 rokov je závislá premenná Y, pretože predpokladáme, že vyššie mzdy prispievajú k zvyšovaniu počtu zdravotníckych pracovníkov, ktorí zostávajú pracovať v zdravotníckych zariadeniach na Slovensku.

Tabuľka 5. Regresná analýza - lekári

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	16014,24	300,3698	53,31507	2,14E-10	15303,98	16724,5
X Variable 1	1,478744	0,166571	8,877537	4,66E-05	1,084865	1,872623

Zdroj: výpočty autorov

Regresná funkcia má tvar y = 2,737x – 631,364 (Tabuľka 5). Z regresnej funkcie vyplýva, že ak by bola výška mzdy nulová, počet lekárov do 29 rokov by klesal o 631 lekára (hodnota Intercept – b0). Pri raste miezd o jednotku by počet lekárov vzrástol o 2,7 (hodnota X variable 1). Hodnoty P-value vyjadrujú významnosť lokujúcej konštanty a regresného koeficientu. P-value pre lokujúcu konštantu je 0.02 < 0.05, čo vyjadruje štatistickú významnosť tohto koeficientu i lokujúcej konštanty. Hodnoty 95%ného intervalu spoľahlivosti pre b0 a b1 vyjadrujú, že ak vzrastie mzda o jednotku, počet lekárov do 29 rokov vzrastie s 95%nou pravdepodobnosťou od 1,5 do 3,96.

Tabuľka 6. Korelačný koeficient, koeficient determinácie

Regression Statistics	
Multiple R	0,894659
R Square	0,800416
Adjusted R Square	0,771903
Standard Error	51,64975
Observations	15

Zdroj: výpočty autorov

Multiple R (korelačný koeficient) je rovná 0,9289, ide o vysoký stupeň tesnosti vzťahu medzi výškou mzdy a počtom lekárov do 29 rokov. Koeficient determinácie (R Square) znamená, že modelom sme vysvetlili 80,04 % závislej premennej – počet lekárov do 29 rokov, ostatná časť predstavuje nevysvetlenú variabilitu.

Tabuľka 7. Štatistická významnosť vplyvu úrovne miezd a počtu lekárov do 29 rokov

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	645609,8	645609,8	28,07286	0,001125
Residual	13	160983,5	22997,65		
Total	14	806593,3			

Zdroj: výpočty autorov

Tabuľka 7 obsahuje vysvetlenú (regression), nevysvetlenú (residual) a celkovú (total) variabilitu. SS je suma štvorcov, df stupeň voľnosti a MS priemer štvorcov. Na vyhodnotenie analýzy rozptylu slúžil F test. Pretože significance F je < ako hladina významnosti α (0.001125 < 0,05) zamietame nulovú hypotézu. Model je i na základe F testu štatisticky významný a bol zvolený správne.

Tabuľka 8. Regresná analýza - sestry

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1391,914	324,604	4,288038	0,00516	597,6368	2186,192
X Variable 1	0,178990	0,129155	-1,38586	0,02151	0,049502	0,13704

Zdroj: výpočty autorov

Regresná funkcia má tvar y = 1391,914 – 0,1789x (Tabuľka 8). Z regresnej funkcie vyplýva, že ak by bola výška mzdy nulová, počet sestier do 29 rokov by bol 1391,914 (hodnota Intercept – b0). Pri raste miezd o jednotku by počet sestier vzrástol o 0,18 (hodnota X variable 1). Hodnoty P-value vyjadrujú významnosť lokujúcej konštanty a regresného koeficientu. P-value pre lokujúcu konštantu je 0.00516 < 0.05, čo vyjadruje štatistickú významnosť tohto

koeficientu i lokujúcej konštanty. Hodnoty 95%ného intervalu spoľahlivosti pre b0 a b1 vyjadrujú, že ak vzrastie mzda o jednotku, počet sestier do 29 rokov vzrastie s 95%nou pravdepodobnosťou od 0,05 do 0,14.

Tabuľka 9. Korelačný koeficient, koeficient determinácie

Regression Statistics	
Multiple R	0,692425
R Square	0,442482
Adjusted R Square	0,316229
Standard Error	106,3644
Observations	15

Zdroj: výpočty autorov

Multiple R (korelačný koeficient) je rovná 0,692, ide o stredný stupeň tesnosti vzťahu medzi výškou mzdy a počtom sestier do 29 rokov. Koeficient determinácie (R Square) znamená, že modelom sme vysvetlili 44,25 % závislej premennej – počet sestier do 29 rokov, ostatná časť predstavuje nevysvetlenú variabilitu.

Tabuľka 10. Štatistická významnosť vplyvu úrovne miezd a počtu sestier do 29 rokov

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	21728,58	21728,58	1,920607	0,02151
Residual	13	67880,36	11313,39		
Total	14	89608,94			

Zdroj: výpočty autorov

Tabuľka 10 obsahuje vysvetlenú (regression), nevysvetlenú (residual) a celkovú (total) variabilitu. SS je suma štvorcov, df stupeň voľnosti a MS priemer štvorcov. Na vyhodnotenie analýzy rozptylu slúžil F test. Pretože significance F je < ako hladina významnosti α (0.02151 < 0.05) zamietame nulovú hypotézu. Model je i na základe F testu štatisticky významný a bol zvolený správne.

4. ZÁVER

Personálne zabezpečenie zdravotníckych zariadení v systéme zdravotníctva v SR je jedným z najdôležitejších faktorov udržateľnosti a rastu kvality poskytovania zdravotníckych služieb. Výsledkom skúmania štúdie je existencia len stredne silnej úrovne závislosti počtu lekárov či sestier do 29 rokov s počtom absolventom v príslušnom študijnom odbore. Systém vzdelávania a prípravy na povolanie generuje počty absolventov, ktorí sa však len čiastočne zamestnávajú v zariadeniach poskytujúcich zdravotnú starostlivosť v Slovenskej republike. Značná časť z nich emigruje za prácou do zahraničia. Jedným z najvýznamnejších push faktorov je úroveň miezd v predmetných povolaniach na Slovensku v porovnaní s cieľovými krajinami. Preto sme v predkladanej štúdii skúmali vzťah medzi počtom lekárov a sestier do 29 rokov a výškou miezd. Závislosť skúmaných premenných je významná a mzdy sú jedným z determinantov, ktoré výraznou mierou vplývajú na potenciálneho emigranta (lekára, sestru) v procese rozhodovania odísť za prácou do zahraničia.

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LITERATÚRA

[1] Bach, S. (2010). Managed migration? Nurse recruitment and the consequences of state policy. *Industrial Relations Jurnal*, vol. 41, iss. 3. DOI: 10.1111/j.1468-2338.2010.00567.x.

[2] Connell, J. (2012). Gender, health and theory: conceptualizing the issue, in local and world perspective. *Soc Sci Med., vol.* 74, iss. 11, pp. 1675-1683.

[3] Hardy, J. et all. (2016). Scaling the mobility of health workers in an enlarged Europe: An open political-economy perspective, *European Urban and Regional Studies, vol.* 23, iss. 4.

[4] Hodgson, D.; Cicmil, S. (2008). The other side of projects: The case for critical project studies. *International Journal of Managing Projects in Business,* vol. 1 (1). pp. 142-152. DOI: 10.1108/17538370810846487

[5] Kureková, L. M., & Žilinčíková Z. (2016). What is the value of foreign work experience of young return migrants in Slovakia? *Forthcoming in International Journal of Manpower*. Also IZA Discussion Paper no. 9921.

[6] Národné centrum zdravotníckych informácií. (2021). Zdravotnícke ročenky. [online]. [cit.2021-10-02] Abailable at.: http://www.nczisk.sk/Statisticke_vystupy/Publikacie_statisticke_prehlady/Zdravotnicke_rocenky/Pages/Archiv.aspx.

[7] Zdravotnicke noviny. (2013). Oodchody lekarov do zahranicia. [online]. [cit.2021-10-22] Available at: https://www.upjs.sk/public/media/7402/2013-03-21%20ZDRAVOTNICKE%20NOVINY%20-odchody%20lekarov%20do%20zahranicia%20-%20nazor%20dekana%20-%20Siegfried.pdf

[8] Reichová, D. a kol. (2006). Sprístupnenie trhov práce vo vybraných krajinách EÚ a vývojové trendy na trhu práce SR. Bratislava: Inštitút pre výskum práce a rodiny. [online]. [cit.2021-09-12] Available at: http://www.ceit.sk/IVPR/images/IVPR/vyskum/2006/Reichova/Spristupnenie_TP. pdf

[9] Smernica Európskeho Parlamentu A Rady. (2005). 2005/36/ES o uznávaní odborných kvalifikácií. [online]. [citované 2020-12-18]. Dostupné na: http://eur-lex.europa.eu/legalcontent/SK/TXT/PDF/?uri= CELEX:32005L0036&from=EN.

[10] Tupá, M. (2020). Personálne zabezpečenie systému zdravotníctva v SR kvalifikovanými sestrami v kontexte pracovnej emigrácie. Zdravotnícke listy, vol. 8 (1), p. 38 - 46

[11] Valiani, S. (2012). *Rethinking unequal exchange: The global integration of nursing labour markets.* University of Toronto Press.

[12] World Health Organization (2021). Statistics. [online]. [cit.2021-10-02]. Abailable at: https://www.who.int/data/gho/data/themes/topics/health-workforce.

[13] Yeates, N. (2012). The globalization of nurse migration: Policy issues and responses. *International Labour Review*, vol. 149, iss. 4. DOI: 10.1111/j.1564-913X.2010.00096.x.

THE IMPACT OF THE COVID-19 PANDEMIC-RELATED WORK FROM HOME ON SELECTED ASPECTS OF HUMAN RESOURCE MANAGEMENT IN SLOVAKIA

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Abstract: *The COVID-19 pandemic has led to unprecedented changes in the way of working, having tested the possibilities and limitations of work from home as we had never seen before. This required the adaptation of the human resource policies related to the work from home to deal with the current situation and to maintain employee motivation and job performance. The main aim of this paper is to investigate the impact of the pandemic on HR policies related to work from home, on the productivity of companies and on the role of human resource management. The study was carried out through surveys among Slovak HR professionals and outlines the impact of the pandemic and responses of the Slovak organizations to the pandemic. The human resource management practices started to change not only as a reaction to the imminent problems, but also policies are expected to be adjusted in preparation for the post-pandemic way of working, since the work mode is predicted to be changed for the long term. The main findings are that the involvement of the human resource managers in decision-making has strengthened compared to the pre-pandemic period, the companies plan to extend the possibility of work from home to more of their employees also after the pandemic and allow for more days that can be worked from home. New training needs were identified, and performance evaluation and reward systems will have to undergo updates in some cases as a consequence of the introduction of the work from home option. The results are also put into context with the previous literature on work from home and its implications.*

Key words: *work from home, telework, COVID-19, performance management, hybrid office*

JEL Classification: *M12, M54, M51, M52*

1. INTRODUCTION

The global COVID-19 pandemic that broke out in 2020 posed many challenges for health and economic systems, affected nearly all aspects of society, and is considered as a milestone that has changed the way we work irreversibly, as did other historical events in the past.

Starting in March 2020, companies in Slovakia were forced to adopt alternative working methods and shifted many of their employees to work from home (further referred to as "WFH") which brought many concerns for human resource management (further referred to as "HRM") about maintaining productivity, employee wellbeing, satisfaction, and motivation. It also affected activities in other areas of HRM, such as recruitment or training and development, that were either temporarily stopped, or the HR professionals tried to adopt new processes using modern technological tools at a greater rate than before (Maurer, 2020).

Work from home is a form of telework, as defined by Morganson et al. (2010): "Telework is work performed by (a) those whose remote work is from the home or a satellite office, (b) those whose telework is primarily in the field, and (c) those whose work is "networked" in such a way that they regularly work in a combination of home, work, and field contexts." While before this situation many workers were never given the possibility of WFH – either because their job was not considered as suitable for WFH or because of concerns that the lack of physical supervision would lead to ineffectiveness and decreased work performance, it has

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now become the new way of working not only for professions that can easily perform tasks from home, but also for those whose job required a lot of face-to-face interactions, such as sales representatives or teachers. The WFH became mandatory for many employees regardless of how prepared they were for it, leading to the inevitable digital transformation and redefinition of the workplace.

One of the necessary changes relates to the strategic HRM and the need to understand how WFH versus working onsite influences behaviour and actions of employees (Collings et al., 2021). In fact, the HR community tried to connect and share experience to learn from each other about what needs to be done in such a non-standard situation. At first many believed that as soon as the situation would allow it, employees should return to offices and to their old ways of working typical for the pre-pandemic times. Since it became clear that there would be more pandemic waves and gradually there were reports and surveys about employees' preferences to have more flexibility in choosing where to work from and where, the HR professionals were prompted to reconsider their practices. They realized the need to adapt them to the new remote or hybrid model of working which combines WFH and work onsite, instead of focusing primarily on workplace safety and shifting all the employees back to offices.

When examining the topic of the pandemic-related WFH, it is possible to draw upon research done on WFH (also using the terms remote work, telework, virtual work) in general, however, bearing in mind the constraints that normally would not be present when working remotely – such as the inability to go to client meetings, e.g. in sales jobs. The research related to WFH has been focused, among others, on its impact on job performance, professional isolation, employee well-being and factors that affect WFH effectiveness, such as characteristics of the job, of the employee and of the employee's manager (Beauregard et al., 2019). A study by Bai et al. (2021) demonstrates that companies with higher digital resilience performed significantly better during the pandemic. The common challenges when managing remote workers were defined as a lack of face-to-face supervision, lack of access to information, social isolation, and distractions at home (Larson et al., 2020). The managerial supervision is limited due to the lack of visibility and presence of the employees that were for long considered fundamental to control. Furthermore, the absence of some members of teams may be a problem for relationships and may lead to fractures between WFH employees with limited presence and workplace-based employees (Felstead et al., 2003).

A little less research is oriented towards the HRM practice and policies that support the effectiveness of telework programs, but it points out to the factors generally defined as leading to success, such as communication, support, and trust (Berube Kowalski & Swanson, 2005). It was also concluded that evidence-based remote work practices are lacking in the academic literature, and there is a need of further research on design of remote work programs and areas such as development opportunities of remote workers (Bell, 2012). In virtual workplace, the focus should be rather on provision of feedback to younger workers than on technological trainings (Raišienė et al., 2021).

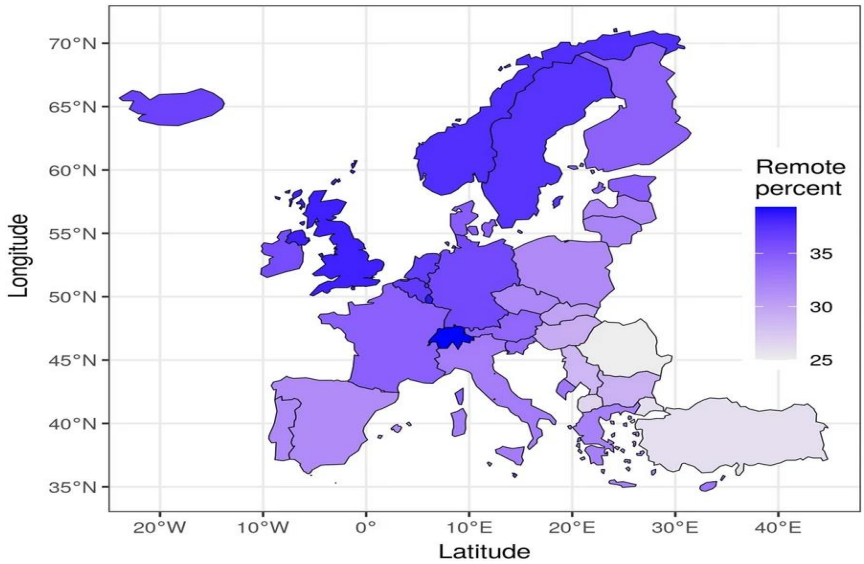
The HR professionals have to not only adjust their policies, but there is also a question which jobs can be effectively performed at home, depending also on the task content of occupations – globally it is estimated to be one in every five jobs (Garrote Sanchez et al., 2021). Employees whose job is based on knowledge work are more likely to be able of WFH and the percentage of these employees in a company is a predictor of its adoption of WFH policy – companies with a higher percentage of knowledge workers are more likely to adopt WFH (Martínez-Sánchez et al., 2007). Another research showed that large companies in service sector and those with a high percentage of international employees were found to be more likely of adopting WHF (Mayo et al., 2009).

These findings on the tendencies and factors influencing organizational decisions related to WFH, will, however, have to be revised, not only because of fast technological advancements introduced since the publication of many of the papers, but also because of changing attitudes of top management after experiencing (at least) temporary WFH implementation also for employees that were not allowed this option prior to the pandemic.

A recent study by Holgersen et al. (2021) proves that better-paid employees are more likely to have jobs that can be performed from home and proposes a method to estimate the share of WFH friendly jobs. Figure 1 shows significant differences between north/south and east/west in Europe, with Slovakia being among the countries with a rather lower total percentage of workers able to WFH. This suggests that not all the companies will be affected by the new mode of full WFH to the same degree, but nevertheless, HRM function in sectors typical of WFH friendly jobs will have to adapt to it.

One of the most pressing issues related to the lack of visibility in the WFH setting is the performance evaluation and compensation linked to it. Many companies with a high proportion of remote workers shifted to evaluation based on the quality of virtual interactions, work output, and feedback from colleagues and clients, often using tools enabling clients to rate the level of service (Choudhury, 2020).

Figure 1. Percentage of workers who can work from home



Source: Holgersen et al. (2021)

2. PROBLEM FORMULATION AND METHODOLOGY

The literature review is based on research on WFH in general, as well as on the latest research investigating the concept specifically under the pandemic circumstances. The consequences of the pandemic on HR were being mapped via a set of seven questionnaires distributed among HR representatives of Slovak companies consecutively during the period of 7.5.2020 – 9.2.2021. The questions asked in each round of the survey were prepared in cooperation with HR professionals from the Open HR Forum (a Slovak association of professionals and academics in the human resources field) who identified current topics resonating within the HRM practice; and were also based on surveys done by HR associations abroad. The questionnaires were distributed via e-mail and social media to the HR professionals subscribed to the Open HR Forum, reaching approximately 600 recipients. The number of filled-in questionnaires varied between the rounds and the exact size of sample is stated below

each question in the Results chapter. The results were analysed using frequency tables and charts.

The respondents were HR professionals from companies of all sizes and various sectors, but mostly from mid-size and large companies (100 – 5000+ employees) in IT/telco, manufacturing, banking and insurance sectors, which does not exactly reflect the overall sector representation in Slovakia, yet these sectors are known for having HRM and policies in place, which is not always the case in small enterprises.

Objectives of the study were set as follows:

To examine whether the role of HRM changed during the pandemic, as perceived by HR professionals in the Slovak companies

To examine the impact of the pandemic on HR policies regulating flexible work arrangements, compensation and benefits system, training needs of employees when working from home and whether the pandemic situation combined with WFH lead to overall deteriorated employee productivity (as measured by HR).

