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An effective selection process is the key to quality job positions occupation conditional for long-term competitiveness

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Abstract

The need for adaptation to rapid changes in the business environment, both on the part of employees and employers, implies dealing with new challenges, acquisition of new knowledge and skills and assumption of new roles and responsibilities. The base for companies is the availability of qualified human resources, which is ensured by the human resource management department mainly through an effective process of employee selection. The paper is oriented at the analysis of the current state of focus of organizations operating in Slovakia on systematicity and complexity of the selection process, the existence of an effective internal labor market and the regularity of development of used selection tools in the context of technological progress and changes in labor market requirements in regions of Slovakia. Results of the survey on (n = 343) enterprises show a positive trend, an increase of more than 10 percent in the orientation towards improvement of the process of employee selection, but on the other side it also confirm an increase in disparities between individual regions of Slovakia, some regions (Eastern Slovakia) progress much slower than the developed ones (Bratislava).

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1. Introduction

An employee selection process is a process in which qualified employees of an organization, most often HR employees, should identify the best candidates on the basis of predetermined soft and hard criteria and then, in cooperation with the future direct supervisor or future colleagues, select the most appropriate in the context of qualification, cultural and relationship aspects. This is an important process for any organization (Kirchmayer et al., 2016). The decision about who to offer a job position can either safe or significantly increase organization costs (Hoek, 2017). A suitably selected candidate is able to adapt in a relatively short period of time and start to deliver the required or higher performance (Cagáňová et al., 2012; Volná et al., 2013), which as a secondary effect also increase the goodwill of the organization (Hitka et al., 2017; Jurénka et al., 2017). To contrary, an unsuccessful candidate can quickly become a bottleneck and gradually either voluntarily leave or be released and the selection process needs to be repeated. If improperly selected candidates leave the organization after the adaptation period, the average costs are as follows: "In the case of the loss of a professional employee, the

costs can represent up to 75% of the annual salary. In the case of an assistant employee, the cost can reach up to 50% of the salary. If fifteen out of a hundred employees with an average annual salary of 12 500 EUR leave during the year, then the total costs may be 90 000 EUR, or 7.5% of the total salary costs." If the wrongly selected candidates leave the organization after the adaptation period: In the event of the loss of a professional employee, the costs can represent up to 75% of the annual salary. In the case of an assistant employee, they can reach up to 50% of the salary. If fifteen out of a hundred employees with an average annual salary of EUR 12 500 will leave during the year, then the total cost may be up to 90 000 EUR or 7.5% of the total labor cost (Armstrong, 2009). This example does not include the costs incurred in the new selection process. Considering the implications of the selection process, in the paper, we focus on the elements of the selection process, the standardization of the selection process, as well as on development and update of the selection process in organizations in the context of the use of new Industry 4.0 technologies.

The priority objective of the selection process is to identify talents among candidates, both external and internal (Ližbetinová et al., 2016; Mura, 2017). For this purpose, it is necessary for the organization to have a functioning internal labor market built internally (Kucharčíková et al., 2018; Poór et al., 2017) that identifies potential talents and suitable candidates for vacancies based on their results from employee appraisal, activities in training and development programs as well as participation in innovative activities.

In order to identify the best candidates, organizations use different selection tools such as application forms, CV, references, psychometric tests, performance simulation tests, various types of interviews, job simulation or assessment centers. The latest innovations in employee selection tools include the use of virtual reality environments or gamification. Game elements might also improve the selection process, since it is more difficult for test-takers to fake the assessment, as desirable behaviors may be less obvious to individuals playing the game, and as a result, improve prediction of job performance and hiring decisions (Armstrong et al., 2016) This could be especially the case for traditional selection methods, such as personality tests, which are prone to faking undermining thus their predictive validity (Murphy et al., 2005). In addition to the validity of individual methods, it is necessary to take into account their suitability and acceptability for candidates whose diversity results primarily from their gender, age (candidates are people of generations X, Y and Z) (Stareček et al., 2018; Joniaková et al., 2015), nationality (openness of the labor market, possibility of remote work) and others. Based on the above, it can be stated that is necessary to systematize the selection process, continuously update it and analyze its efficiency and suitability for both organization and candidates.

