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Direction of businesses operating in Slovakia to develop key managerial competencies

Zdenko Stacho^{1,*}, Katarína Stachová¹, Ľubica Varečková¹, Jana Galera Matúšová¹

¹ University of Ss. Cyril and Methodius, Institut of Management, Hajdóczyho 1, 91701 Trnava, Slovakia

*Correspondence: stacho.zdenko@gmail.com

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Abstract

The emerging era of the Fourth Industrial Revolution brings significant changes mainly in the sphere of development and widespread utilization of new technologies. The application of mentioned technological innovations can be found in all economy spheres, however the effectiveness of their implementation is the key to ensuring the businesses competitiveness. The authors analyse the current but also expected state of key managerial competencies as well as their application needed to maintain competitiveness in the emerging era of Industrial Revolution in businesses operating in Slovakia. The research was conducted by the questionnaire method in 1,077 companies, during the year 2020. The results of the survey show an above-average use of almost all assessed competencies as well as positive prognosis for the future, as the perception of their need of future application is even at a higher level than the present state shows.

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1. Introduction

Taking into account the permanent growth of globalization rate, as well as its impact on the economic mobility rate caused by the pandemic situation that has affected the whole world, increases the rate of new technologies and their implementation in all spheres of society. The accelerated onset of the Fourth Industrial Revolution can cause turbulences in the competitive struggling of companies (Lorincová et al., 2020; Hitka et al., 2018; Kohnova et al., 2020) but also of entire national economies (Hitka et al., 2015; Fil'a et al., 2020, Papula et al., 2019). The impacts and development trends analyses related to Industry 4.0 emerge have been becoming one of the main subjects of professional discussions and the content of challenges for research activities not only in technical but also in sociological and economic sciences (Helmrich, 2015; Hermann et al., 2016; Hofmann and Rüsche, 2017, Bartuška et al., 2016, Kucharčíková et al., 2015, Rats et al., 2015.).

The huge boom of Internet importance was caused by the so-called IoT emergence, Internet of Things (Heynitz et al., 2016; PWC, 2014; European Parliament, 2015) that processes and transmits loads of data gained from customers directly to manufacturers into the process of production and vice versa. This phenomenon not only affects industry or economy, but

also the society as such (Shaev and Samoylova, 2017; Ivushkina et al., 2019).

In order to remain competitive, the representatives of economic practise as direct technological progress users, feel the increased demand for changes in the systems of management. Many published scientific studies suggest that the coming period the Fourth Industrial Revolution will literally cause a revolution in the sphere of business management (Stock and Seliger, 2016; Wang et al., 2016; Finance, 2015; McKinsey and Company, 2016; Jankel et al., 2017).

To meet the customers' expectations predominantly related to the pace of product innovation and their personalization; in order to provide necessary flexibility in the production systems intelligent elements have been introduced in the companies (Schaeffer, 2017; Stanek and Pauhofova, 2016; Rübmann et al., 2015). The revolutionary change in managerial processes mainly consists of automation within simple and monotonous processes, and on the other hand in sophistication and interconnection with other processes.

The environment influences the demands and formulations of companies' competitiveness, further defines required competences of employees and managers (Sgarbossa et al., 2020; Hecklau et al., 2016). The managerial competencies represent a complex of knowledge, abilities, skills, experience and furthermore of physical and mental readiness to use the qualities

effectively, and perform the assigned tasks in accordance with the assigned roles (Stacho and Stachová, 2017; Anttila and Jussila, 2021). Knowledge, completed education or sectoral qualifications face the requirements of flexibility in the current labour market. Intelligent and flexible processes characterize the manufacturing companies for the future (Tomek and Vavrová, 2017). In the era of advanced digitization and hyper connectivity in the knowledge society, the competencies of managers are defined via the commodity content in the Industry 4.0 labour market (Hecklaue et al., 2016). The analysis of managers' competences is the initial point to identify the specialized strategies for work potential formation, and further for management of employees' work performance. While business leadership competencies are the top priority for director-level managers, people leadership competencies ranked first for frontline managers (Shum et al. 2018).