The author is aware of the limitations of the survey due to the number of respondents and different extent of the WFH in the companies. The expectations and planned changes reported in the questionnaires may have also changed since the data collection due to the developing pandemic situation.

3. RESULTS AND DISCUSSION

The results of the survey provide a general overview of the selected areas of HRM that raised many questions during the pandemic. The survey proved that a vast majority of HR respondents see an impact of the pandemic situation on their role. In total, 76% of respondents feel the role of HR and their active participation in decision-making strengthened to some extent during the pandemic. In 17% of the responses, they perceive a considerable strengthening of their role.

Table 1. Change in the role of HR (n=129)

Has the role of HR and its active participation in decision-making strengthened during the pandemic?	%		Count
yes, considerably	**17.1%**	**76.0%**	22
yes, partially	**58.9%**		76
no	18.6%	18.6%	24
I cannot evaluate it	3.1%		4
other	2.3%		3
	Total		129

Source: own research

The questionnaire contained a question aimed at estimating the change of productivity of the companies (Table 2). The responses varied widely – while 57% of respondents did not perceive any change in the productivity of employees, 19% think the productivity increased and 13% think it decreased. What emerged from the open question responses, was that the productivity sometimes varied between organizational departments and was perceived to be dependent on factors such as the type of occupations, leadership skills of the managers in the individual departments, family status of the employees and duration of WFH – some companies experienced rise in productivity after switching to WFH, but they noticed a decrease after longer period of WFH. It is important to note that these figures do not pinpoint

differences in individual performance, however, they are informative of how the overall work productivity of the companies changed during the pandemic, as stated by the HR respondents.

Table 2. Change in productivity (n=99)

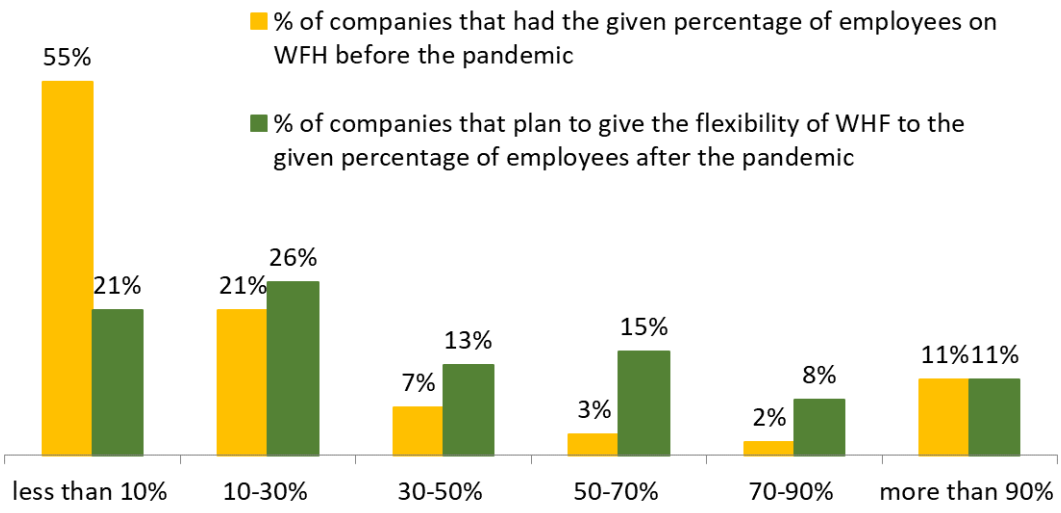
How do you evaluate the work productivity during the long-term work from home during the pandemic?	%	Count
productivity has not changed	56.7%	55
productivity increased	18.6%	18
productivity decreased	13.4%	13
other	13.4%	13
	Total	99

Source: own research

It is not yet clear how the adoption of WFH by companies will change in the aftermath of the pandemic, but it is possible to do a comparison using the information on what the companies plan to do, as reported in the questionnaire.

The questions about the percentage of employees in each company that had the possibility to WFH before the pandemic, and the percentage of employees expected to be allowed to keep this possibility after the pandemic, provides an overview of the intended shift (Figure 2). While before the pandemic, more than a half (55%) of companies allowed WFH to only up to 10% of their employees, after the pandemic only 21% of the companies expect to have up to 10% of their employees working from home. By contrast, more companies expect to offer the WFH option to a bigger percentage of their workforce (between 10% – 90%, more detail can be seen in Figure 2). There is no change in the number of companies that had more than 90% of their employees working from home before the pandemic and afterwards which means that apart from the companies that were already offering WFH extensively, no other is planning to allow it to this extent due to the pandemic. On the other hand, 5% of the companies that had to introduce WFH during the pandemic do not plan to keep it in future.

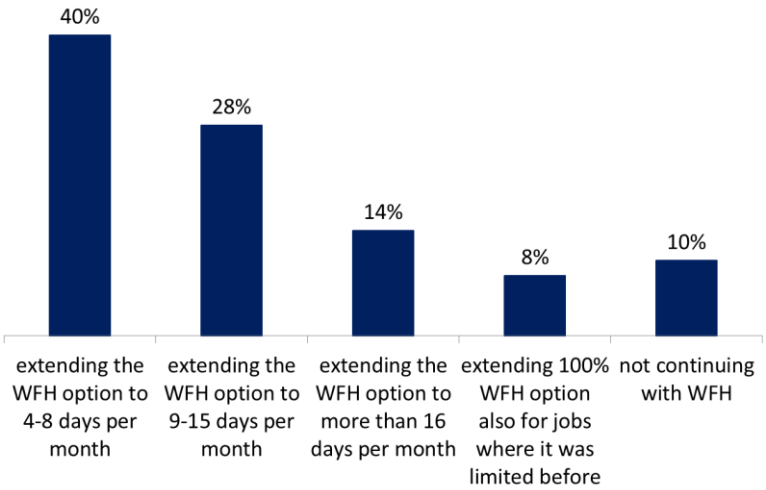
Figure 2. Distribution of companies by percentage of employees working from home – reality before the pandemic and expectations after the pandemic (n=98)



Source: own research

From the perspective of the time allowed to WFH, many respondents plan to loosen the rules regulating the WFH and extend this possibility to more days per month (Figure 3) – in most cases (40%) to 4-8 days per month and 28% of companies plan to extend it to 9-15 days per month. Notwithstanding, there are companies that reported the plan to extend the WFH to more than 16 days per month (14% of respondents) or even to 100% of time (8%). On the contrary, 10% of the respondents do not plan to continue offering the WHF option at all.

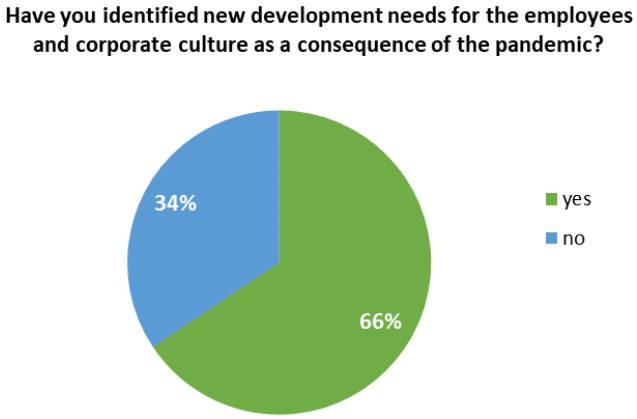
Figure 3. Plans of changing the WFH policies (n=50)



Source: own research

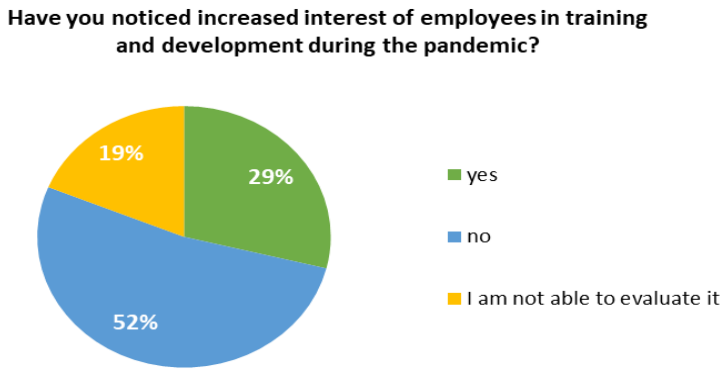
In the area of employee training and development, 66% of companies identified new needs of employee development or corporate culture development (Figure 4). The most common areas of development that were reported, were self-management, digital skills, communication, and building of interpersonal relationships. 29% also noticed an increased interest in trainings on the part of their employees (Figure 5).

Figure 4. New development needs for the employees and corporate culture (n=128)



Source: own research

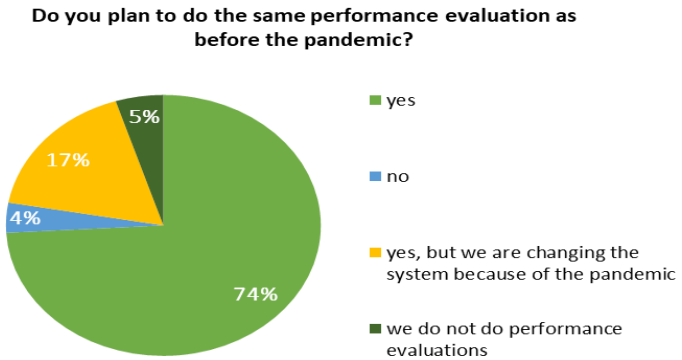
Figure 5. Increased interest of employees in training and development (n=128)



Source: own research

The impact on performance management policies was intended to be measured by the question whether the companies plan to do the performance evaluation in the same way as before the pandemic. It turns out that the extended use of WFH arrangements led to rethinking of the performance evaluation policies in some cases – 17% of companies plan to adjust their performance evaluation systems (Figure 6).

Figure 6. Plans of changing the performance evaluation system (n=81)



Source: own research

On the other hand, despite some of the HR professionals' expectations of the need to change the period of goal setting and evaluation, respondents from this survey generally do not plan any changes (Table 3). Most companies (46%) plan to keep the system based on the combination of yearly, quarterly, or monthly goals. Only 3% reported to be working on a new system of goal setting or shortening of period for goal setting and evaluation because of the pandemic.

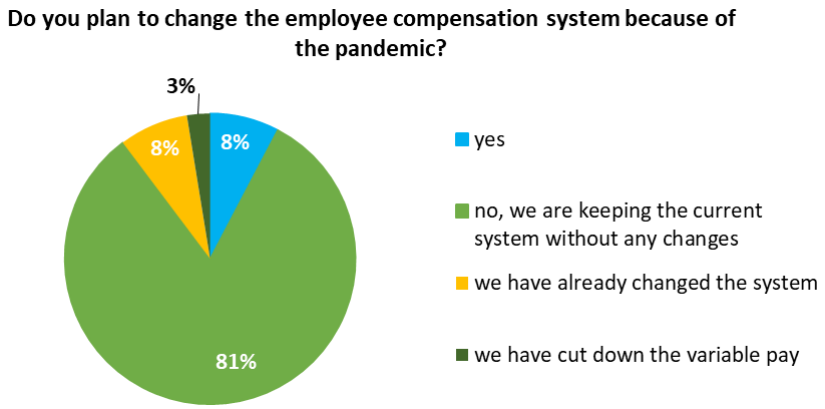
Table 3: Plans of changes in goal setting for employees (n=76)

Do you plan changes in goal setting for employees?	Percent	Count
We want to keep the combination of yearly/quarterly/monthly goals	46.3%	37
We want to keep the system of yearly goals	38.8%	31
We want to keep the system of monthly goals	2.5%	2
We want to keep the system of quarterly goals	2.5%	2
We will have a new system of goal setting because of the pandemic	2.5%	2
We are shortening the period for goal setting and evaluation	2.5%	2
	Total	76

Source: own research

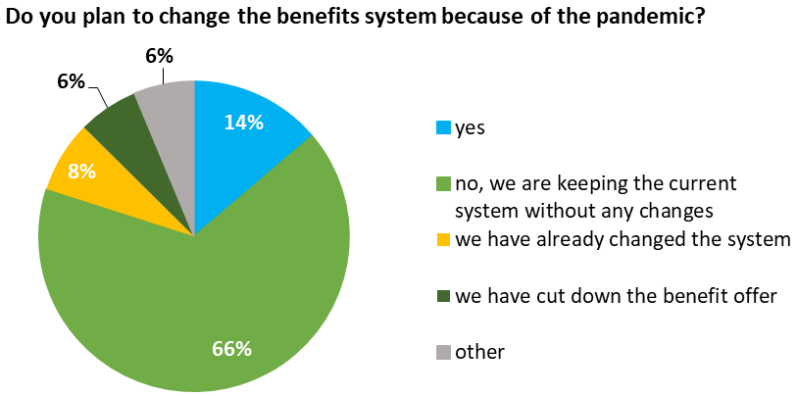
The performance evaluation practices are closely connected to compensation and benefits systems. The compensation system has been changed in 8% and was planned to be changed in another 8% of companies. (Figure 7). Another aspect that was affected by the pandemic was the employee benefit system. 28% of respondents had changed or planned to change their benefit system at the time of filling in the questionnaire (Figure 8).

Figure 7. Plans of changing the compensation system (n=80)



Source: own research

Figure 8: Plans of changing the benefits system (n=80)



Source: own research

The results of this study support the hypothesis that the role of HR is being redefined as HR professionals started to participate more actively in decision making in their companies. This is in line with other research stating the need for strengthening of the HR role in company's management and viewing the function as more vital than before the pandemic times. Further research would be needed on the changing role of HR managers and specific requirements for HR to effectively manage employees working remotely or in a hybrid way.

The question of the WFH impact on individual performance has been the subject of much research and to properly investigate it would require a very complex approach. In terms of the overall productivity of companies during the pandemic, this survey showed that only in 13% of companies the HR representatives felt the overall productivity had decreased, which is an optimistic finding for planning of WHF implementation in future. Contrary to popular belief that companies would suffer dramatic decline in productivity, this data does not seem to prove it, at least not in the short term. In case of 19% of companies the productivity even increased, which may have been influenced also by the positives of WFH. Further research should be carried out to determine the organizational factors affecting the productivity in individual companies that would explain why some do better even with employees working from home.

In terms of individual differences, the respondents perceive the type of occupation, leadership skills of the managers, family status of the employees and duration of WFH as the factors that affect the effectiveness of WFH.

There is a clear shift expected in terms of the extent to which companies plan to offer the WFH possibility after the pandemic. Compared to real numbers before the pandemic, more companies expect to offer the WFH option to a bigger percentage of their workforce. However, the companies plan to increase the % of their employees working from home only up to 90%. There are no new companies in this sample that would plan to offer WFH to more than 90% of their employees. The shift to WFH during the pandemic was a necessity, but it has proven its advantages according to anecdotal evidence of increased job satisfaction and performance, when managed properly. Before pandemic times, the positive association between WFH and job performance was observed in some studies (Bloom et al., 2015; Allen et al., 2015). On the other hand, there are global companies such as Yahoo, IBM and Honeywell that already experienced large-scale WHF, but withdrew from it because of the negative effects (Wilkie, 2019). There was evidence of disengagement issues of remote workers and belief that teamwork and idea sharing can be more enhanced through in-person interaction that the WFH limits (Schawbel, 2018). There is no one-size-fits-all approach and HR managers should implement flexible policies and assess the suitability of WFH in alignment with organizational strategy, considering the innovation needs of their organization and nature of projects (Pathak et al., 2015). The companies should therefore be careful in properly evaluating how to set up the policies, what extent of WFH should be allowed and ensure the potential risks are minimized, as otherwise it is possible there will be more examples of companies abandoning the WFH after experiencing the drawbacks.

The findings related to the extent of the WFH, i.e. the amount of working time allowed to WFH, show that most respondents plan to extend the WFH possibility to more days per month than before. The fact that the vast majority plans to extend it to up to 15 days per month, i.e. up to 70% of the working time is in line with the recommendations resulting from another research. The effectiveness of 'low-intensity' telework was concluded by Gajendran and Harrison (2007), as 'high-intensity telework' (defined as WFH more than 2,5 days per week) was found to negatively affect the quality of co-worker relationships. The companies that plan to extend the WFH to more than 16 days per month (14% of respondents) or even to 100% of time (8%) should be aware of the potential negative effects and lower effectiveness implied by the above-mentioned research. On the contrary, 10% of the respondents do not plan to continue offering the WHF option at all which might suggest either non-suitability of jobs for WFH, persisting reluctance to change or unreadiness to manage employees and mitigate the risks of WFH.

Two-thirds of companies identified new needs of employee development or corporate culture development, especially in the areas of self-management, digital skills, communication, and building of interpersonal relationships. This is in line with the research highlighting the importance of training of employees and managers working from home, not only regarding technology skills, but also social and psychological adjustments that teleworkers need to make (Beauregard et al., 2019).

The area which has not seen significant changes yet is performance management. So far only 17% of the companies plan to adjust their performance evaluation systems. In terms of the period of goal setting and evaluation, companies generally do not plan any changes – only 3% were working on a new system of goal setting or shortening the period for goal setting and evaluation because of the pandemic. More research is needed in the field of performance management and specifically appraisal to determine how effective systems should be designed to support WFH mode. It is possible that companies were already focusing enough on outcomes (instead of time spent physically at workplace) and had systems in place that were already supporting WFH employees.

The compensation system has been changed in 8% and was planned to be changed in another 8% of companies, while little research has been done on whether and how to adjust the compensation system to be motivating and fair in the WFH mode.

4. CONCLUSION

As many academicians and professionals point out, the post-pandemic times will be marked by a new way of working. The concept of WFH has been used for decades – especially after technological developments enabling it were introduced – and there has previously been research aimed at examining the impact it has, e.g. on job performance, motivation or job satisfaction, but there has been an unprecedented expansion of this flexible work arrangement during the COVID-19 pandemic. WFH is an important arrangement by means of which employees' work-life balance and job satisfaction can be either positively or detrimentally affected, depending on how supporting the HR is when managing it.

The preliminary survey presented in this study shows that not only did the pandemic lead to changes for the employees, but the role of HRM changed and HR policies and practices will need to be adjusted to be effective in the new normal, and also to be prepared for possible future crisis situations. It can provide a basis for further research on the specific measures and policies implemented by HR and their effectiveness in the light of the new, hybrid way of working, or challenges in performance appraisal process, using both qualitative and quantitative analysis. It would also be interesting to look at the HR practices in specific sectors as these findings cannot be generalized to all sectors due to different composition of jobs and demographics with different needs and suitability for WFH.

Another question to investigate would be about the ideal extent of WFH, and in terms of the individual suitability to WFH, it could be useful to identify the factors influencing individual job performance and job satisfaction of remote workers.