2. Experimental

In order to fulfill the stated goal of the paper, its authors carried out several partial activities, such as questionnaire survey, statistical evaluation of formulated hypotheses and evaluation of the overall change of analyzed attributes in the monitored period using the base index of change.

The research questions were formulated and conditioned regarding the objective of the paper. The hypotheses were formulated based on the defined research questions and tested in the questionnaire survey and subsequent statistical evaluation.

1. Research Question: What was the score achieved by the organizations surveyed in their activities regarding the existence of a standardized selection process? Are there statistically significant differences between the regions of organizations?

2. Research Question: What is the score of the respondents surveyed within an effectively functioning internal labor market? Are there statistically significant differences between the regions where organizations operate?

3. Research Question: What is the score of the respondents surveyed in the activities related to the innovation of the used employee selection tools? Are there statistically significant differences between the regions where organizations operate?

Hypothesis H1: There is a statistically significant relationship between the region in which the organization operates and the implementation of a standardized employee selection process.

Hypothesis H2: There is a statistically significant relationship between the region in which the organization operates and the organization's focus on the effective functioning of the internal labor market.

Hypothesis H3: There is a statistically significant relationship between the region in which the organization operates, and the implementation of activities related to the innovation of the tools used to select employees.

For the needs of this paper, data obtained from research conducted between years 2014-2018 were applied, and the top representatives of Slovak companies were interviewed. Its objective was to uncover the present state of the selection process in Slovak organizations. A questionnaire was used as a research tool. The participants in the survey responded to 90 questions focused on the issue of formal human resource management in the organization. The answers to the questions focused on selection process were used for the needs of this paper. The amount of the interviewed companies was approx. 600 every year (depending on the availability of personal contacts of external students, which were used to address the participants in the research), while the response rate of comprehensively completed questionnaires was 62–67%.

The data provided by the Statistical Office of the Slovak Republic during the monitored period indicated that the number of organizations with 50 and more employees in individual regions was oscillating around similar values, while the regional structure of the organizations with over 50 employees in the given years is provided in Table 1.

Table 1. Regional structure of organizations with more than 50 employees

Region NUTS II.	Bratislava Region	Western Slovakia	Central Slovakia	Eastern Slovakia
Districts	BA	TT, TN, NR	BB, ZA	KE, PO
Number of organizations 2014	1.098	904	644	612
Number of organizations 2015	1.105	916	651	613
Number of organizations 2016	1.114	923	649	621
Number of organizations 2017	1.123	926	654	623
Number of organizations 2018	1.131	933	657	622

(source: data processed according to the Statistical Office of the Slovak Republic)

In order to define the relevant research sample, two stratification criteria were determined. The first criterion is the region of operation of the organization based on the NUTS

classification (*La Nomenclature des Unités Territoriales Statistiques* – Nomenclature of territorial units for statistics created by the Statistical Office of the European Union.). Slovakia is divided according to the NUTS 2 category, while the structure of the research sample was based on the data provided by the Statistical Office of the Slovak Republic.

As a second stratification criterion, the authors set the minimum size of the company at 50 employees, thus excluding small enterprises from the research sample. The importance of focusing on a formal human resource management system in the organizations with 50 and more employees was stressed.

Determining an optimal research sample of the given basic group of organizations, Confidence Level of the research was set at 95%, and Confidence Interval of the research was set at $H = \pm 0.10$. Considering the given criteria, relevant research sample for individual regions of Slovakia was set in the analyzed years (see Table 2).

Table 2. Size of the research sample for individual regions of Slovakia

Region NUTS II.	Bratislava Region	Western Slovakia	Central Slovakia	Eastern Slovakia
Districts	BA	TT, TN, NR	BB, ZA	KE, PO
Number of organizations	1105-1131	904-933	644-657	612-623
Size of research sample	89	87	84	83

The measured values were statistically processed and assessed by calculated chain indices (values changed since the previous year), and fixed-base indices (values changed since the first year).