Managerial competencies are becoming one of the key building blocks of success of the company to achieve both the mission and vision in creating added value and improve business performance and especially the development of their own people. (Krajcovicova et al. 2012) Just developing the core competencies of managers is important for management performance improvement (Liang et al. 2018). The models for displaying key managerial competencies with their mutual relations allow the identification of actual and expected key competencies, and their divergences, as the tool for the development of available managerial potential in the era of 4.0 Industry.

Hecklaue et al., through the applied analysis of external environment characterizes the key competencies in the world of work during the Fourth Industrial Revolution, mainly through the influence of economic, social and technical factors (Hecklaue et al., 2016) as follows:

Factors of economic environment

- *Ongoing globalization* creates requirements for multi-cultural skills, diversity tolerance, language skills, time flexibility, ability to communicate and understand the processes
- *Increased need for innovation* creates requirements for entrepreneurial thinking, creativity, problem solving, work under pressure, the latest knowledge usage, development of technical skills, research skills and abilities to understand the process
- *Demand for higher service orientation* creates requirements for conflict resolution, communication skills, the ability to compromise and networks creation
- *Growing need for cooperation and interaction* creates requirements for the ability to compromise and cooperate, work in teams, communication and network skills

Factors of social environment

- *Demographic changes and changed social values* create requirements for the abilities of knowledge transfer, acceptance of job rotations and work-related changes (tolerance of ambiguity), time and place flexibility, leadership skills
- *Increased utilisation of virtual work* creates requirements for flexibility of time and place, technological skills, communication skills, understanding of IT security

- *Increased complexity of processes* creates requirements for technical skills, understanding the processes, motivation to learn, the tolerance of uncertainty, decision-making, problem solving and analytical skills

Factors of technological environment

- *Exponential growth in technology and data usage* creates requirements for technical skills, analytical skills, data efficiency, programming and understanding of IT security
- *Growing collaboration on platforms* creates requirements for abilities to work in teams, communication skills in virtual environment, multimedia skills, understanding and compliance with IT security and the ability to collaborate

Most of recent studies prioritize automation and computer intensification connected with the changes in employment (Flynn et al., 2017; Rutherford and Frangi, 2020; Rajnai and Kocsis, 2017). However, all assumptions and prognostic studies require further confrontations, mainly with the mission and intentions of companies and the company managers, predominantly from the point of view of expected changes: namely requested skills and competencies from employees and managers within Industry 4.0. Considering the above mentioned context, the authors of the paper decided to analyse the application of key managerial competencies in the era of upcoming digitization within the companies operating in Slovakia.

2. Materials a Methods

For the paper purposes were used the survey data, gathered by the paper authors. The electronic form of questionnaire was distributed to the respondents during the period from February to November 2020. Within the specifications of the research sample, we asked of these characteristics of the surveyed companies: size of company - it means number of employees, sectors of the economy, business ownership - it means a majority owner of company and territory of operation of Slovakia. The sample of survey respondents was created of 1077 respondents from the same amount of companies operating in the area Slovakia. The largest group, almost 33%, of participants involved in the survey were the companies with over 250 employees. For more details see the Figure 1.

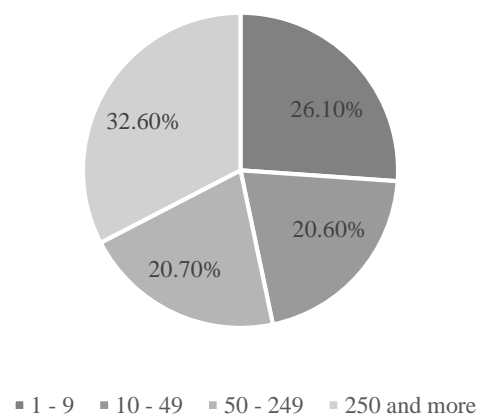


Fig. 1. Amount of employees in the company

The companies involved in the survey operate in different sectors of economy as follows: 33.7% in industrial production, 46.6% in services and next 19.7% in other sectors (see Figure 2).