Acknowledgements

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REFERENCES

[1] Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings. *Psychological Science in the Public Interest, 16*(2), 40-68. https://doi.org/10.1177/1529100615593273

[2] Bai, J., Brynjolfsson, E., Jin, W., Steffen, S., & Wan, C. (2021). Digital Resilience: How Work-From-Home Feasibility Affects Firm Performance. *National Bureau of Economic Research*, working paper no. 28588. https://doi.org/10.3386/w28588

[3] Beauregard, T. A., Basile, K., Canonico, E., & Landers, R. (2019). Telework: Outcomes and facilitators for employees. In R. N. Landers (Ed.), *The Cambridge handbook of technology and employee behavior* (pp. 511-543). Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108649636.020

[4] Bell, B. S. (2012). Remote work: Examining current trends and organisational practices. *International HR Adviser, 49*, 4-6. Retrieved from https://bit.ly/3CDh8SP

[5] Berube Kowalski, K., & Swanson, J. A. (2005). Critical success factors in developing teleworking programs. *Benchmarking: An International Journal, 12*(3), 236-249. https://doi.org/10.1108/14635770510600357

[6] Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2015). Does Working from Home Work? Evidence from a Chinese Experiment. *Quarterly Journal of Economics, 130*(1), 165-218. https://doi.org/10.1093/qje/qju032

[7] Choudhury, P. R. (2020). Our Work-from-Anywhere Future. In *Harvard Business Review*. Retrieved from https://bit.ly/39xuraVCollings, D. G., McMackin, J., Nyberg, A. J., & Wright, P. M. (2021). Strategic Human Resource Management and COVID-19: Emerging Challenges and Research Opportunities. *Journal of Management Studies, 58*(5), 1378-1382. https://doi.org/10.1111/joms.12695

[8] Felstead, A., Jewson, N., & Walters, S. (2003). Managerial Control of Employees Working at Home. *British Journal of Industrial Relations, 41*(2), 241-264. https://doi.org/10.1111/1467-8543.00271

[9] Gajendran, R., & Harrison, D. (2007). The Good, the Bad, and the Unknown About Telecommuting: Meta-Analysis of Psychological Mediators and Individual Consequences. *Journal of Applied Psychology, 92*, 1524-1541. https://doi.org/10.1037/0021-9010.92.6.1524

[10] Garrote Sanchez, D., Gomez Parra, N., Ozden, C., Rijkers, B., Viollaz, M., & Winkler, H. (2021). Who on Earth Can Work from Home? *The World Bank Research Observer, 36*(1), 67-100. https://doi.org/10.1093/wbro/lkab002

[11] Holgersen, H., Jia, Z., & Svenkerud, S. (2021). Who and how many can work from home? Evidence from task descriptions. *Journal for Labour Market Research, 55*(1), article 4. https://doi.org/10.1186/s12651-021-00287-z

[12] Larson, B. Z., Vroman, S. R., & Makarius, E. E. (2020). A Guide to Managing Your (Newly) Remote Workers. In *Harvard Business Review*. Retrieved from https://bit.ly/3AAppqd

[13] Martínez-Sánchez, A., Pérez-Pérez, M., De-Luis-Carnicer, P., & Vela-Jiménez, M. J. (2007). Telework, human resource flexibility and firm performance. *New Technology, Work and Employment, 22*(3), 208-223. https://doi.org/10.1111/j.1468-005X.2007.00195.x

[14] Maurer, R. (2020). Job Interviews Go Virtual in Response to COVID-19. *Society for Human Resource Management*. [online]. [cit.2021-10-17]. Available at: https://bit.ly/3CNmbjM

[15] Mayo, M., Pastor, J.-C., Gomez-Mejia, L., & Cruz, C. (2009). Why some firms adopt telecommuting while others do not: A contingency perspective. *Human Resource Management, 48*(6), 917-939. https://doi.org/10.1002/hrm.20322

[16] Morganson, V. J., Major, D. A., Oborn, K. L., Verive, J. M., & Heelan, M. P. (2010). Comparing telework locations and traditional work arrangements: Differences in work-life balance support, job satisfaction, and inclusion. *Journal of Managerial Psychology, 25*(6), 578-595. https://doi.org/10.1108/02683941011056941

[17] Pathak, A. A., Bathini, D. R., & Kandathil, G. M. (2015). The ban on working from home makes sense for Yahoo: It needs the innovation and speed of delivery that come from office-based employees. *Human Resource Management International Digest, 23*(3), 12-14. https://doi.org/10.1108/HRMID-03-2015-0052

[18] Raišienė, A. G., Rapuano, V., & Varkulevičiūtė, K. (2021). Sensitive Men and Hardy Women: How Do Millennials, Xennials and Gen X Manage to Work from Home? *Journal of Open Innovation: Technology, Market, and Complexity, 7*(2), article 106. https://doi.org/10.3390/joitmc7020106

[19] Schawbel, D. (2018). Survey: Remote Workers Are More Disengaged and More Likely to Quit. *Harvard Business Review*. Retrieved from https://bit.ly/39sqVyEWilkie, D. (2019). Why Are Companies Ending Remote Work? In *Society for Human Resource Management*. [online]. [cit.2021-10-17]. Available at: https://bit.ly/3o41BHJ

EFFECTS OF THE COVID-19 PANDEMIC ON EMPLOYEES AND WORKPLACE RELATIONSHIPS

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Ján RUDY[151]

Abstract: *The COVID-19 pandemic has been a challenge for the labor market and employees as it has affected the way people work in many ways. The HR professionals will have to consider the challenges that employees face during the pandemic times to help them and the managers maintain job satisfaction and performance. The main aim of this paper is to investigate the positive and negative impact of the pandemic on the employees' work and private life, the change in workplace relationships during the pandemic, and to analyze different outcomes between different groups of employees. The main findings are that the type of job and the work from home mode had an influence on whether employees experienced negative or positive impact of the pandemic on their work and private life. The quality of workplace relationships was affected differently during the pandemic depending on the work from home mode and sector. The study has been carried out through a questionnaire survey filled in by 4707 respondents in Slovakia and the Czech Republic.*

Key words: *employee experience, covid-19 effects, workplace relationships, work from home*

JEL Classification: *M12, M54, M51*

1. INTRODUCTION

The COVID-19 pandemic is reckoned to have affected organisations and employees and provided lessons for organisations to learn from in case of potential future crisis situations. The workplace will not be what it was before the pandemic and the key transformation areas include reinvention of work, technology, and safety (Ancillo et al., 2020). Further discussion is needed to understand the implications of the pandemic on employees – on their work life, private life, workplace relationships or job performance – and to adjust HR practices to the new working environment.

While the pandemic situation has affected many areas of employees' life (either directly or indirectly causing job-related issues) and work of human resources professionals, this paper focuses on selected topics concerning the employee experience. Since the beginning of the pandemic, it was expected that there would be several changes and issues for employees related to social, psychological issues, health and economic costs. These would concern not only workers who had to start working remotely, but also essential workers who had to stay at the workplace, and those who were dismissed (Kniffin et al., 2021). Work from home, a specific form of remote work, is further referred to as "WFH'' in this paper.

One of the challenges concerned managers who had to learn how to lead their subordinates under such difficult conditions, while both their work and private life was affected to certain extent. Many employees who used to work only at the physical workplace and knew home-office only as a sporadic benefit, had to shift to WFH mode in 2020. While some may have been used to working remotely, this specific situation with restrictions and lockdowns made it possible to work specifically from home only, often leading to conflicts with personal life.

The possible conflicts between work and private life should therefore be investigated further. While under normal circumstances, flexible work arrangements were considered as benefits

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helping employees manage their family life and reducing work-family conflict, the current arrangements may, by contrast, have caused a bigger conflict due to the whole families being 'locked' in households, children not going to schools as usual and increased childcare. It has become more difficult to maintain boundaries between work and family roles. It will be important to understand how to mitigate the risks related to this conflict and how the higher level of work autonomy and self-responsibility may have on job performance and satisfaction (Carnevale & Hatak, 2020).

Research on the effects of the COVID-19 pandemic can also draw upon research on crisis situations in general, which states that they disrupt the organization and its employees. The employees having to work under stress also present a significant challenge to their leaders (Boin, 2005; Dirani et al., 2020). Generally, in crisis times, employees' experience and response differ as they behave differently and their reactions can vary from acceptance to even full resistance (Dirani et al., 2020). Although there has been extensive research on leadership challenges and implications for organisations during crisis situations, little is known yet about issues during this specific health crisis.

Apart from the employees work life, private life has been affected too. Unlike in the previous recessions when men and women were affected differently, men employment being affected more negatively, the current recession caused by the pandemic is expected to affect employment of both genders similarly as the measures taken affected sectors where both men and women work (Del Boca et al., 2020). However, the fact that women provided a larger part of increased childcare needs during school closures (Hupkau & Petrongolo, 2020) may have led to different employment outcomes between men and women. A German survey revealed a decrease in family satisfaction during the pandemic and also a decline in work satisfaction, but the impact varied between childless people, mothers and fathers, while fathers were the least negatively influenced (Möhring et al., 2020). In terms of health and well-being, it was expected at the beginning of the pandemic that increased job demands would lead to higher levels of stress in employees. There were, however, expectations of certain moderating factors, such as that women would be more likely to be negatively affected by the economic costs (Kniffin et al., 2021).

For many employees, digital practices have been incorporated to daily work life and are expected to be used also in the post-pandemic era, at least in combination with face-to-face presence. Although many business leaders may have been trying to get the employees back to the physical workplace, many advantages of digital practices during WFH and online meetings have been discovered (Sein, 2020).

Since the workplace relationships may have an impact on individual work outcomes, it is important to monitor their quality. One of the potential issues is that new teleworkers might want to avoid the impression that they do not work properly during home-office and therefore do more for their colleagues to show how dedicated they are. This might in turn lead to work-home conflict, endanger workplace relationships and ultimately also their job performance (Golden, 2021). Organisations should ensure that colleagues are able to interact with each other in new ways, e.g. by establishing new support systems, training the leaders to ensure trusting relationships also when employees become remote workers (Newman & Ford, 2021). A survey on remote workers done before the pandemic revealed that employees with high quality relationships and extensive WFH mode showed the highest levels of commitment, job satisfaction and performance (Golden & Veiga, 2008).

2. PROBLEM FORMULATION AND METHODOLOGY

The consequences of the pandemic on employees were investigated through a questionnaire survey that was carried out by the Open HR forum (a Slovak association of professionals and

academics in the HR field) that the author is a member of. The data collection took place during 17.6. – 10.8.2021. The questionnaire was distributed online via social media and also via e-mail to contacts from databases of HR services providers Profesia, Adecco, Manpower.

The questionnaire was filled in by 3203 respondents working in Slovakia (which represents 68% of the total sample) and 1504 were from the Czech Republic (32% of the total sample). Slovakia and the Czech Republic were among the countries severely impacted by the pandemic, ranking high in terms of the number of deaths due to the infection per population (Worldometer, 2021). The respondents were employees of all age categories, working in all jobs, sectors, and companies of all sizes (Table 1).

Table 1. Demographic characterization of the respondents

	n	%
GENDER		
male	1947	41%
female	2721	58%
AGE		
younger than 17	33	1%
18 - 29	1124	24%
30 - 39	1159	25%
40 - 49	1322	28%
50 - 59	900	19%
older than 60	168	4%
COMPANY SIZE		
0 employees	342	8%
micro (1 - 9)	500	11%
small (10 - 49)	768	17%
medium (50 - 249)	1160	26%
large (250 - 999)	870	19%
large (1000+)	898	20%

	n	%
SECTOR		
Agriculture and food industry	80	2%
Banking and insurance	300	7%
Construction	147	3%
FMCG	26	1%
Health and pharmaceuticals	338	7%
IT/telco	463	10%
Media, advertising and PR	132	3%
Other	942	21%
Production	579	13%
Public sector	308	7%
Services	444	10%
SSC	81	2%
Tourism, hotels and gastronomy	117	3%
Transport and logistics	233	5%
Wholesale and retail	348	8%

Source: own research

In specific questions the sample was cleaned from the respondents for whom the question was not relevant. In the analyses by groups, only respondents who specified their job, gender, etc., are displayed in the detail tables, but the overall results also contain responses from these respondents with unspecified job, gender, etc.

The hypotheses were formulated as follows:

H1: The impact of the pandemic on employees' work life was different between:

a. employees on different jobs
b. employees working on full WFH, partial WFH and without WFH
c. male and female employees

H2: The impact of the pandemic on employees' private life was different between:

a. employees on different jobs
b. employees working on full WFH, partial WFH and without WFH
c. male and female employees

H3: Change in the quality of relationships at the workplace during the pandemic was perceived differently by:

a. employees working on full WFH, partial WFH and without WFH
b. employees working in different sectors

The statistical analysis was done using SAS Enterprise Guide software. The hypotheses were tested using the variables from Table 2. The association between variables was tested using Pearson chi-square test. The questions with responses on a scale were analysed also with a nonparametric ANOVA – Kruskal-Wallis test to analyse differences in scores between various groups. All the tests were performed with α = 0,05.

Table 2. List of analysed variables

dependent variables	
WORK_NEGATIVE	negative impact of the pandemic on the work life
WORK_POSITIVE	positive impact of the pandemic on the work life
LIFE_NEGATIVE	negative impact of the pandemic on the private life
LIFE_POSITIVE	positive impact of the pandemic on the private life
RELATIONSHIPS	change in the quality of workplace relationships during the pandemic
independent variables	
JOB	
WFH	work from home mode (full, partial, no WFH)
GENDER	
SECTOR	

The aim was to identify whether independent variables such as job, WFH mode, gender or sector have a significant influence on the dependent variables and which employee groups have been the most affected.

3. RESULTS AND DISCUSSION

3.1 Impact of the pandemic on employees' work and private life

Hypotheses evaluation

H1: The impact of the pandemic on employees' work life was different between:

a. employees on different jobs

➔ Pearson Chi-Square test (Table 4) has proved a significant influence of the *JOB* on *WORK_NEGATIVE, WORK_POSITIVE* (p-values <0,001). H1a hypothesis is accepted.

b. employees working on full WFH, partial WFH and without WFH

➔ Pearson Chi-Square test (Table 6) has proved a significant influence of the *WFH* on *WORK_NEGATIVE, WORK_POSITIVE* (p-values <0,001). H1b hypothesis is accepted.

c. male and female employees

➔ Pearson Chi-Square test (Table 8) has not proved a significant influence of the *GENDER* on *WORK_NEGATIVE, WORK_POSITIVE* (p-values 0,091 and 0,662). H1c hypothesis is rejected.

H2: The impact of the pandemic on employees' private life was different between:

a. employees on different jobs

➔ Pearson Chi-Square test (Table 4) has proved a significant influence of the *JOB* on *LIFE_NEGATIVE, LIFE_POSITIVE* (p-values 0,017 and <0,001). H2a hypothesis is accepted.

b. employees working on full WFH, partial WFH and without WFH

➔ Pearson Chi-Square test (Table 6) has not proved a significant influence of the *WFH* on *LIFE_NEGATIVE* (p-value 0,688) but has proved a significant influence of the *WFH* on *LIFE_POSITIVE* (p-value <0,001). H2b hypothesis is accepted (based on differences in *WFH / LIFE_POSITIVE*).

c. male and female employees

➔ Pearson Chi-Square test (Table 8) has not proved a significant influence of the *GENDER* on *LIFE_NEGATIVE* (p-value 0,605), but it has proved a significant influence on *LIFE_POSITIVE* (p-value 0,001). H2c hypothesis is accepted (based on differences in *WFH / LIFE_POSITIVE*).

The tests confirmed an association between jobs and experiencing positive and negative impact of the pandemic on both employees' work life and family life. Using the Phi Coefficient, Contingency Coefficient and Cramer's V, the strength of association was evaluated as weak in all the cases. Table 3 shows responses to these questions and the jobs are sorted in a way that the job categories in the first places – owner/director, service and production worker – are the ones where the negative impact on work life was reported most frequently; and the last job category is specialist, where only 32% of respondents reported some negative impact on their work life.

Table 3. Percentage of respondents who experienced negative / positive impact of the pandemic on their work / private life – by *JOB*

JOB	*n*	Impact on work life		Impact on private life	
		negative	positive	negative	positive
owner/director	137	49%	34%	26%	42%
service worker	484	49%	22%	24%	27%
production worker	307	48%	17%	28%	24%
manual worker	174	47%	10%	21%	30%
working student	260	42%	31%	32%	41%
manager/supervisor	622	41%	30%	26%	33%
administrative worker	895	38%	27%	22%	30%
specialist	857	32%	40%	25%	32%
All jobs	4537	**42%**	**27%**	**25%**	**31%**

Source: own research

Table 4. Pearson Chi-Square tests and coefficients of association between variables *JOB* and *WORK_NEGATIVE, WORK_POSITIVE, LIFE_NEGATIVE, LIFE_POSITIVE*

	Impact on work life				Impact on private life			
	negative		positive		negative		positive	
Statistic	**p-value**		**p-value**		**p-value**		**p-value**	
Chi-Square	<.0001		<.0001		0.017		<.0001	
Phi Coefficient		0.122		0.180		0.068		0.094
Contingency Coefficient		0.121		0.177		0.068		0.093
Cramer's V		0.122		0.180		0.068		0.094

Source: own research

As for the influence of the WFH mode (Table 5) – out of the employees without any WFH option who stayed at the workplace, more experienced negative effects and fewer reported positive effects on their work life, compared to employees with WFH. With partial WFH

mode, the effects were more positive and in the case of full WFH employees, the percentage of employees affected negatively was the lowest. As for the impact on the private life, mainly employees on full WFH experienced positive impact, but the WFH mode did not make any difference in experiencing the negative effects.

Table 5. Percentage of respondents who experienced negative / positive impact of the pandemic on their work / private life – by *WFH*

WFH	***n***	**Impact on work life**		**Impact on private life**	
		negative	**positive**	**negative**	**positive**
no WFH	1878	48%	17%	25%	26%
partial WFH	1247	40%	30%	24%	32%
full WFH	1291	35%	40%	24%	36%

Source: own research

Table 6. Pearson Chi-Square tests and coefficients of association between variables *WFH* and *WORK_NEGATIVE, WORK_POSITIVE, LIFE_NEGATIVE, LIFE_POSITIVE*

	Impact on work life				**Impact on private life**			
	negative		**positive**		**negative**		**positive**	
Statistic	**p-value**		**p-value**		**p-value**		**p-value**	
Chi-Square	<.0001		<.0001		0.6875		<.0001	
Phi Coefficient		0.111		0.222		-		0.089
Contingency Coefficient		0.110		0.217		-		0.089
Cramer's V		0.111		0.222		-		0.089

Source: own research

On the other hand, there was not a statistically significant difference between how many men and women experienced the impacts on their work life (Table 7). Only in the case of private life, more women experienced positive impact than men, although the influence of gender was very weak, as evaluated by the coefficients in Table 8.