3. Results and discussion

For human resource management to effectively complete the demanding tasks associated with formation of an adequate job potential in line with business goals, a functioning selection process that responds to continuous environmental changes and leads to improved company performance must be included.

The aim of the analysis was to identify the current state of focus of organizations operating in Slovakia on the systematicity of selection process of employees, the existence of an effective internal labor market and regular development of the used tools of employee selection in the context of technological progress and changing labor market requirements (see Table 3).

As the comparison of the outcomes of individual years shows, a slight increase was recorded.

Authors consider the evaluation of the overall change in the analyzed attributes in the monitored period to be necessary.

Table 3. Chain index of the companies focusing on selection process

Chain index of the companies focusing on selection process	ci15/14	ci16/15	ci17/16	ci18/17
Organizations use a standardized selection process	1.011	1.041	1.059	1.020
The internal labor market works effectively in organizations	1.023	1.051	1.059	1.006
Organizations regularly innovate the tools used to select employees	1.017	1.001	1.010	1.012
Σ	1.017	1.031	1.047	1.013

Table 4 presents the data processed within the performed analysis.

Table 4. Fixed-base index of the companies focusing on selection process

Fixed-base index of the companies focusing on selection process	bi15 /14	bi16 /14	bi17 /14	bi18 /14
Organizations use a standardized selection process	1.011	1.041	1.102	1.107
The internal labor market works effectively in organizations	1.023	1.081	1.145	1.158
Organizations regularly innovate the tools used to select employees	1.017	1.020	1.037	1.058
Σ	1.017	1.047	1.095	1.108

It can be concluded based on this outcome (Table 4) that the share of the organizations focusing on the activities related to effective selection process of employees increased in the monitored period. The overall increase in the monitored attributes within the monitored period was 10.8%, which the authors consider a positive trend.

In addition to the development trends of the mentioned attributes during the monitored period, the authors also determined the relative level of attributes in the context of the region of the company. Table 5 shows the numbers of organizations according to the score of the examined attributes achieved in individual regions in year 2018.

The major share of the companies executing the activities related to standardized selection process of employees was recorded in the region of Bratislava ($n = 72$), representing 80,89% of all the analyzed organizations from this region. Likewise, the largest number of organizations from the region of Bratislava ($n = 68$), representing 76,4%, focused on the effective internal labor market.

Based on the survey, the area of regular innovations of the used employee selection tools was evaluated as the worst. Overall, only ($n = 106$) 30,9% of organizations in Slovakia regularly innovate the tools used to select employees, while in the Eastern Slovakia region it is even only ($n = 17$) 20,48%.

Table 5. Focus of organizations on effective selection process of employees in regions according to NUTS II.

Region NUTS II.	Bratislava Region	Western Slovakia	Central Slovakia	Eastern Slovakia
Districts	BA	TT, TN, NR	BB, ZA	KE, PO
Organizations use a standardized selection process	72	68	67	61
The internal labor market works effectively in organizations	68	55	43	41
Organizations regularly innovate the tools used to select employees	41	25	23	17

The parametric Pearson's correlation test (r) was used for the purpose of the statistical evaluation of individual correlations.

H1: The outcome of the Pearson's correlation test proves a statistically significant relationship between the region of operation of an organization and the activities related to standardized selection process executed in it. The given variable correlates at the significance level $\text{sig.} = 0.01$ with the value of the Pearson's correlation coefficient $r = 0.382$. The required level of the significance value was achieved hence this hypothesis has not been rejected. A moderate relationship between the analyzed variables can be confirmed.

H2: The outcome of the Pearson's correlation test proves a statistically significant relationship between the region of operation of an organization and the focus of the organization on the effective internal labor market. The given variable correlates at the significance level $\text{sig.} = 0.01$ with the value of the Pearson's correlation coefficient $r = 0.115$. The required level of the significance value was not achieved hence this hypothesis has been accepted. A weak relationship between the analyzed variables can be confirmed.