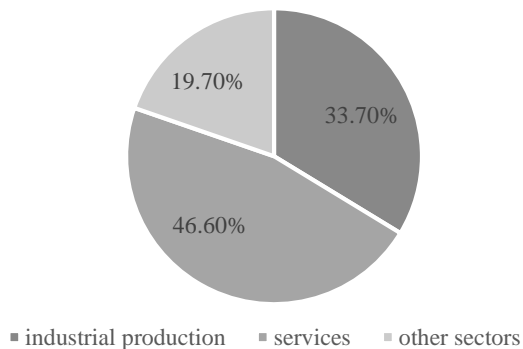


Fig. 2. Companies based on economy sectors

Based on the type of business ownership were in the survey involved the companies as follows: 60.6% were the companies with the majority owner from Slovakia, and 39.4% were the companies with a majority owner from abroad.

For the survey purpose were involved the companies based in the whole territory of Slovakia, where the respondents 'structure of individual company sites is provided by Figure 3.

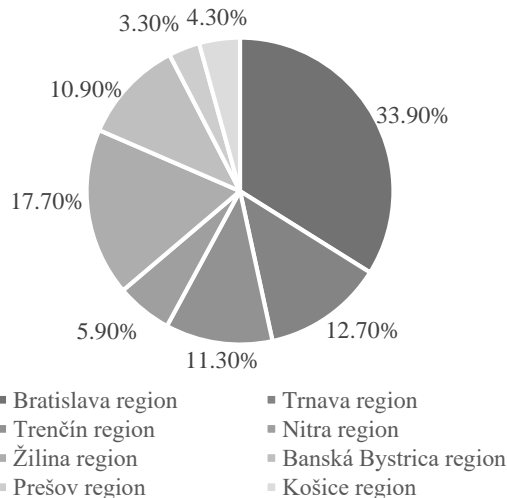


Fig. 3. Structure based on company sites

The survey evaluation uses the five-point Likert scale of subjective assessment for the evaluation of current state, and the perception of needs to move forward in future. For the statistical evaluation of the gained data the authors used MS Excel software and the method of correlation analysis to evaluate the interdependencies of the monitored variables.

3. Results and discussion

For the paper purposes were statistically processed the results from the tasks focused on the current state of key managerial competencies and their application in the era of

launched digitization (on the scale from completely unapplied to fully applied), and on the other side were analysed the results on the importance of competencies and acceptance of their application in future (on the scale from irrelevant to very important).

Based on the applied analysis of the external environment by Hecklau et al. the authors of the paper implemented questions focused on the availability of key competencies of managers in the questionnaire survey. In the context of the Fourth Industrial Revolution, the authors depict six key competencies for the new era as follows:

- Critical thinking,
- Creativity and creative thinking,
- Analytical thinking (capture, structure and understanding the information),
- Technological and IT skills, work with specific software,
- Employees' orientation (motivation, leadership, employees' development ...),
- Ability of self-motivation

The respondents of the survey were HR specialists from companies responsible for the development of managerial competencies. They assessed the current availability of a given managerial competence on the one hand and on the other hand, based on professional experience and organizational strategy, predict the need for key managerial competencies in the coming era of industry 4.0. Based on the conducted survey and results evaluation was found, that in the individually analysed managerial competencies requested for the effective implementation of digitization concept in practice, the addressed respondents reached from 3.56 to 4.13 on the Likert five-point scale (Figure 4). These findings are in line with the findings of previous researches, which demonstrate an awareness of the need to focus on the key competencies of managers. For example, research of Mandičák et al. 2020 who identified that project managers in Slovakia the perception of the needs of conceptual, technical and behavioral competencies. Or the research of Jankelova and Mišún 2021, which points to the importance of key management competencies for increasing of performance and sustainability of competitiveness of agricultural enterprises in Slovakia.

The highest value (4.13) was by the respondents achieved in the managerial competences to use analytical thinking in their work, and on the other hand the lowest level (3.56) was reached in the self-study abilities. As a positive from the respondents 'side should be depicted the perception of the need for their applicability in future, which is at a higher level compared with the current state in all analysed competencies.

In further data analysis, the authors were searching for the correlation dependence between the variables, namely the current state of application and the expected future rate importance within the individual monitored managerial key competencies. The analysis of results indicates that within all monitored competencies, the individual variables show from medium to strong dependence (see Table 1).