Table 7. Percentage of respondents who experienced negative / positive impact of the pandemic on their work / private life – by *GENDER*

GENDER	***n***	**Impact on work life**		**Impact on private life**	
		negative	**positive**	**negative**	**positive**
male	1883	44%	27%	24%	28%
female	2616	41%	27%	25%	33%

Source: own research

Table 8. Pearson Chi-Square tests and coefficients of association between variables *GENDER* and *WORK_NEGATIVE, WORK_POSITIVE, LIFE_NEGATIVE, LIFE_POSITIVE*

	Impact on work life				**Impact on private life**			
	negative		**positive**		**negative**		**positive**	
Statistic	**p-value**		**p-value**		**p-value**		**p-value**	
Chi-Square	0.091		0.662		0.605		0.001	
Phi Coefficient		-		-		-		0.051
Contingency Coefficient		-		-		-		0.051
Cramer's V		-		-		-		0.051

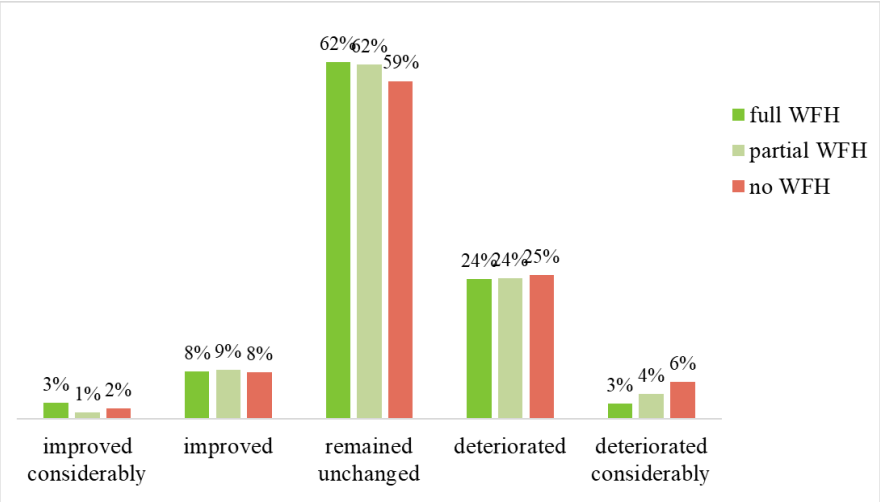
Source: own research

The differences could be seen between business sectors as well. E.g. tourism, hotels and gatronomy were the sectors in which as many as 67% of the respondents reported negative impacts on their work, whereas the opposite was IT/telco sector, in which only 31% of employees experienced some negative aspects.

3.2 Change in the quality of workplace relationships

The overall results indicate that a significant number – 30% of employees experienced some deterioration of their workplace relationships during the pandemic. Figure 1 shows responses given in a 5-point scale and differences between employees with different extent of WFH mode.

Figure 1. Change in the quality of workplace relationships during the pandemic – by *WFH*



Source: own research

The dependent variable is *RELATIONSHIPS* (change in workplace relationships) coded on a 5-point scale from 1 to 5 with 1 being 'improved considerably' and 5 being 'deteriorated considerably'. Independent variables that were investigated are *WFH* during the pandemic (full WFH, partial WFH, no WFH) and *SECTOR*.

Hypotheses evaluation

H3: Change in the quality of relationships at the workplace during the pandemic was perceived differently by:

a. employees working on full WFH, partial WFH and without WFH

➔ Kruskal-Wallis test (Table 10) has proved a significant influence of the *WFH* on *RELATIONSHIPS* (p-value 0,009). Pearson Chi-Square test (Table 11) has also confirmed an association (p-value <0,0001). The H3a hypothesis is accepted.

b. employees working in different sectors

➔ Kruskal-Wallis test (Table 13) has proved a significant influence of the *SECTOR* on *RELATIONSHIPS* (p-value 0,023). Pearson Chi-Square test (Table 14) has also confirmed an association (p-value 0,026). The H3b hypothesis is accepted.

- however, since the p-values that reject the null hypothesis of no association are not very small, if the tests were performed with $\alpha = 0{,}01$, the test results would be different – the hypothesis would be rejected, meaning that the influence of the *SECTOR* would not be proved.

There is a statistically significant difference in the change in workplace relationships between employees working from home fully, partially, or not at all. The mean score (Table 9) is more positive in case of employees who had the possibility to work from home. By contrast, the employees not working from home at all gave a worse average rating at 3,26 (3 = relationships remained unchanged, 4 = relationships deteriorated). As can be seen in the Figure 1, these employees reported considerable deterioration more often than the employees working from home fully or partially. Yet the coefficients in Table 11 show only a very weak influence of the WFH mode.

The comparison between employees with different degree of WFH gives an optimistic perspective for companies worried about having employees working from home. On the contrary, special attention should be paid to the employees who have no possibility of working from home and in the pandemic times they reported deterioration of their workplace relationships slightly more often than the employees with at least partial WFH. However, these conclusions might be different if employees' relationships were investigated after a longer-lasting WFH.

Table 9. Change in workplace relationships depending on the work mode: basic measures

Analysis Variable : RELATIONSHIPS					
WFH	**Mean**	**Std Dev**	**Mode**	**Median**	**N**
no WFH	3.26	0.77	3	3	1598
partial WFH	3.22	0.71	3	3	1188
full WFH	3.16	0.72	3	3	1193

Source: own research

Table 10. Kruskal-Wallis test to compare *RELATIONSHIPS* depending on the *WFH*

Kruskal-Wallis Test		
Chi-Square	**DF**	**Pr > ChiSq**
9.41	2	0.009

Source: own research

Table 11. Pearson Chi-Square test and coefficients of association between variables *RELATIONSHIPS* and *WFH*

	RELATIONSHIPS	
Statistic	**p-value**	
Chi-Square	<.0001	
Phi Coefficient		0.090
Contingency Coefficient		0.089
Cramer's V		0.063

Source: own research

The analysis of the change in workplace relationships also showed that there was a difference between some sectors (Table 12). In the sectors known as severely affected by the pandemic – either because of the closure of businesses (tourism, hotels, gastronomy) or because of the strain caused by an increased number of patients (health and pharmaceuticals), the respondents reported a slightly more negative change in workplace relationships. In Slovakia, as in many other countries, the tourism sector was one of the most influenced by the pandemic. Other key sectors were affected as well – such as the companies producing cars or consumer electronics (Hitka et al., 2021). At the end of the list there are sectors which were not affected so unfavourably (media, advertising, PR), where the respondents' assessment of their workplace relationships was more positive.

Table 12. Change in workplace relationships depending on the sector: basic measures

Analysis Variable : RELATIONSHIPS					
SECTOR	***n***	***Mean***	***Std Dev***	***Mode***	***Median***
Tourism, hotels and gastronomy	112	3.31	0.80	3	3
Health and pharmaceuticals	333	3.25	0.84	3	3
Transport and logistics	223	3.25	0.79	3	3
Production	570	3.24	0.69	3	3
Construction	144	3.23	0.68	3	3
Wholesale and retail	340	3.22	0.77	3	3
Public sector	300	3.19	0.74	3	3
Services	432	3.18	0.74	3	3
IT/telco	460	3.18	0.69	3	3
Banking and insurance	295	3.08	0.66	3	3
Media, advertising and PR	130	3.05	0.73	3	3

Source: own research

Table 13. Kruskal-Wallis test to compare *RELATIONSHIPS* depending on the *SECTOR*

Kruskal-Wallis Test		
Chi-Square	**DF**	**Pr > ChiSq**
20.68	10	0.023

Source: own research

Table 14. Pearson Chi-Square test and coefficients of association between variables *RELATIONSHIPS* and *SECTOR*

	RELATIONSHIPS	
Statistic	**p-value**	
Chi-Square	0.026	
Phi Coefficient		0.149
Contingency Coefficient		0.148
Cramer's V		0.075

Source: own research

4. CONCLUSION

After examining the impact of the pandemic on employees' work and private life, we can conclude that employees on different jobs and with different degree of WFH were affected differently – company directors, but also jobs such as service and production workers, and employees who did not have a possibility of WFH, were among those whose work life has been affected most negatively. Employees in different jobs also experienced impact on their private lives to a different degree. However, the differences in private life were not so considerable between employees with different degree of WFH, or between men and women.

Analysis of how the quality of workplace relationships changed during the pandemic showed that for 30% of all respondents, they deteriorated to some degree. They changed differently between employees with different degree of WFH – the best ratings were given by employees working fully from home. There were differences also between employees from different sectors – tourism, hotels and gastronomy being the sectors where w orkplace relationships deteriorated the most.

Business managers and HR professionals should be aware of these effects to mitigate issues in the case of the most threatened employees. Further research would be useful to examine particular measures that can be taken to moderate the negative effects of the pandemic and maintain good quality of workplace relationships.

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REFERENCES

[1] Boin, A. (2005). From Crisis to Disaster: Towards in Integrative Perspective. What is a disaster, (p. 153–172). 1-4134-7986-3

[2] Carnevale, J. B., & Hatak, I. (2020). Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *Journal of Business Research*, *116*, 183–187. https://doi.org/10.1016/j.jbusres.2020.05.037

[3] Worldometer (2021). COVID Live Update [online]. [cit.2021-10-20]. Available at https://bit.ly/3EwHOpl

[4] De Lucas Ancillo, A., del Val Núñez, M. T., & Gavrila, S. G. (2021). Workplace change within the COVID-19 context: A grounded theory approach. *Economic Research-Ekonomska Istraživanja*, *34*(1), 2297–2316. https://doi.org/10.1080/1331677X.2020.1862689

[5] Del Boca, D., Oggero, N., Profeta, P., & Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*, *18*(4), 1001–1017. https://doi.org/10.1007/s11150-020-09502-1

[6] Dirani, K. M., Abadi, M., Alizadeh, A., Barhate, B., Garza, R. C., Gunasekara, N., Ibrahim, G., & Majzun, Z. (2020). Leadership competencies and the essential role of human resource development in times of crisis: A response to Covid-19 pandemic. *Human Resource Development International*, *23*(4), 380–394. https://doi.org/10.1080/13678868.2020.1780078

[7] Golden, T. D. (2021). Telework and the Navigation of Work-Home Boundaries. *Organizational Dynamics*, *50*(1), 100822. https://doi.org/10.1016/j.orgdyn.2020.100822

[8] Golden, T. D., & Veiga, J. F. (2008). The impact of superior–subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *The Leadership Quarterly*, *19*(1), 77–88. https://doi.org/10.1016/j.leaqua.2007.12.009

[9] Hitka, M., Štarchoň, P., Caha, Z., Lorincová, S., & Sedliačiková, M. (2021). The global health pandemic and its impact on the motivation of employees in micro and small enterprises: A case study in the Slovak Republic. *Economic Research-Ekonomska Istraživanja*, *0*(0), 1–21. https://doi.org/10.1080/1331677X.2021.1902365

[10] Hupkau, C., & Petrongolo, B. (2020). Work, Care and Gender during the COVID-19 Crisis. *Fiscal Studies*, *41*(3), 623–651. https://doi.org/10.1111/1475-5890.12245

[11] Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., Bamberger, P., Bapuji, H., Bhave, D. P., Choi, V. K., Creary, S. J., Demerouti, E., Flynn, F. J., Gelfand, M. J., Greer, L. L., Johns, G., Kesebir, S., Klein, P. G., Lee, S. Y., Vugt, M. van. (2020). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, *76*(1), 63. https://doi.org/10.1037/amp0000716

[12] Möhring, K., Naumann, E., Reifenscheid, M., Wenz, A., Rettig, T., Krieger, U., Friedel, S., Finkel, M., Cornesse, C., & Blom, A. G. (2021). The COVID-19 pandemic and subjective well-being: Longitudinal evidence on satisfaction with work and family. *European Societies*, *23*(sup1), S601–S617. https://doi.org/10.1080/14616696.2020.1833066

[13] Newman, S. A., & Ford, R. C. (2021). Five Steps to Leading Your Team in the Virtual COVID-19 Workplace. *Organizational Dynamics*, *50*(1), 100802. https://doi.org/10.1016/j.orgdyn.2020.100802

[14] Sein, M. K. (2020). The serendipitous impact of COVID-19 pandemic: A rare opportunity for research and practice. *International Journal of Information Management*, *55*, 102164. https://doi.org/10.1016/j.ijinfomgt.2020.102164

THE MODERN LABOR MARKET AS A PROSPECT FOR SELF-TAUGHT

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Abstract: *In stable epochs, the labor market assumed a balancing parity between the supply of vacancies and the labor force. With the emergence of new specialties, more vacancies appeared than applicants for them, which stimulates the system of providing training and parity again developed. Currently, new technologies constantly open up new opportunities for human activity, and as a result, new professional directions arise, giving rise to many new professions that open new jobs. In these conditions, the education system does not keep pace with the demands of the labor market. And self-taught people are beginning to play a significant role in the labor market. On the labor market of new technologies, workers are required, on the one hand, with education in close to new types of activity, and on the other hand, capable and able to self-study. This is the spirit of the modern labor market in the field of new technologies. A modern applicant for a new vacancy must have not only education, but the need for constant self-study. And this is a new challenge to the entire education system - the labor market needs specialists capable of self-learning.*

Keywords: *labor market, self-learning, self-taught, vacancies, new technologies, labor market of new technologies*

JEL Classification: *J600*

1. INTRODUCTION

The XXI-st century has witnessed major changes in the labor market. And these changes continue. Whereas in the previous time the labor market could be quite stable (excluding periods of crises and shocks). At that stable time, there was a certain parity of job offers and labor supply in the labor market. Nobel laureate David Card draws attention to this in his works (Card, Raphael, 2013). Naturally, there was never any identity of vacancies and labor supply, but there was a balancing parity, which was achieved in the following way. - When new specialties appeared, more vacancies appeared than applicants for them. After some, insignificant time, the education system, or the system of training specialists, began to prepare the necessary specialists and parity was again formed.

Currently, the labor market is faced with a paradoxical situation. - New technologies constantly open up new opportunities for human activity, and as a result, new professional directions arise, giving rise to many new professions that open new jobs.

The modern labor market, in contrast to the previous ones, has spawned a colossal number of new professions. It is noteworthy and important to note that many of them are self-taught. And hence the main and paradoxical trend of the modern labor market of new technologies - a lot of self-taught people who create new types of work, and then new professions appear, and as a result, new vacancies, and, again, new self-taught.

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2. PROBLEM FORMULATION AND METHODOLOGY

Modern problems of the labor market and the role of self-taught in the labor market can be fully theoretically interpreted by two basic sociological theories, which are the methodological basis for studying modern processes in the labor market. First of all, these are the theory of revolution and social lifts by Pitirim Sorokin and the theory of typification of social actions by Robert Merton, which contains the idea that innovative social action becomes the leading trend of any revolution (Sorokin, 1925; Merton, 1938).

The basic idea of the theory of Pitirim Sorokin (Sorokin, 1925): the social revolution destroys the old "social elevators" and creates new ones. Thus, it opens up the opportunity for career advancement for active and creative people.

In general, according to Pitirim Sorokin, any established social system is a pyramidal structure, consisting of hierarchically arranged floors - strats. The higher the stratum, the more significant social role it plays. There is the following tendency characterizing its representatives - the higher the strata:

- firstly, higher incomes;
- secondly, the level of professional qualifications is higher;
- thirdly, social activity is higher, we especially emphasize social activity that is significant for society.

But this is only a general tendency, which by no means excludes the possibility that in the lower strata there may be highly qualified, socially active and talented people, and in the higher strata there may be lazy and incompetent people. At the same time, the accumulation of energetic and talented people in the lower strata, and, conversely, degradation in the higher strata, inevitably leads to a social revolution. - What Pitirim Sorokin pays attention to following Vladimir Lenin (1977).

An unbalanced social system with a limited number of "social lifts" or social mechanisms for moving from lower strata to higher strata carries the danger of revolution.

The revolution spawned by this imbalance is creating many social lifts for energetic and talented people from the bottom to the top. Among the total number of social lifts, Pitirim Sorokin also pointed to an education system that can give knowledge to energetic and talented people from the lower strata, who, applying this knowledge in practice, can rise to the higher strata. This is the first methodological premise.

Another important methodological basis is the theory of typification of social action by Robert Merton (1938). According to this theory, social action is determined by two regulators: social norms and social values. If an individual accepts both norms and values, his behavior is conformity to society. In all other cases, conformity is not achieved. One option is when an individual accepts social values but ignores social norms. This type of social action was called "innovative social action" by Robert Merton. Eras of social change open up space for innovative social action. People, driven by curiosity, a thirst for experiment, while ignoring not only moral norms and traditions, but also technical norms and established scientific doctrines, give mankind wonderful discoveries that expand the prospects for social activity.

In the opinion of the authors of this article, a striking example of such a person is the character of Conan Doyle - Sherlock Holmes. Sherlock Holmes constantly experiments, learns in practice, but at the same time reads a lot and independently synthesizes the theoretical knowledge gained. At the same time, he ignores any knowledge that is not interesting to him. We can be afraid of such people, because some discoveries of such people can carry serious problems, and not only bright prospects. In general, based on the foregoing, it is necessary to recognize that it is innovative social action that is the leading trend of any revolution. And this is the second methodological premise.

So, we synthesize the postulates of the two theories Pitirim Sorokin and Robert Merton: during the period of revolutions, innovative social action becomes the leading trend, which ensures the emergence of new social lifts. This is the basic methodological premise of this article.

Among revolutions, industrial revolutions are no exception, the same trend is observed in them. All industrial revolutions lead to an increase in labor productivity. However, industrial revolutions can be divided into two main classes. The first class is the industrial revolution, the basis of which is the emergence of new high-performance technology. The second class is a new organization of labor, new technologies. Consider the gradual succession of industrial revolution classes.

Manufacturing, which emerged at the turn of the Middle Ages and the New Age, is a new production technology, still based on routine techniques, traditional tools, using mainly the energy of humans and animals. Nevertheless, the manufactory, having raised productivity, created the need for new equipment, which would imply a higher power-to-weight ratio. Let's call these industrial transformations Industry 0.0. Following the first manufactories, there will be a technique that uses the power of wind and water. This technological advance has further developed exponentially.

The energy of natural forces was replaced by the energy of steam. In 1690, In Marburg Denis Papin built a model of a piston steam engine. And in 1712 Thomas Newcomen created the first active atmospheric engine used to pump water from the Devon mines. In 1765, Ivan Polzunov's steam engine started working in Barnaul. Finally, in 1776, the commercial James Watt steam engine appeared and became widespread. Manual labor has been replaced by machine labor everywhere. This is considered to be the beginning of The first Industrial Revolution, or Industry 1.0.

At the beginning of the 20th century, a new Industrial Revolution will begin - a revolution in management that will lead to the rational use of both the labor of workers and the energy that the constantly emerging new machines gave. The growth in the productivity of enterprises in the first third of the 20th century occurred precisely due to the creation of a new scientific organization of production and labor of workers.

And at the end of the 20th century, Industry 3.0 will occur, in fact, an information revolution that will replace industrial labor with intellectual labor. At the beginning of the 20th century, 20% of the manufactured product was product development, and 80% was industrial production. But already at the end of the 20th century, these proportions changed (Zakharov, Kuznetsov, Perfilieva, 2021). And now search, development, solution began to play the main role. In the 21st century, intellectual work has become the main basis of labor activity.