H3: The outcome of the Pearson's correlation test proves a statistically significant relationship between the region of operation of an organization and the focus of the organization on the regular innovations of the used employee selection tools. The given variable correlates at the significance level $\text{sig.} = 0.01$ with the value of the Pearson's correlation coefficient $r = 0.917$. The required level of the significance value was achieved hence this hypothesis has not been rejected. A strong relationship between the analyzed variables can be confirmed.

4. Summary and conclusion

Trend of industry 4.0 development is the subject of expert discussion and calls for research activities in the areas of technical, sociological and economic sciences. (Joniaková et al., 2015). Organizations' focus on innovation to ensure a competitive advantage is strongly influenced by the advent of new robotization and digitization technologies as accompanying phenomena of the fourth industrial revolution and is becoming

a common part of managerial work (Ližbetinová et al., 2016; Kucharčíková et al., 2014; Hitka, et al., 2015).

In addition to research and education institutions, this trend is gradually being perceived and recognized by economic practice, and more and more companies are implementing changes to management systems (Joniaková, et al., 2015). While initially the changes coming with Industry 4.0 were perceived and applied mainly by the R&D departments, the human resources department is currently facing these changes. On the one hand, they need to look for, recruit and select employees who have the potential to adapt to the incoming change / challenge and progress in its context. On the other hand, they raise possibilities for using new technologies to make their work more efficient (Georgiou et al., 2019; Widhiarso et al., 2019). The survey showed that the human resources departments in the selection of employees try to comply with the established standards, focusing on both external and internal labor market. However, when analyzing the findings from the context of the coming change, it can be observed that there are obvious shortcomings. Organizations in the selection process only innovate the tools used to select employees. That can be described as a significant competitive disadvantage, as modern technologies not only speed up and improve their work, but also increase the attractiveness of the organization. While CV information can be reviewed manually, CVs can be used to find suitable candidates for specific vacancies much faster with the help of CVs software (Hoek, 2017). By using appropriate software, it is possible to proactively detect unethical behavior of candidates in answering questions during the selection process (Jackson et al., 2000; Kubinger, 2009; McFarland et al., 2002; Vecchione et al., 2014).

Use of gamified selection methods might lead to increased engagement and positive perceptions of the organization signaling that it is at the cutting edge of technology offering competitive advantage in the war of talent (Fetzer et al., 2017). Chow and Chapman (2013) claimed that gamification can be used effectively in the selection process to attract large number of candidates, improve organizational image and attractiveness and, as a result, positively affect applicants' job pursuit behaviors toward an organization.

If organizations are interested in using the technology of industry 4.0, they have a choice. They can invest and buy new tested technologies, or become part of their development, either in their own direction or in cooperation with educational institutions that are already actively involved in their development (which is clearly stated in the contributions we refer to in the paper). This is the way almost every organization has the opportunity to contribute by participating in the Industrial Revolution 4.0.

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有效的选择过程是高质量的职业定位职业的关键，有条件的长期竞争力

關鍵詞

选择过程
斯洛伐克公司
竞争力
内部劳动力市场

摘要

无论是员工还是雇主，都需要适应商业环境的快速变化，这意味着应对新的挑战，获取新的知识和技能以及承担新的角色和责任。公司的基础是合格的人力资源的可利用性，人力资源管理主要通过有效的员工选择过程来确保。本文的目的是分析在斯洛伐克运作的组织目前关注的选择过程的系统性和复杂性，有效的内部劳动力市场的存在以及技术进步背景下使用的选择工具的发展规律和斯洛伐克地区劳动力市场需求的变化。对 (n=343) 企业的调查结果显示出积极的趋势，在改善员工选择过程的方向上增加了10%以上，但另一方面也证实了各个地区之间差异的增加在斯洛伐克，一些地区（斯洛伐克东部）的进展比发达国家（布拉迪斯拉发）慢得多。