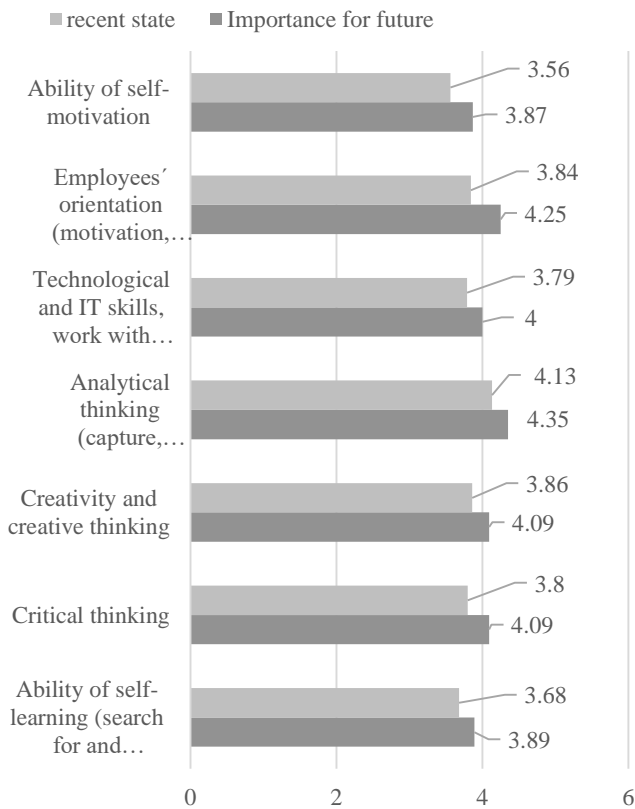


Fig. 4. Managerial competencies requested for the effective implementation of digitization concept

Table 1. Correlation dependence between the current state of application and the expected future rate importance

Key managerial competencies	Correlation coefficient
Ability of self-motivation	0.694
Employees' orientation (motivation, leadership, employees' development ...)	0.655
Technological and IT skills, work with specific software	0.834
Analytical thinking (capture, structure and understand the information)	0.740
Creativity and creative thinking	0.772
Critical thinking	0.731
Ability of self-learning (search for and process information)	0.819

The above mentioned allows to state that the respondents who at present mention a higher level of individual key managerial competencies and their application also assume their higher importance in the future, and vice versa.

4. Summary and conclusion

Important is to analyse the companies operating in Slovakia and their readiness for emerging era of digitization, mainly aimed at Slovak economy and ensuring its support and competitiveness in global scope, respectively within the European

hyper-competitive environment. The authors focused on the identification and the scope of recent key managerial competencies availability in managers operating in the companies based in Slovakia with the attempt to identify not only the readiness but also the potential for development. Based on the survey results conducted on a sample of 1,077 companies came out that the managers reach above-average level in the vast majority of analysed key competencies, that means they apply the competencies in their practice, although not to the maximum possible extent, where the average level reached the value of 3.81 points.

On the other hand, the results reflect relatively significant deficits that requires addressing in near future. The positive point is that respondents are aware of the justification to focus on increased rate of key managerial competencies and their application in future. The survey showed that the attributes perception among respondents reached the average level of 4.08, and in some important competencies it reached the level higher than 4.2 points on the 5-point scale. The mentioned result in the context of the study by Hecklau et al 2016, who, in their study, developed a set of aggregated competences according to their availability, based on the most relevant studies of competences suggests the orientation of companies and their managers in the near future will be aimed at their development and increased application in their managerial practice. To verify the positive development, we recommend conducting another survey in the future that would confirm the expected direction based on the answers of the survey respondents.

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在斯洛伐克经营的企业发展关键管理能力的方向

關鍵詞

竞争力
关键管理能力
工业 4.0

摘要

进入第四次工业革命的新时代，主要体现在新技术的开发和广泛应用领域。上述技术创新的应用可以在所有经济领域中找到，但其实施的有效性是确保企业竞争力的关键。作者分析了在斯洛伐克经营的企业在新兴工业革命时代保持竞争力所需的关键管理能力的当前但也预期的状态及其应用。该研究是在 2020 年期间通过问卷调查法在 1,077 家公司中进行的。调查结果显示，几乎所有评估的能力的使用率均高于平均水平，并且对未来的积极预测，作为对其需求的看法未来应用的水平甚至比目前状态显示的还要高。