And if until the end of the 20th century intellectual work was strictly limited by the parameters of industrial production, then in our time these boundaries are crumbling one after another. For example, in the 20th century, the development of an architectural project had many limitations. These were both the technical capabilities of the industrial production of building materials and the system for their delivery.

In another area. The machine tool base for the production of metal parts was an impenetrable barrier to the development of complex parts. All this does not deny the creation of single architectural ensembles and highly complex locksmith and turning parts, which were single, but not massive. At the same time, the time spent on their physical production was several times higher than the time spent on their intellectual development.

Our 21st century is gradually removing technological limitations for intellectual work. And intelligence, unlimited by technical barriers, begins to create new types of activities (NTA). From casual entertainment to works of art. From primitive computer games and handicrafts on 3D printers to the most complex control programs and the most complex details.

In the wake of the growth of new types of activities (NTA), new types of work (NTW) begin to appear. Suddenly, a new type of activity, as soon as it becomes profitable, begins to capture masses of people and thereby turns into a new type of work. Among the participants in a new type of work stand out, individual people who develop technologies a new type of work. How once G. Ford created the technology of conveyor production from handicraft labor. The emergence of technology provides the emergence of new types of professional activity (NTPA). Technology needs workers who act according to predetermined patterns. The education system begins to train such workers - specialists. Education of the 20th century was focused on training specialists. This education fully satisfied the demand of the labor market for specialists. Thus, in the 20th century, there was a chain of changes in any kind of human activity in the profession:

- the disappearance of barriers to intellectual work
- leads to NTA.
- and that, in turn, ensures the emergence of NTW,
- from which NTPA comes from,
- supported by the education system.

In the 20th century, the growth of such chains fully satisfied the system of industrial relations. And the education system responded adequately to the emergence of NTPA. In our time, in the 21st century, the growth of such chains becomes an avalanche. Some of the chains only reach the first stage, while others, on the contrary, reach the NTPA stage. And at the NTPA stage, they disappear, unsupported by the existing system of training specialists. But the surviving chains create their own system of training specialists. The formation of these chains is similar to the growth of yeast dough. NTPA is created and used by its creators. The emerging NTPA spawns new creators of NTPA. New professions are expanding to include traditional professions. The base of traditional professions is expanding in new professions. This means that all NTPA simply feel the need to create a specialist training system adequate to the new conditions.

In these conditions, the education system does not keep pace with the demands of the labor market. And self-taught people are starting to play a significant role in the labor market. This does not mean that they made up the overwhelming number of applicants for vacancies. In general, the labor market, even in the field of new technologies, needs workers with special education. But the labor market for new technologies requires workers, on the one hand, who have education in close to new types of activity, and on the other hand, capable and able to self-study.

This is the peculiarity, this is the spirit of the modern labor market in the field of new technologies. A modern applicant for a new vacancy must have not only education, but the need for constant self-study. And this is a new challenge to the entire education system - the labor market needs specialists capable of self-learning.

3. PROBLEM SOLUTION

Nowadays, in the 21st century, the self-taught person is becoming the main attractor of the labor market. What is the main difference between the self-taught of the 20th century and the self-taught 21. The self-taught of the 20th century known to us have made an invaluable contribution to the entire system of industrial relations. They changed production, the economy and the very life of a person. Vivid examples of such self-taught:

- Henry Ford in the USA in 1918, who created the automobile assembly line;

- Tomas Bata in Czechoslovakia, founder of the technology of mass production of footwear before the First World War;
- Karol Adametsky in the Russian Empire, who developed the technology of rolling production in the early years of the 20th century. Let's note a remarkable, but typical case. The most important achievement of K. Adametskiy is a visual representation on a technological process diagram, which in the English-speaking world are called "Gantt charts" - after the name of the compiler.

It is safe to assume that there were other self-taught people in the 20th century. They were not as talented and not as successful. The achievements of many of them were not socially significant and therefore did not leave a trace. The peculiarity of the social system of the 20th century and the peculiarity of social lifts is that they excluded the possibility of promoting self-taught. The great self-taught people, Ford, Batya, Adametsky and others like them, are an exception to this rule. The social system set such insurmountable demands of "natural selection" that it was not just the strongest who "survived", but the strongest. "Survived" talents, endowed with the will to succeed, unbending in the face of failure. “Survived” were persistent ones, with the ability to make decisions in a complex changing environment, to find new things, where everything had already been found, to make inventions that are effective and, at first glance, simple. Those self-taught people who "survived" were psychologically mutually exclusive qualities - talent and will. But there are two more qualities that at all times were necessary for self-taught people:

- the need to constantly learn;
- and a solid educational base.

For example, Henry Ford. They prefer to write about him that he was not educated. But don't forget. Henry Ford - studied with Thomas Edison himself. Tomasz Bata had a wealth of experience and knowledge of shoe making, because he came from a family of hereditary shoe makers, known since the 17th century. And Karol Adametsky successfully graduated from the St. Petersburg Institute of Technology.

The 21st century, as a result of the progress of new technologies, has removed the technological and educational "shackles" from intellectual labor. For example, now, to make a film, you do not need to study to be a director ("educational shackles"), you do not need to conduct a complex search for equipment and determine the place and time of shooting ("technological shackles"). This applies not only to cinema, but to many other types of activities. Our time is the time of self-taught.

It should be noted that at present there is an opportunity to single out among self-taught people who are capable of giving a positive result to society. It doesn't have to be Henry Fords. They do not have to be people “forged” from talent and will. They might just be talented, self-taught seekers. And if we give them the conditions for creative growth, we can get both economic and social benefits. Such an example are companies working in the field of new technologies: Google, Microsoft, Facebook, Yandex and others like them (Britvina Shumilova, Zakharov, 2020). The working conditions in these companies are created to obtain intelligent products. But these working conditions do not stimulate intellectual work, but give it the opportunity to exist.

A small historical digression. Thousands of years ago, people harvested cereal plants. Sometimes the conditions for the existence of these plants were improved. And gradually, as a result of the gradual improvement of the conditions for growing cereals, our distant ancestors domesticated wild cereals. This is exactly what the modern giants of new technologies are doing - "domesticating" the "wild" self-taught. And the authors of this article think that such a path is unreasonably long.

Meanwhile, Conan Doyle, who described new types of work (NTW) in the image of Sherlock Holmes, developed a new technology, i.e. created new types of professional activity (NTPA). But not in the field of forensics. And in the field of literature. It was Conan Doyle who was one of the founders of a new genre - detective. And not only the founder, but also the technologist, i.e. the developer of the basic techniques of this genre. It is noteworthy that both Ford, and Dad, and Adametsky - they not only invented something new, they also developed the technology of this new one.

The main achievements of the giants of new technologies are their ability to technologize the processes of intellectual labor. This means:

- “register” the path traversed by the “inventor”;

- to teach and guide along this path, able to learn and repeat.

All this indicates that the modern labor market for new technologies needs the following:

First, those who are looking for something new. These are "researchers";

Secondly, those who technologize the search for a researcher. These are "technologists".

Thirdly, those who will create a methodology for teaching this technology.

At first glance, these are trivial tasks. Because both technologization and methodization have existed for a long time. This is indeed the case. How long have wild plants existed, and only thanks to domestication have they become domesticated?

The labor market today needs specialists - technologists and methodologists, but of a special kind. In specialists capable of "taming" "wild" self-taught. And here education should purposefully begin to prepare technologists aimed at working with researchers. And methodologists aimed at developing teaching methods for new technologies.

All this imposes special requirements on the education system. Our education, while continuing to train specialists, must begin to train researchers as well. In our opinion, a researcher is a non-specialist, it is something opposite to him. In the most general sense, a researcher is a "cultured" self-taught person.

In our understanding, the basis for a modern "researcher" (in our understanding of this term:

Is a good basic education,

- search conditions similar to those that exist among the giants of modern technology. These conditions are necessary in companies, universities and schools.

4. CONCLUSION

From the point of view of the structure of modern education, it is ready to meet these challenges. It is logical that a bachelor's degree provides knowledge, a little less mastery of technology, even less - methods for teaching technology, and even less - research. The master's degree, according to its function, should focus on the development of technology. And postgraduate studies are either for the discovery or for the creation of a new methodology or technology. But, unfortunately, these functions of education have not yet been activated to perform the functions inherent in them, which the labor market is increasingly in need of. In general, the modern labor market abandons the modern education system and forces us to change the paradigm - to LEARN, to the paradigm - to LEARN TO LEARN independently.

REFERENCES

[1] Britvina I., Shumilova, P. & Zakharov, D. (2020). Labor migrants as a resource for the shadow economy in a context to of transition to Industry 4.0. In: *Vplyv Industry 4.0 na tvorbu pracovnych miest 2019*. 21.11.2019 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2020. pp. 63-70.

[2] Card, D., Raphael, S. (2013). *Immigration, poverty and socioeconomic inequality*. New York: Russel Sage Foundation, 2013. ISBN 9780871544988

[3] Chechulin, A. V., Kuznecov, A. L., Grakhov, V. P. & Perfil'eva, M. B. (2020). Communication and Marketing Technologies of Territory Promotion: Forming Professional Market in Russia. *Science and Technique*, vol. 19, iss. 2, pp. 125–129.

[4] Lenin, V.I. (1997). Opportunism and the Collapse of the Second International. In: *Lenin Collected Works*, Progress Publishers, [1964; 3rd printing,1977], Moscow, vol. 22, pp. 108–120

[5] Merton, R. (1938). Social Structure and Anomie. *American Sociological Review*, vol. 3, (Oct., 1938),pp. 672–682.

[6] Grenčikova, A., Petrušusova, D. & Sokol J. (2019). Vplyv industry 4.0 na poskytovanie služieb v cetovnon ruchu. The Impact of Industry 4.0 on Tourism Services. In: *Vplyv Industry 4.0 na tvorbu pracovnych miest*, 22.11.2018 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2019, pp. 74-80

[7] Sorokin, P. A. (1925). *Sociology of Revolution*. Philadelphia, 1925.

[8] Šramka, M., Grenčikova, A. & Huzevka, M. (2021). Use of Information and Communications Technologies for Home-Office and their Impact on Labor Productivity. In: *Vplyv Industry 4.0 na tvorbu pracovnych miest 2020*, 12.11.2020 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2020, pp. 117-123.

[9] Vojtovič, S., Tupa, M. & Karbch, R. (2020). Pracovna imigracia v krajinach V4 v kontexte rozvoja Industry 4.0. Working Imigration in the V4 Countries in Industry 4.0 Development Context. In: *Vplyv Industry 4.0 na tvorbu pracovnych miest 2019*, 21.11.2019 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2020, pp. 423-432.

[10] Zakharov, N., Kuznetsov, A. & Perfilieva, M. (2021). The impact of Industry 4.0 on the labour market in Russia. In: 2 international scientific conference. *Vplyv Industry 4.0 na Tvorbu Pracovných Miest*, 21.11.2020 Trenčianske Teplice. Publishing House Alexander Dubček University in Trenčín 2021, pp. 454-456.

FRENCH DIRECT INVESTMENTS IN SLOVAKIA AND ITS IMPACT ON REGIONAL ECONOMIC DEVELOPPMENT

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Abstract: *The aim of this scientific contribution was to examine the impact of the French direct investments on the Slovak economy, and more precisely on the regional development. France is one of our most important business and diplomatic partners and has already heavily invested in Slovakia throughout the years. The PSA Peugeot-Citroen group, EDF, GDF or Orange are some of the largest French investments. Foreign investors have potential to bring many opportunities to the regions where they decide to place their investments, and they can also significantly change the labor market dynamic as they not only offer direct job vacancies, but also create an important sub-supply chain creating additional work opportunities. That is why the aim of the paper is to analyze the impact of the French direct investments on the regional economic development in Slovakia.*

Key words: *foreign direct investments, regional development, job creation*

JEL Classification: *F16, F23, R11*

1. INTRODUCTION

European Union is well known as an economic giant. Together with China and the United States of America, European Union ranks among the most powerful players in international trade worldwide. The unique European project providing equal possibilities and opportunities to all 27 member states has created a strong single market where the job creation and smart resource redistribution is being the key factor of success.

Slovak Republic, being member state of the European Union since the biggest enlargement wave in 2004, when together with Slovakia, another nine countries successfully adhered to the European Union, has already been able to benefit from the single market advantages.

Slovak Republic is also known as very open economy. Trade openness of the country being the ratio of the mean of exports and imports compared to GDP, Slovakia is among the economies which are the most open to international trade. (UNCTAD, 2019)

France is undoubtedly a very important commercial and diplomatic partner for Slovakia. Even though, we rank among the largest investors Netherlands, Germany or Austria, France is still one of the countries that is very present in Slovakia via its investments. Moreover, it is important not to omit the fact that although the largest amount of investment originates from Netherlands, the real origin of the investment may be different. This distortion is caused by more favorable business conditions in the Netherlands which lead many enterprises to move their headquarters.

The scientific contribution will point out the impact of foreign direct investments on Slovak economy, more precisely, we will analyze the impact of the French direct investments on the economic development of the Slovak regions. The paper will emphasize the role of the foreign direct investments, the advantages/disadvantages and their impact on the economy, regional development, competitivity of the region and quality of life.

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2. PROBLEM FORMULATION AND METHODOLOGY

Foreign direct investments, without a doubt, have the potential to increase the economic activity in the area where they are settled. New investor, innovative technology, different know-how or even whole new industry can be the subject to the placement of the foreign direct investments. But what are the real impacts of such an investment? How the regions are responding to such a new impulse? Is there more to the foreign investments than just the obvious advantages?

The aim of the scientific contribution is to analyze whether the French direct investments established in Slovakia do have a real positive impact on the regional economic development of the Slovak regions and to what extent they can influence the quality of life and the level of development of a given region.

For the purpose of this scientific contribution we used mostly secondary data analysis. This method allowed us to look at and to analyze the evolution in time and the current state of the treated problematic. We built the analysis on the official sources such as Statistical Office of SR, European Union, OECD, etc. To come to a relevant conclusion, we needed to take into account the historical evolvement of the events, official and relevant statistical outputs, analyze several indicators and make an appropriate comparisons. By the means of descriptive analysis respecting the rules of logic and systematics, we could find and interpretate the answer to our research question.

3. FOREIGN DIRECT INVESTMENTS IN SLOVAKIA

3.1 Why invest in Slovakia?

The reasons why a multinational firm decides to invest in a foreign country may be numerous. In the study published in 2018 by Hong, Lee and Makino, the authors' findings mention the basic framework for different FDI motives distinguishing. Based on that, we can state that there are four basic types of reasons for motivation to invest abroad:

- Market seeking as expansion (or as a replacement),
- Labour resource seeking,
- Natural resource seeking,
- Strategic asset seeking. (Hong, Lee, Makino 2018)

It follows from the above that when investor decides to move its activities abroad it is mostly because his firm has a potential to expand, so he is looking for a new markets to establish his business on, while still operating on his domestic market, or he decides to leave the domestic market and find new opportunities abroad giving more potential to its activities. Nevertheless, sometimes the investor needs to be closer the key resources, so than the decision of where to expand or move the business is based on the location of natural resources, better qualified or cheaper labour resources and of course technology and know-how not available in the domestic region.

United Nations Conference on Trade and Development (UNCTAD) defines the Foreign Direct Investments (FDI) as "an investment reflecting a lasting interest and control by a foreign direct investor, resident in one economy, in an enterprise resident in another economy (foreign affiliate)." (UNCTAD, 2019)

In addition to that, there are some criteria which allow us to distinguish between the direct investments and foreign portfolio investments. The Bank of France defines the FDI as following: "The Foreign Direct Investments are international investments through which resident entities of one economy acquire or have significant control or influence on the management of a resident firm of an economy other than that of the investor. Through convention, it is considered that there is direct investment when the investing entity acquires

or holds at least 10% of the capital or voting rights of the investee. Once the direct investment relationship has been established, all cross-border financial relationships between the investor, the companies he controls, the invested company and companies it controls (loans, borrowings, trade credits, capital investments, reinvested profits) are also considered as direct investments and are accounted as such." (The Bank of France, 2020)

So when speaking about why a foreign investor might be interested to invest and move his business activities to Slovakia, Slovak Investment and Development Agency (SARIO) states several advantages that may attract foreign investors to place their investments in Slovakia:

- *Favourable strategic location* – Slovakia being located in the centre of Europe, the geographic location offers great export potential and is attractive for investors. In the heart of Europe and European Union, Slovakia is strategic interconnection of Western and Eastern Europe. Furthermore, as mentioned before, not only does Slovakia have an advantageous position for export, but it is also one of the most export-oriented and open economies in the EU.
- *Stability* – as a member state of the EU, Slovakia guarantees a relatively high level of economic and political stability. Also, in recent years, Slovakia has been ranked among the countries with a dynamic and fast-growing economy. Another favourable factor is the currency. Slovakia is member of the Eurozone since 2009 and therefore uses the common European currency as the only one from the Visegrad Group and as one of a few in the Central and Eastern Europe region.
- *Developed industry and qualified workforce* **–** Investing in Slovakia is not only investing in a country with a large industrial tradition, but also in a country with highly qualified and experienced cost-effective workforce. The main areas of industry in Slovakia are Mechanical engineering, Electronics, Automotive, Chemical engineering, Metal industry and Information technology. (Ministry of Slovak Republic 2016)
- *The government support* **–** and last but not least, there is the Slovak government support to investments which may also play an important role in investor's decision-making. Although there is no legal claim to investment aid, the government usually provides investment aid in order to enhance the economic development of its regions. The Ministry of the Economy of the Slovak Republic defines four forms of investment aid:
    1. *Grant for tangible fixed assets and intangible fixed assets* **-** The Grant provider is the Ministry of the Economy of the Slovak Republic and the aim is to provide aid to cover eligible investment costs.
    2. *Contribution towards the creation of new jobs* – The Grant provider is the Ministry of Labour, Social Affairs and Family and in a situation where the implementation of the investment plan leads to a net increase in job positions, than the goal of contribution is to support eligible wage costs.
    3. *Income tax relief* – The provider of this aid is the Ministry of Finance of the Slovak Republic and it helps to cover total eligible costs. Even Though the state is losing on lower taxation, the aim is clear – to bring the foreign investors and create job opportunities in return. Although, when supporting foreign investors, the government should also look at the potential added value for the region concerned.
    4. *Transfer or lease of immovable property at a value below the value of immovable property or the lease value of immovable property established by an expert opinion* **–** in this case the provider of the aid is the owner of the property (for example a municipality) and the aid corresponds to the difference between the value established by an expert opinion and the value at which to immovable property is being transferred.

All those are relevant aspects that play in favour of Slovakia as a sought-after destination for investors. However, there is always an other side of the coin, and this is no exception. When it comes to attracting foreign investors, Slovakia also has some weaknesses. Lately it has been

an unstable business environment with a number of new regulations or the lack of the already built industrial parks and associated infrastructure. The Doing business ranking "Ease of doing business" in which Slovakia is falling, also testifies to the deteriorating situation for entrepreneurs and therefore for the foreign investors as well. While in 2014 Slovakia was in the 29th place, in 2017 it was already 39th place and last year, in 2020, the country was in 45th place in the ranking. Nevertheless, for the time being, Slovakia continues to be an interesting investment country.

3.2 Regional economic development in Slovakia

Slovakia is a small but one of the most open economies, with a very high rate of economic openness at 188% according to French-Slovak Chamber of Commerce. The openness rate being that high, the country's economy is highly dependent on international trade, especially within the EU. And at the same time, it is the foreign trade (export) which is the main driving force for the country's economy growth together with household consumption and investments.

According to OECD, since 2000, when Slovakia joined the OECD, the country has "continuously ranked among the fastest growing OECD economies, even catching-up with higher-income countries." The most recent report on the country's economic state is revealing that the economic situation of the Slovak Republic is, despite the crisis caused by pandemic, remaining relatively satisfying. In 2019, average Slovak worker earned 70% more than 20 years ago, which is according OECD a prove of improvement in the labor market performance and living standards. (OECD, 2019)

However, the area in which Slovakia is still lagging behind is the levelling of regional disparities and inequalities. Since Slovakia joined the EU in 2004, GDP per capita has been progressively increasing in all Slovak regions, but not uniformly, on the contrary, already existing regional disparities have further deepened. More specifically, between the region of the Slovak capital – Bratislava and Eastern Slovakia, where the degree of the regional inequalities is most severe. To illustrate that the regional disparities have not disappeared, in 2004, when Slovakia joined the EU, the GDP per capita of the Bratislava region was 3.1 times higher compared to GDP per capita in Eastern Slovakia, while in 2017 it was 3.3 times.(Muchova, 2019)

In the OECD list of countries by greatest regional disparities, which compares the degrees of regional disparities between member countries of the OECD and, at the same time, the evolution of these coefficients over time, Slovakia was at the first rank in 2016, being the country with the biggest regional disparities. (OECD,2016)

One of the approaches to reduce regional disparities and thus contribute to regional development is to attract a foreign investor who, together with capital, have potential to bring a large number of new job vacancies to the region.

4. FRENCH DIRECT INVESTMENTS AND SLOVAK REGIONAL DEVELOPMENT

According to OECD economic Surveys : Slovak Republic, the big challenge for Slovak industry in the years to follow will be to adapt to a automation of the industries and therefore adapt its labour force to the new market demands. "Slovakia's economic success is largely dependent on the cars and electronic industries, where considerable automation is expected. This can help address labour shortages and increase productivity. But for everybody to benefit from new technologies, it will be crucial to give displaced workers good training opportunities to upskill. More generally, the demand for high skilled workers is expected to

rise. However, Slovakia's adult training system is underdeveloped, and its vocational education is not sufficiently responsive to labour market needs." (OECD, 2019).

4.1. PSA group in Trnava region

The biggest French firms in Slovakia (TREND, 2019) are PSA Group Slovakia, s.r.o., Trnava, Faurecia Automotive Slovakia, s.r.o., Bratislava, Orange Slovensko, a.s., Bratislava, Plastic Omnium Auto Exteriors, s.r.o., Lozorno, HBPO Slovakia, s.r.o., Lozorno, Groupe SEB Slovensko, s.r.o., Bratislava, Eurovia SK, a.s., Košice, Gefco Slovakia, s.r.o., Bratislava, BIC Slovakia, s.r.o., Sereď. There are almost 400 firms and branches of French companies in Slovakia, except for the ten largest mentioned above, these are some of the most commonly known: Novares, Veolia, Engie, L'Oréal, Decathlon, Danone, etc.

Stellantis Trnava (or as we knew it before PSA Peugeot Citroen Slovakia) is a major car plant based in western region of Slovakia, Trnava region. According to the official information (PSA-SLOVAKIA.SK, 2021) the new company – STELLANTIS – was created on January 16, 2021 by a merger of the Fiat Chrysler Automobiles FCA group and the Groupe PSA group, which also includes the Trnava carmaker.

The story of the Trnava car manufacturer has been around for more than fifteen years now, during which time it has taken roots more and more deeply in Slovakia. The strategic investment in the Trnava carmaker has already exceeded the total of more than 1.2 billion €. Just three years after the foundation stone was laid, on June 17, 2003, production of the first Peugeot 207 began in June 2006. (PSA-SLOVAKIA.SK, 2021)

A new Peugeot 208 model is currently being produced in Trnava, which became the European Car of the Year 2020. For the first time in its history, the carmaker also offers a 100% electric version of the e-208 with zero CO_2 emissions. Since September 2016, exclusively in Slovakia, it has also been producing Citroen C3 model. (PSA-SLOVAKIA.SK, 2021)

There is no doubt that the Trnava car plant is a successful project of placement of a FDI. During its long existence, the Trnava car manufacturer has been continuously celebrating its successes. Thank to this, the initial investment in the construction of four production facilities on 150 hectares continues to bring profits and creates a stable working environment for its employees.

The carmaker is currently creating up to 4.200 jobs. Including suppliers and partners, this car manufacturer generates almost 20.000 jobs in Slovakia. In 2019, the carmaker in Trnava ranked 4th in the TREND Top ranking of the largest non-financial companies in Slovakia. At the same time, in 2019, it became the third largest exporter in Slovakia. The group's total investment in Slovakia has already exceeded 1.2 mild. €.(PSA-SLOVAKIA.SK, 2021)

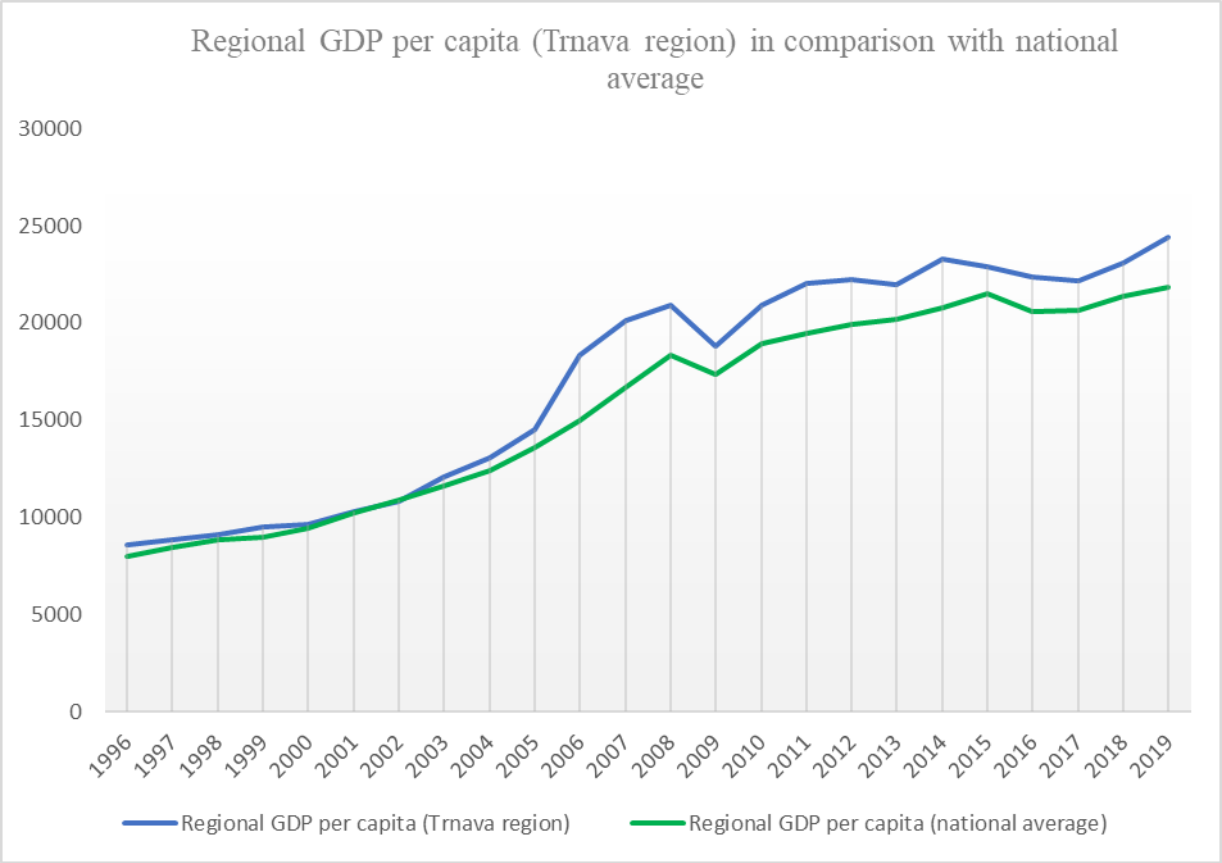
The PSA group, or Stellantis Trnava car manufacturer is not only the biggest French investment but its among the most important companies in Slovakia in general, creating a very important number of job positions, not only by directly employing but also by creating a vast network of partners, other investors, subcontractors and other suppliers, who thanks to the presence of the car manufacturer group could also develop their businesses in Slovakia.

For every region, the presence of the FDI is an important indicator of the level of the regional development. It has an influence on many other indicators such as evolution of unemployment rate, average wage in the region, standards of living, etc. That is why, the government adopts some instruments to create an incentive environment for the arrival of foreign investors.

We decided to look at some macroeconomic indicators specifically for the Trnava region and their changes in time in comparison with national average, which gives as a perspective on how the Trnava region has been doing economically in last twenty years.

In the *Figure 1*, we observe the regional GDP per capita in purchasing power parity (PPP). We decided to compare the Trnava region to the national average as we believe that this way we get a more accurate picture of the economic situation. In the *Figure 1*, we can see that throughout the years, mostly from 2005 on, the Trnava region's GDP per capita has outperformed and kept above the national average. This is a very good sign for the region, to the potential investors, but also, it is a result of successful business activities in the regions, such as, for example, the PSA group car manufacturer.

Figure 5. Regional GDP per capita(PPP): Comparison of Trnava region and the national average

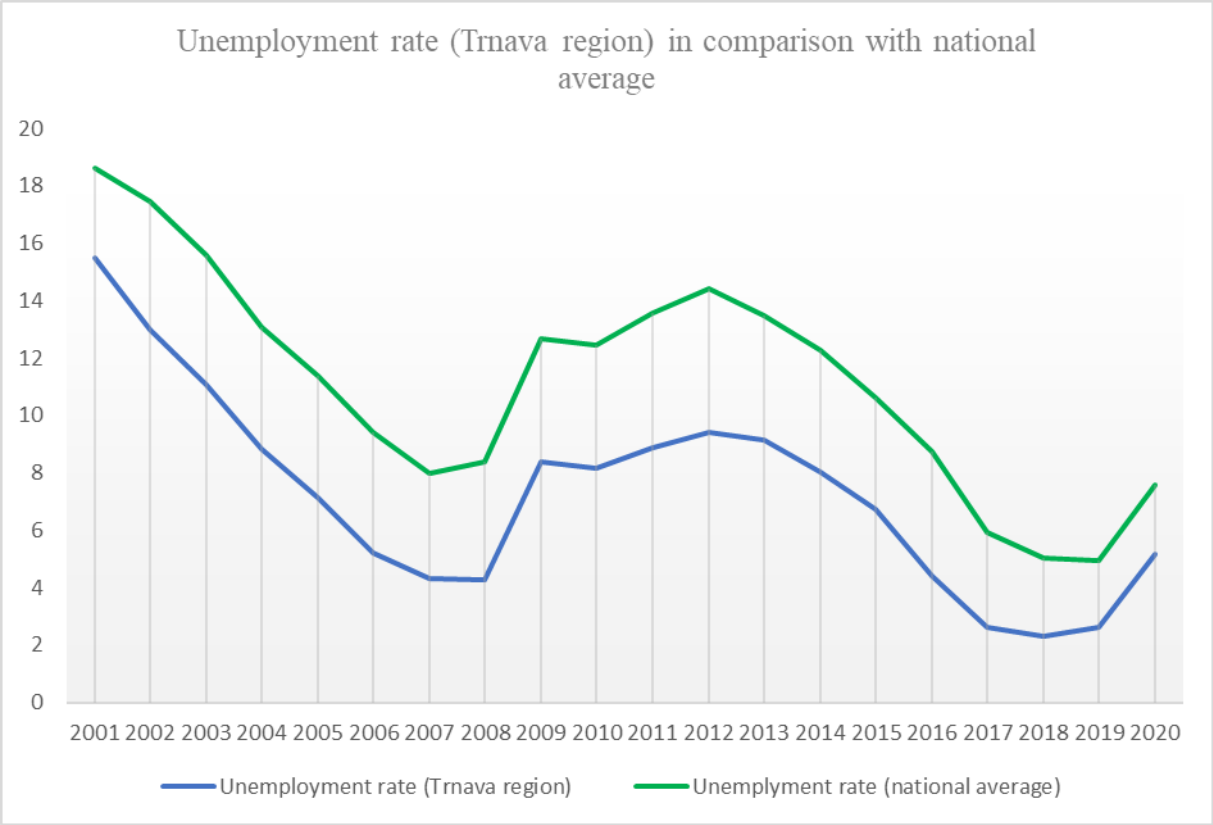


Source: own elaboration (2021) based on the data from: ŠÚ SR. STATDAT(2021). Regionálny hrubý domáci produkt (v bežných cenách). [online]. [cit.2021-10-01]. Available at: Verejná databáza údajov - IBM Cognos Connection (statistics.sk)

In 2018, the Trnava region with a regional domestic product of 10.088 mil. € at current prices accounted for 11,2% of national GDP. In terms of per capita, the regional GDP exceeded the national average by 8,8% and reached 17.917 € in current prices, which was the second highest value in the inter-regional comparison. (ŠÚ SR, 2021)

Figure 2 shows how the unemployment rate has developed in the Trnava region over the last twenty years, again, compared to the evolution in time of the national average. This indicator is also emphasizing the good economic situation of the Trnava region, as we can observe that the unemployment rate in the Trnava region has never exceeded the national average and has always remained at lower numbers. That can also be thanks to stable job positions created in the region and the adaptability of the region to the market changes.

Figure 6. Unemployment rate: Comparison of Trnava region and the national average

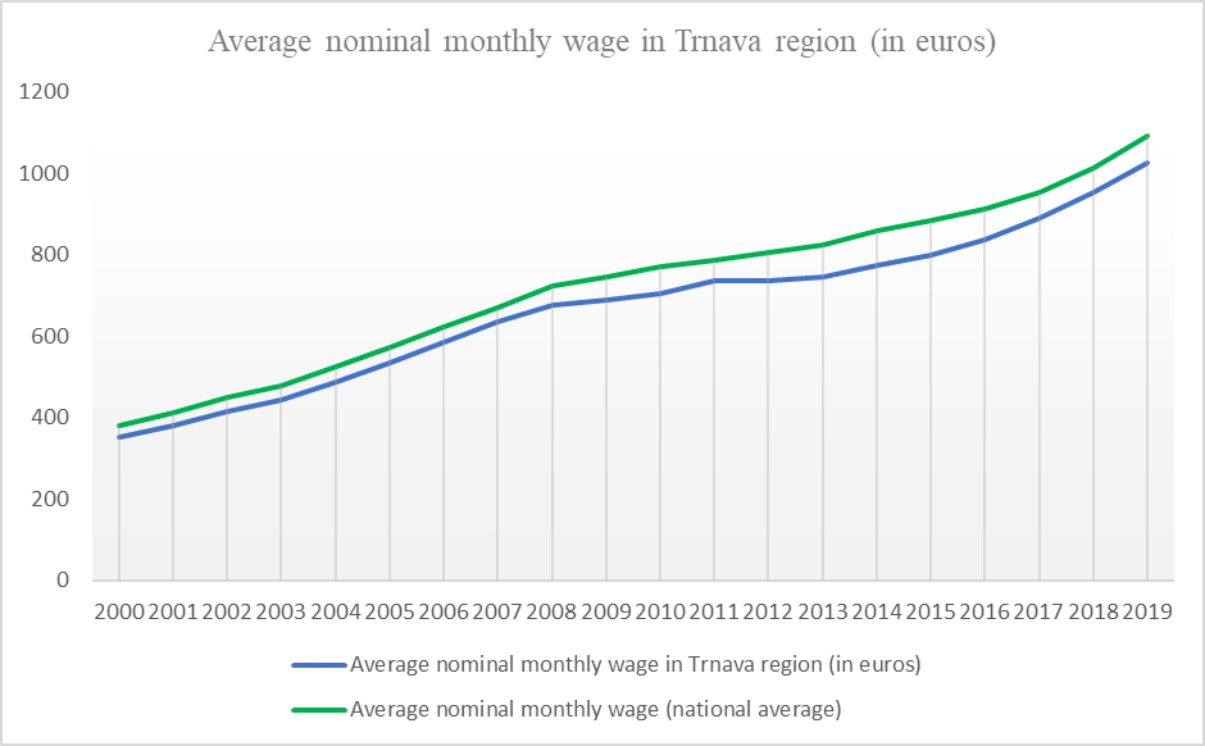


Source: own elaboration (2021) based on the data from: ŠÚ SR. DATACUBE (2021). Miera evidovanej nezamestnanosti. [online]. [cit.2021-10-01]. Available at: http://datacube.statistics.sk/#!/view/sk/VBD_SK_WIN/pr3108rr/v_pr3108rr_00_00_00_sk

The great number of industrial as well as agricultural businesses together with a wide network of services, advantageous location and well built infrastructure offer a wide range of job opportunities. In 2019, the economically active population made up 51,2% of the total population of the Trnava region. (ŠÚ SR, 2021)

Finally, *Figure 3* shows the growth of the average monthly nominal wage. In this case, we see that the Trnava region is slightly below the national average, but the difference is rather insignificant.

Figure 7. Average nominal monthly wage: Comparison of Trnava region and the national average



Source: own elaboration (2021) based on the data from: ŠÚ SR. DATACUBE (2021). Primerná mzda v hospodárstve SR. [online]. [cit.2021-10-01]. Available at: http://datacube.statistics.sk/#!/view/sk/VBD_SK_WIN/np3112qr/v_np3112qr_00_00_00_sk

5. CONCLUSION

International trade is a key success factor for an economy as open and export-oriented as Slovakia. Through the system of external relations, the country has the opportunity to be involved in the system of international division of labor. Slovakia, being the member of the EU and of the Eurozone, has a competitive advantage compared to other countries in its region. However, we should be working on improving the business environment if our aim is to maintain the position of a country that is interesting for foreign investors. On the other hand, we should also make sure that the influx of FDIs is still advantageous to the country and that it is bringing an appropriate added value.

In this paper, we commented the impact of the French investments on the regional development. There is, obviously, a difference in what impact the investment will have on the region depending on the volume of the investment. Therefore, we decided to look at the biggest French investment in Slovakia, the car manufacturer Peugeot – Citroen operating in Slovakia since 2006. There is no doubt that such a investment has positive outcomes and impact on the region and its development. Huge FDIs create around always an important network of other investors, which, obviously, is creating a numerous job opportunities but it also has a positive effect on the dynamics of the whole industry. In addition to that, we can conclude that there is a large number of French businesses and branches in Slovakia, which thrive here and provide good working conditions for their employees and enrich the industry in which they operate with their know-how.

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REFERENCES

[1] Banque de France. (2020). Foreign direct investment [online]. [cit.2021-10-22]. Available at: https://www.banque-france.fr/en/statistics/balance-payments/foreign-direct-investment.

[2] CCI Franco-Slovaque. Francúzsko-slovenská obchodná komora (2019). La Slovaquie [online]. [cit.2021-10-20]. Available at: https://www.ccifrance-international.org/fileadmin/cru-1586512783/portail/user_upload/Slovaquie2019.pdf

[3] Direction Generale Du Tresor. (2020). Slovaquie. Situation économique et financiere du pays. [online]. [cit.2021-10-19]. Available at: https://www.tresor.economie.gouv.fr/Pays/SK/indicateurs-et-conjoncture

[4] European Union (2020). The economy [online]. [cit.2021-10-22]. Available at: https://europa.eu/european-union/about-eu/figures/economy_en

[5] Hong,E. & Lee, I. & Makino, S. (2019). Outbound Foreign Direct Investment (FDI) Motivation and Domestic Employment by Multinational Enterprises (MNEs). *Journal of International Management* [online]. [cit.2021-10-22]. Available at: https://doi.org/10.1016/j.intman.2018.11.003.

[6] Les Echos. (2003). PSA choisit la Slovaquie pour implanter sa nouvelle usine en Europe [online]. [cit.2021-10-24]. Available at: https://www.lesechos.fr/2003/01/psa-choisit-la-slovaquie-pour-implanter-sa-nouvelle-usine-en-europe-657852

[7] Ministry of Economy of the Slovak Republic. (2021). *Regional investment aid* [online]. [cit.2021-10-20]. Available at: https://www.economy.gov.sk/uploads/files/WnRR1G07.pdf

[8] Ministry of Economy of the Slovak Republic (2021). Odvetvia priemyselnej výroby aid [online]. [cit.2021-10-20]. Available at: https://www.mhsr.sk/priemysel/odvetvia

[9] My Trnava. SME (2021). *Trnavská automobilka nateraz pokračuje vo výrobe*. [online]. [cit.2021-10-25]. Available at: https://mytrnava.sme.sk/c/22731868/trnavska-automobilka-nateraz-pokracuje-vo-vyrobe.html

[10] OECD. (2021). *Slovak Republic Economic Snapshot* [online]. [cit.2021-10-20]. Available at: https://www.oecd.org/economy/slovak-republic-economic-snapshot/

[11] OECD. (2016). Les inegalités régionales s'aggravent dans de nombreux pays [online]. [cit.2021-10-20]. Available at :https://www.oecd.org/fr/regional/les-inegalites-regionales-saggravent-dans-de-nombreux-pays.htm

[12] PSA-Group (2021). Stellantis, nová skupina, ktorá vznikne zlúčením skupín Groupe PSA a FCA [online]. [cit.2021-10-28]. Available at: http://www.psa-slovakia.sk/novinky-1/kratke-spravy/stellantis-nova-skupina-ktora-vznikne-zlucenim-skupin-groupe-psa-a-fca.html?page_id=2980

[13] PSA-Group (2021). O nás [online]. [cit.2021-10-28]. Available at: http://www.psa-slovakia.sk/o-nas.html?page_id=172

[14] PSA-Group. (2021). Trnavská automobilka Stellantis Slovakia získala investíciu do nového výrobného programu. [online]. [cit.2021-10-28]. Available at: http://www.psa-slovakia.sk/novinky-1/kratke-spravy/trnavska-automobilka-stellantis-slovakia-ziskala-investiciu-do-noveho-vyrobneho-programu.html?page_id=2990

[15] SARIO. (2021). *Prečo investovať na Slovensku*. [online]. [cit.2021-10-26]. Available at: https://www.sario.sk/sk/investujte-na-slovensku/preco-investovat-na-slovensku

[16] Slovenská sporiteľna - Katarína Muchová (2019) Krátka správa: Regionálne hospodárske rozdiely v EÚ ostávajú výrazné. [online]. [cit.2021-10-22]. Available at: www.slsp.sk›footer-pdfs›kratke-spravy›kratka-sprava-26022019

[17] ŠÚ SR. (2020). *Primerná mzda v hospodárstve SR*. [online]. [cit.2021-10-26]. Available at: http://datacube.statistics.sk/#!/view/sk/VBD_SK_WIN/np3112qr/v_np3112qr_00_00_00_sk

[18] ŠÚ SR (2021). Trnavský kraj - charakteristika regiónu [online]. [cit.2021-10-01]. Available at: https://slovak.statistics.sk/wps/portal/ext/themes/regional/trnavsky%20kraj/about/!ut/p/z1/jZHbToNAEIafhkt3h8PC1rsF5dCStpwK7o2hDVIih4aixLeXBhJjotD_dr4v_0wGc5xgXqefRZ52RVOnJV5jXhwr1J8qBEikikqJQkGTNA1EIg34C6uPMs0xb7O3rM1adG6uHU76vkd50-Rlhk5N9Rf30ZY4OXfd5foogAC_BQFuCldfPc2hui4yoEQDcLZBBHAILM8nOF4C-DCGf8Jg8g_ufvR3vmiCB7DZbmjoqOvRX-yfKbjLNyxmK5oLQF2LgMPsyF95sgxMvs__2T-I2AD4DjFcXabmuP_MeTHmsxW2NA-wkEyAGewltlIs48nfmeCEhkQDV5UAxAmYO3LpTZcqph39KoY8vPvP3jfro6yR/

[19] ŠÚ SR (2021). Miera evidovanej nezamestnanosti. [online]. [cit.2021-10-01]. Available at: http://datacube.statistics.sk/#!/view/sk/VBD_SK_WIN/pr3108rr/v_pr3108rr_00_00_00_sk

[20] ŠÚ SR (2021). Regionálny hrubý domáci produkt (v bežných cenách). [online]. [cit.2021-10-01]. Available at: Verejná databáza údajov - IBM Cognos Connection (statistics.sk)

[21] Trading economics. (2018). Ease of doing business. [online]. [cit.2021-10-08]. Available at: https://tradingeconomics.com/slovakia/ease-of-doing-business

[22] Trend.sk. (2019). Francúzske firmy v SR [online]. [cit.2021-10-09]. Available at: https://www.trend.sk/trend-archiv/francuzske-firmy-sr

[23] Trend.sk. (2021). V časoch pandémie Slovensko láka 64 investorov. Vzniknúť môže 31-tisíc pracovných miest [online]. [cit.2021-10-09]. Available at: https://www.trend.sk/biznis/casoch-pandemie-slovensko-laka-64-investorov-vzniknut-moze-31-tisic-pracovnych-miest

[24] UNCTAD. (2019). Trade openness index, 2019 [online]. [cit.2021-10-12]. Available at: https://stats.unctad.org/handbook/MerchandiseTrade/Indicators.html

[25] World Bank Group. (2020). *Doing business 2020*. [online]. [cit.2021-10-23]. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/32436/9781464814402.pdf

TRH PRÁCE V PODMIENKACH DIGITÁLNEJ EKONOMIKY A PANDÉMIE COVID-19

LABOR MARKET IN THE CONDITIONS OF DIGITAL ECONOMY AND PANDEMIC COVID-19

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Abstrakt: *Príchod štvrtej priemyselnej revolúcie vyvolal potrebu viac sa zaoberať zmenami, ku ktorým dochádza na trhu práce. Pod ich vplyvom je nevyhnutné tiež inak nahliadať na ľudský kapitál a možnosti jeho rozvoja. Pandémia Covid-19, ktorá sa objavila už na konci roka 2019 v Číne a v krátkom čase sa rozšírila do celého sveta, všetky prebiehajúce zmeny ešte urýchlila. Práve v tejto situácii sa ukázalo opodstatnenie digitalizácie a to, aké nesporné výhody môže priniesť. Cieľom uvedeného článku je teoreticky vymedziť, akým trendom a zmenám je na trhu práce v poslednom období venovaná pozornosť i v súvislosti s aktuálne prebiehajúcou pandémiou. Okrem toho zo štatistík dostupných na Eurostate zistiť aká je situácia v SR, čo sa týka využívania home office, ale i úrovne ľudského kapitálu a tieto hodnoty porovnať s inými európskymi krajinami, aby zhodnotenie bolo objektívne.*

Kľúčové slová: *digitalizácia, home office, pandémia Covid -19, trh práce*

Abstract: *The advent of the Fourth Industrial Revolution made it necessary to pay more attention to the changes taking place in the labor market. Under their influence, it is also necessary to look at human capital and the possibilities of its development differently. The Covid-19 pandemic, which appeared in China at the end of 2019 and soon spread around the world, accelerated all ongoing changes. It is in this situation that the justification for digitization and the undeniable benefits it can bring has been shown. The aim of this article is to theoretically define the trends and changes in the labor market in the recent period, attention is paid in connection with the current pandemic. In addition, from the statistics available on Eurostat, find out what the situation is in the Slovak Republic regarding the use of home office, but also the level of human capital and compare these values with other European countries in order to make the assessment objective.*

Key words: *digitization, home office, labor market, pandemic Covid-19*

JEL Classification: *J40, O15, O30*

1. ÚVOD

V posledných desaťročiach trhy práce v jednotlivých krajinách prechádzajú permanentnými zmenami. Tie boli ešte viac urýchlené nástupom Industry 4.0 a v poslednom období nečakane najmä pandémiou ochorenia Covid-19, ktorá znamenala radikálny zásah do všetkých procesov prebiehajúcich v hospodárstve, resp. celej spoločnosti. Zmeny, ku ktorým došlo v tomto období boli väčšinou vynútené a veľký počet ľudí, ktorý kládol dovtedy voči prebiehajúcim zmenám odpor, bol nútený prispôsobiť sa im. Moderné technológie priniesli so sebou nové možnosti fungovania a postupne menia všetky doteraz zaužívané činnosti, neraz i celkový charakter práce. Tá sa ich vplyvom stáva väčšinou menej fyzicky náročnou, avšak rozširuje sa rozsah požiadaviek kladených na psychickú a intelektuálnu stránku potenciálnych zamestnancov. Oprávnene tak ešte viac na význame naberá kategória ľudského kapitálu

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a možnosť porovnávať jeho zásoby naprieč krajinami. Mnohé inštitúcie vytvárajú ukazovatele, ktoré sa snažia čo najlepšie vyjadriť túto kvalitatívnu vlastnosť ľudí, i keď pri tak abstraktnom pojme akým je ľudský kapitál je to veľmi problematické.

2. CIEĽ A METODOLÓGIA

Pri spracovávaní teoretickej časti príspevku boli použité všeobecné vedecké metódy ako deskripcia, analýza, syntéza, dedukcia či indukcia. Pri práci so štatistickými zdrojmi bola okrem toho využitá aj metóda komparácie, aby bolo možné porovnať situáciu v SR s ďalšími európskymi krajinami. Hlavným cieľom príspevku bolo poukázať na determinanty súčasného trhu práce, resp. na zmeny a trendy, ktorým je v poslednom období v súvislosti s trhom práce venovaná veľká pozornosť, a ktoré boli ešte urýchlené nástupom pandémie ochorenia Covid-19.

3. DETERMINANTY SÚČASNÉHO TRHU PRÁCE

Trhy práce v jednotlivých krajinách v posledných rokoch musia čeliť mnohým výzvam. Koncept Industry 4.0 priniesol zásadné zmeny do ich fungovania. Vplyv pandémie Covid-19 mnoho z nich ešte urýchlil. Rozvoj procesov súvisiacich s Industry 4.0 vrátane procesov digitalizácie prispieva k zmene štruktúry trhov práce, uvoľňovaniu časti pracovnej sily a zvyšovaniu dopytu po ľuďoch s kvalifikáciou v oblastiach, ktoré do budúcnosti budú kľúčové (Kuznetsova at al., 2021). Inovácie prenikajú na trhy práce nezávisle od odvetvia a zasahujú takmer do všetkých sfér spoločenského života: naprieč rôznymi priemyselnými odvetviami, rôznymi druhmi služieb, poľnohospodárstvom. Tieto zmeny kladú nové nároky na potenciálnych zamestnancov, predovšetkým rozsah ich odbornej kvalifikácie a kompetencií. Vzhľadom na čoraz väčší význam ľudského faktora v hospodárskej činnosti vzrastá záujem krajín v rámci celého sveta porovnávať svoju úspešnosť v spomínaných oblastiach. Tieto skutočnosti samozrejme nemajú iba pozitívne dopady, ale prinášajú so sebou aj mnohé problémy, ktorým je potrebné venovať pozornosť na národnej, ale i medzinárodnej úrovni. Nie všetky krajiny však dostatočne rýchlo reagujú na prebiehajúce zmeny. V niketorých je proces transformácie a prechodu na nový spôsob fungovania iba pozvoľný, a práve to sú krajiny, ktoré čoraz viac zaostávajú v hospodárskom rozvoji i hodnotení rôznych iných ukazovateľov.

3.1 Digitalizácia ekonomík

V 21. storočí sa kľúčovým procesom stáva digitalizácia. Krajiny, ktoré vytvárajú najlepšie podmienky pre digitálnu transformáciu ekonomík sa stávajú lídrami v hospodárskom rozvoji. Na takýto vývoj zareagovalo aj mnoho svetových inštitúcií. Niektoré z nich vytvorili nové ukazovatele, ktoré hodnotia digitálny pokrok krajín, identifikujú ich nedostatky v tejto oblasti a snažia sa im ukázať cestu, ktorou je možné svoje postavenie zlepšiť. V rámci európskych krajín je na vyjadrovanie pokroku v oblasti digitalizácie využívaný Index digitálnej ekonomiky a spoločnosti (DESI), ktorý je tvorený 34 indikátormi rozdelenými do 5 skupín a 3 úrovní. DESI charakterizuje úroveň digitálnej aktivity a umožňuje hodnotenie produktivity na úrovni digitálnych spojení, digitálnych kompetencií, online aktivity, digitalizácie podnikania a digitálnych verejných služieb. Na základe výsledkov, ktoré krajiny dosiahnu, dokážu identifikovať oblasti, do ktorých je potrebné viac investovať (Kuznetsova et al., 2021). V posledných desaťročiach vyspelé štáty čoraz častejšie používajú digitálne technológie na poskytovanie verejných služieb a prostredníctvom digitalizácie modernizujú fungovanie inštitúcií verejného sektora (Schou, Hjelholt, 2019). Aké dôležité to je, ukázala i pandémia ochorenia Covid-19, kedy väčšinu záležitostí bolo potrebné vybavovať elektronicky za

účelom zamedzenia šírenia ochorenia, a tento trend prenikol aj do takej oblasti akou je medicína. Napriek tomu, že táto možnosť v čase sociálneho dištancovania bola vnímaná pozitívne, štúdie naznačujú, že existujú obavy z takto poskytovanej zdravotnej starostlivosti, najmä v súvislosti s tým, že telemedicína môže byť prekážkou priameho klinického rozhodovania a liečby, či môže narušať dôveru medzi pacientom a lekárom (Das et al., 2020). Okrem toho negatívom takéhoto fungovania je aj zhoršenie prístupu k predtým bežne dostupným službám pre staršiu generáciu.

Informačno-komunikačné technológie však nenachádzajú uplatnenie iba vo verejnom sektore, ale sú prítomné takmer vo všetkých odvetviach ako napr. vo výrobných procesoch, v logistike, doprave, bankovníctve či súkromnom živote ľudí (Piatkowski, 2020). Očakáva sa, že ich masové zavádzanie povedie k rastu produktivity, rozvoju podnikania, zvyšovaniu konkurencieschopnosti, a v neposlednom rade i zvyšovaniu životnej úrovne a blahobytu spoločnosti. Hoci sa na prvý pohľad môže zdať, že digitalizácia so sebou prináša iba pozitíva, netreba zabúdať, že je spájaná aj s množstvom hrozieb. Ide najmä o zánik či transformáciu niektorých pracovných miest a s tým súvisiace nové požiadavky kladené na kvalifikáciu pracovníkov. V dôsledku toho sa pre vlády jednotlivých krajín stáva výzvou nielen modernizovať systémy vzdelávania a prispôsobovať ich aktuálnym podmienkam, ale týmto zmeneným podmienkam prispôsobovať aj jednotlivé zákony, nakoľko každodenná realita sa bude čoraz viac odlišovať od tej, na ktorú sme boli zvyknutí.

3.2 Zmeny vyvolané pandémiou covid-19

V roku 2020 znamenala radikálny zásah do vývoja hospodárstiev všetkých krajín pandémia ochorenia Covid-19, ktorá prepukla na konci roka 2019 na ázijskom kontinente a v priebehu krátkeho času sa rozšírila do celého sveta. Jej dopady na hospodárstvo a fungovanie trhov práce boli a stále sú výrazné, nakoľko ekonomiky jednotlivých krajín neboli na danú situáciu pripravené. Ľudia boli nútení prispôsobiť sa podmienkam s akými sa ešte nestretli. Obmedzenie sociálnych kontaktov a s tým súvisiace zatvorenie škôl či zavedenie home office pre čo najviac zamestnancov, ktorým to náplň práce umožňuje, sa nestali výzvami iba pre priamo dotknutých zamestnávateľov, ale i pre vládu ako takú. Dlhodobé fungovanie v takomto režime však neprinieslo iba ekonomické problémy, ale aj negatívne dopady na ľudskú psychiku, nakoľko človek je tvor spoločenský a izolácia absolútne rozvrátila dovtedy zaužívaný spôsob života väčšiny spoločnosti. Aj vývoj v minulosti (najmä skúsenosti z čias španielskej chrípky, či ďalších epidémii) ukázal, že nemožno oddeľovať dopady pandémie na zdravie od jej dopadov na ekonomiku, nakoľko dôsledky pandémie sú často funkciou ekonomických podmienok (Arthi, Parman, 2020). Vystavenie chorobe môže mať vplyv na jednotlivcov počas celého ich ďalšieho života, a to priamo prostredníctvom horšieho zdravia (chronické zdravotné problémy, dnes označované ako long covid alebo post covid syndróm), čo môže ovplyvniť aktivitu jednotlivcov na trhu práce, alebo aj nepriamo prostredníctvom poklesu úrovne ľudského kapitálu v spoločnosti napr. v dôsledku poklesu očakávanej priemernej dĺžky života pri narodení.

Tabuľka 1. Očakávaná priemerná dĺžka života pri narodení v SR

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
76	76,1	76,4	76,8	76,6	77,2	77,2	77,3	77,5	76,6

Zdroj: ŠÚSR

V dôsledku nárastu úmrtnosti v populácii v roku 2020 došlo v SR skutočne k poklesu očakávanej priemernej dĺžky života pri narodení. Zatiaľ čo v predchádzajúcom období

dochádzalo k rastu, prípadne len k zanedbateľnému poklesu, v roku 2020 sa priemerná očakávaná dĺžka života pri narodení v dôsledku pandémie znížila takmer o rok - z 77,5 roka v 2019 na 76,6 v 2020.

V súvislosti s trhom práce však pandémia Covid-19 prinútila predstaviteľov vlád viac sa zaujímať najmä o to, koľko práce je skutočne možné vykonávať z domu, ako i o skutočnosť, že produktivita pracovníka sa môže výrazne líšiť v závislosti od toho, či pracuje z domu alebo na svojom obvyklom pracovnom mieste (Dingel, Neiman, 2020). Na jednej strane môže byť produktivita pracovníka vyššia, pretože sa bude snažiť prácu vykonať skôr, pričom čas ktorý ušetrí môže využiť na súkromné činnosti. Na druhej strane, iný typ pracovníka môže byť produktívny menej, nakoľko v domácom prostredí môže na neho pôsobiť viacero podnetov, ktoré budú odvádzať jeho pozornosť od vykonávanej práce.

V nasledujúcej tabuľke uvádzame podiel zamestnancov, ktorý trvale či príležitostne pracovali z domu už pred pandémiou a zároveň uvádzame aj rok 2020, kedy už bol podiel zamestnancov na home office ovplyvnený pandémiou. Do analýzy sme zahrnuli krajiny V4, ako aj významného obchodného partnera Slovenskej republiky – Nemecko, a okrem toho krajinu s výrazne vyššími a výrazne nižšími hodnotami vykazovanými v rámci sledovaného ukazovateľa.

Tabuľka 2. Podiel zamestnaných dospelých pracujúcich z domu

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Geomet. priemer
ČR	7,7	8	8	7,8	7,6	8,9	9,1	9,4	10	13,1	*8,84*
Nemecko	11,7	11,5	11,1	11	11,3	11	10,8	11,6	12,6	20,8	*12,10*
Maďarsko	8,5	9,3	10,6	9,7	8,7	7,2	6,6	6	4,6	11	*7,96*
Rakúsko	21,9	21,8	21,6	21,8	22,1	22,1	21,8	21,7	22,1	29,3	*22,53*
Poľsko	12,6	12,5	12,7	13,1	15,8	14,8	13,6	14	14,3	18,2	*14,07*
Rumunsko	0,8	0,7	0,6	0,6	0,8	0,8	0,6	0,7	1,4	3,2	*0,87*
Slovensko	8,1	8,8	8,5	9,1	8,8	8,3	8,4	9,1	9,5	11,6	*8,98*
Fínsko	21,5	22,2	23,7	24,6	26,3	27,2	27,5	29,7	31,7	39,2	*26,95*

Zdroj: https://ec.europa.eu/eurostat

Ak sa pozrieme na podiel zamestnaných pracujúcich z domu, medzi sledovanými krajinami sú signifikantné rozdiely. Pri každej krajine uvádzame aj geometrický priemer hodnôt, ktorý je v menšej miere ako aritmetický priemer ovplyvnený extrémnymi hodnotami vykázanými v pandémiou ovplyvnenom roku 2020. V rámci sledovaných krajín dlhodobo najvyšší podiel ľudí pracujúcich z domu sme zaznamenali vo Fínsku. Zatiaľ čo v rokoch 2011-2012 sa Fínsko a Rakúsko nachádzali na približne rovnakej úrovni, dnes je medzi nimi väčší rozdiel. V Rakúsku podiel pracujúcich z domu až do príchodu pandémie Covid-19 stagnoval, vo Fínsku sa každoročne dynamicky zvyšoval. Aj Fínsko však zaostáva za lídrom EÚ, ktorým je Luxembursko, kde podiel pracujúcich z domu v roku 2020 dosiahol až 47,5%. Zaujímavo sa podiel zamestnancov na home office vyvíjal v Maďarsku, kde v posledných rokoch pred príchodom pandémie dochádzalo k poklesu počtu ľudí pracujúcich z domu. Dlhodobo najmenší v rámci sledovaných krajín bol tento podiel v Rumunsku. Kým v niektorých krajinách príchod pandémie znamenal výraznejší prírastok práce z domu, v SR, ale ani v Rumunsku či ČR ani pandémia výraznejšie nezvýšila podiel zamestnancov na home office. Tieto krajiny sa nachádzajú výrazne pod priemerom EÚ, ktorý bol v roku 2020 21%. V SR je však zavádzanie home office redukované skutočnosťou, že až polovica pracujúcich je

zamestnaná v priemysle, obchode či stavebníctve, teda v oblastiach, v ktorých je osobná účasť na pracovisku nevyhnutná.

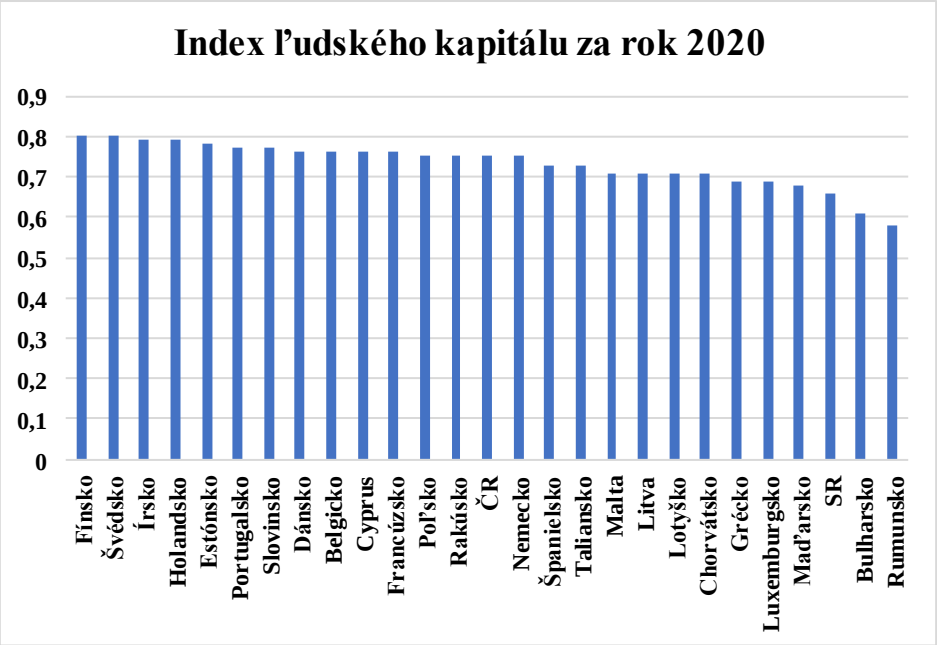
Kríza súvisiaca s Covid-19 urýchlila štruktúrne zmeny na trhoch práce a s tým súvisiacu realokáciu pracovných miest vyvolanú novou vlnou technologických zmien (Dolado at al., 2020). Pri home office išlo väčšinou o pracovné miesta, na ktorých je zamestnaná pracovná sila s vyššou kvalifikáciou. Najviac postihnuté však boli tie pracovné miesta, na ktorých sa práca spája s osobnými službami poskytovanými pod „fyzickou blízkosťou" (hotely, reštaurácie, rekreačné činnosti atď.), resp. najviac zasiahnutí boli pracovníci, ktorých je v zásade problematickejšie zamestnať (pracovníci s nižšou kvalifikáciou) a ktorým chýbajú také zručnosti, aké vyžaduje práca s modernými technológiami.

Práve uvedená situácia ukázala, aká je dôležitá digitalizácia a aké potrebné pre každodenný život sú digitálne zručnosti. Na jednej strane pandémia vytvorila predpoklady pre rýchlejší rozvoj digitalizácie spoločnosti, na druhej strane však hospodárska kríza, ktorej náznaky sa objavili už v roku 2019 a pandémia jej príchod urýchlila, môže predstavovať určitý problém pri rozvoji digitálnej infraštruktúry (Ganichev, Koshovets, 2021). V dôsledku poklesu HDP vo väčšine krajín a v súvislosti s protikrízovými opatreniami smerovanými na podporu najviac zasiahnutých oblastí, ktoré odčerpávajú značnú časť vládnych zdrojov, existuje pravdepodobnosť zníženia objemu finančných prostriedkov smerovaných na podporu rozvoja digitálnej infraštruktúry. Či k takejto situácii skutočne dôjde a ako sa jednotlivé krajiny k tomuto problému postavia však ukáže až budúcnosť.

3.3 Ľudský kapitál

V takomto prostredí sa veľká pozornosť oprávnene sústreďuje na ľudský kapitál a jeho zásoby v jednotlivých krajinách. Ľudský faktor má zásadný význam v rozvoji ekonomických aktivít a premieta sa čoraz výraznejšie do kunkurencieschopnosti jednotlivých podnikov. Určiť úroveň ľudského kapitálu je však problematické, nakoľko ide kvalitatívne vlastnosti ľudí, ktoré je potrebné vyjadriť kvantitatívne. Svetová banka od roku 2018 zverejňuje Index ľudského kapitálu (HCI). Ten hodnotí jednotlivé krajiny na základe ich schopnosti rozvíjať ľudský kapitál. Zámerom svetovej banky je priviesť krajiny k tomu, aby viac investovali do oblastí súvisiacich s rozvojom ľudského kapitálu v ktorých hodnotení zaostávajú (World bank, 2018). Zložky HCI sú kombinované tak, aby odrážali príspevok zdravia a vzdelávania k produktivite pracovníkov. Výsledná hodnota indexu sa pohybuje medzi 0 a 1. Skóre jedna dosiahne krajina, v ktorej v súčasnosti narodené dieťa môže očakávať úplné zdravie (bez zakrpatenia a 100% prežitia dospelých), ako aj potenciál úplného vzdelávania (14 rokov školskej dochádzky do 18 rokov). Nižšie skóre, napr. 0,65 znamená, že produktivita, ktorú dosiahne v súčasnosti narodené dieťa ako budúci pracovník je o 35 percent nižšia ako by mohla byť dosiahnutá za úplného vzdelania a plného zdravia. Podľa údajov Svetovej banky bolo do výpočtu indexu v roku 2020 zahrnutých 174 krajín z celého sveta, ktoré mali dostatočné údaje na výpočet hodnoty HCI. Súčasťou meraní teda boli najrozvinutejšie, ale i málo rozvinuté krajiny, pričom vo všetkých bola uplatnená rovnaká metodika bez zohľadnenia značných rozdielov medzi nimi. Možno aj z toho dôvodu prezident Svetovej banky Jim Yong Kim (World bank, 2018) povedal, že rebríček hodnotenia úrovne ľudského kapitálu je pravdepodobne kontroverzný. Jeho primárnym cieľom však je prispieť k tomu, aby vlády jednotlivých krajín viac investovali do svojich občanov, resp. ich rozvoja.

Obrázok 1. Index ľudského kapitálu v roku 2020 v krajinách EÚ



Zdroj: https://datacatalog.worldbank.org/, vlastné spracovanie

Index ľudského kapitálu v krajinách Európskej únie sa pohybuje v rozmedzí hodnôt od 0,58 (Rumunsko) do 0,80 (Švédsko, Fínsko). SR sa nachádza na chvoste rebríčka európskych krajín s hodnotou indexu 0,66. Horšie postavenie sme zaznamenali už iba pri Bulharsku a Rumunsku. Nižšie skóre ako 0,70 vykazuje celkom 6 krajín Európskej únie. Na opačnom konci rebríčka sa nachádzajú škandinávske krajiny Fínsko a Švédsko a doťahuje sa na ne Holandsko a Írsko s hodnotou indexu 0,79.

Obrázok 2. Index ľudského kapitálu v EÚ – grafické znázornenie

Zdroj: https://datacatalog.worldbank.org/, vlastné spracovanie

Z grafického prevedenia je viditeľné, že najlepší stav ľudského kapiálu je v krajinách severnej a západnej Európy. Smerom na juh, resp. východ hodnoty indexu ľudského kapitálu klesajú. Švajčiarsko nebolo zahrnuté do analýzy, nokoľko nie je súčasťou EÚ.

4. ZÁVER

V podmienkach permanentných zmien na trhoch práce umocnených pandémiou ochorenia Covid-19 sa čoraz viac pozornosti sústreďuje na zvyšovanie úrovne ľudského kapitálu, ale i rozvoj digitálnych zručností v populácii, či možnosť zavedenia home office na jednotlivých pracovných pozíciách. Práve v súvislosti s home office možno vidieť rozdielny prístup jednotlivých zamestnávateľov. Kým v zahraničí sa home office stáva trendom a čoraz vyššiemu počtu zamestnancov je umožnené pracovať týmto spôsobom či už každodenne alebo aspoň určitú časť pracovného času, v SR je podiel pracujúcich z domu stále nízky a v čase po odznení druhej vlny pandémie sa späť do kancelárii vrátila veľká časť zamestnancov. Napriek tomu možno povedať, že pandémia zmenila pohľad časti zamestnávateľov na homeoffice a na niektorých pracoviskách sa aj medzi vlanmi uplatňovala aspoň kombinácia práce na pracovisku a z domu.

V úrovni ľudského kapitálu hodnotenej Svetovou bankou sa SR medzi krajinami Európskej únie radí medzi tie s najnižšou úrovňou, hoci absolútny rozdiel nie je príliš vysoký (hodnota 0,80 v krajinách s najvyšším skóre v rámci EÚ, hodnota 0,66 v SR). Príčiny daného stavu možno hľadať predovšetkým v nedostatočnom investovaní do oblastí súvisiacich s rozvojom ľudského kapitálu ako je napr. oblasť vzdelávania či oblasť vedy a výskumu, ktorá je v porovnaní s ďalšími krajinami EÚ výrazne podfinancovaná. Tento stav však nie je nemenný a záleží najmä od predtaviteľov vlády ako sa budú k danej situácii v nasledujúcom období stavať. Úroveň ľudského kapitálu je však ovplyvnená aj ďalšími determinantmi, predovšetkým z oblasti verejného zdravia, a preto i pokles očakávanej priemernej dĺžky života pri narodení, ku ktorému došlo počas pandémie, možno z pohľadu zvyšovania úrovne ľudského kapitálu v spoločnosti hodnotiť negatívne. Ak bude ľudský kapitál kratšie pôsobiť na trhu práce, výsledné efekty, ktoré vytvorí budú nižšie a investície doňho vložené budú mať v dôsledku toho nižšiu návratnosť.

Dodatok

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LITERATÚRA

[1] Arthi, V. & Parman, J. (2020). Disease, downturns, and wellbeing: Economic history and the long-run impacts of COVID-19. *Explorations in economic history*, 79, pp. 1-31. [online]. [cit. 2021-09-13]. K dispozícií na: https://click.endnote.com/viewer?doi=10.1016%2Fj.eeh.2020.101381&token=WzI5MjQ2MzksIjEwLjEwMTYvai5lZWguMjAyMC4xMDEzODEiXQ.6ITlZG8HhlUpt_D8SRWbZGENuwU

[2] Das, N., Narnoli, S., Kaur, A., Sarkar, S. & Pal, Y., Balhara, S. (2020). Attitude to telemedicine in thetimes of COVID-19 pandemic:Opinion of medicalpractitioners from India. *Psychiatry and clinical neurosciences*, 74 (10), pp. 560-562. [online]. [cit. 2021-09-02]. K dispozícii na: https://onlinelibrary.wiley.com/doi/epdf/10.1111/pcn.13109

[3] Dingel, J., I. & Neiman, B. (2020). How Many Jobs Can be Done at Home? *White paper*. 189 (9), pp. 1-19. [online]. [cit.2021-06-30]. K dispozícii na: https://bfi.uchicago.edu/wp-content/uploads/BFI_White-Paper_Dingel_Neiman_3.2020.pdf

[4] Dolado, J. J., Felgueroso, F. & Jimeno, J. F. (2020). Past, present and future of theSpanish labour market: when thepandemic meets the megatrends. Applied economic analysis, 29 (82), pp. 21-41. [online]. [cit. 2021-09-09]. K dispozícii na: https://www.webofscience.com/wos/woscc/full-record/WOS:000674292700003

[5] Eurostat. (2021). Statistics A-Z. [online]. [cit.2021-09-08]. K dispozícii na: https://ec.europa.eu/eurostat/data/statistics-a-z/def

[6] Ganichev, N. A. & Koshovets, O. B. (2021). Forcing the Digital Economy: How will the Structure of Digital Markets Change as a Result of the COVID-19 Pandemic. In: *Studies on Russian Economic Development*. 32 (1). pp. 11–22. [online]. [cit. 2021-09-07]. K dispozícii na: https://www.scopus.com/record/display.uri?eid=2-s2.0-85101393603&origin=resultslist&sort=plf-f&src=s&nlo=&nlr=&nls=&sid=48445f94a11652edfcde14cf14f7d5bb&sot=b&sdt=cl&cluster=scofreetoread%2c%22all%22%2ct&sl=35&s=TITLE%28covid-19+and+digital+economy%29&relpos=1&citeCnt=0&searchTerm=

[7] Kuznetsova, A., Selezneva, A., Askarov, A., Askarova, A. & Gusmanov, R. (2021). Trends of Labor Market Change in the Countries of the European Union and Russia under Conditions of Digitalization of the Economy. *Montenegrin Journal of Economics*, 17 (1) , pp. 175-183. [online]. [cit. 2021-08-27]. K dispozícii na: https://www.webofscience.com/wos/woscc/full-record/WOS:000606838700013

[8] Piatkowski, M. J. (2020). Expectations and Challenges in the Labour Marketin the Context of Industrial Revolution 4.0.The Agglomeration Method-Based Analysis forPoland and Other EU Member States. *Sustainability*, 12 (13), pp. 1-30. [online]. [cit. 2021-09-03]. K dispozícii na:https://click.endnote.com/viewer?doi=10.3390%2Fsu12135437&token=WzI5MjQ2MzksIjEwLjMzOTAvc3UxMjEzNTQzNyJd.Fu50jkty0Y_KqhxCofGTm3D0QCU

[9] Schou, J. & Hjelholt, M. (2019). Digital state spaces: state rescaling and advanced digitalization. *Territory politics governance*, 7 (4), pp. 438-454. [online]. [cit. 2021-08-27]. K dispozícii na: https://www.researchgate.net/publication/328548883_Digital_state_spaces_state_rescaling_and_advanced_digitalization

[10] Stavytskyy, A., Kharlamova, G. & Stoica, E. A. (2019). The Analysis of the Digital Economy and Society Index in the EU. *Baltic Journal of European Studies*, 9 (3), pp. 245-261. [online]. [cit.2021-06-30]. K dispozícií na: The Analysis of the Digital Economy and Society Index in the EU in: TalTech Journal of European Studies Volume 9 Issue 3 (2019) (sciendo.com)

[11] World Bank. (2018). The Human Capital Project. 57 p. [online]. [cit. 2021-06-29]. K dispozícii na: https://documents1.worldbank.org/curated/en/363661540826242921/pdf/The-Human-Capital-Project.pdf

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