Consequences of Inadequate Management of Personnel Information in a SME enterprise*

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Abstract

If an organization wants to be successful, it is very important to realize the value of human capital and the importance of the people it employs; people in an organization are considered the greatest wealth and their management depends on whether the organization succeeds in the market or not. Personnel functions can be performed based on correct information, and this is what the personnel information system is for; every decision-making process takes place through information. That is why it is important to have information. Decision-making in the field of human resources management is conditioned using appropriate personnel information. This is information that should be: true, accurate, up-to-date, relevant, and sufficiently detailed. With the aim of effective functioning of the organization, effective management and decision-making, compliance with obligations arising from legal regulations and regulations, it is necessary for every organization to pay attention to the compilation of a personnel information system. It is an organized computer system that detects, processes, provides and stores all information about personnel work in the enterprise. It is created by a network of data, databases, tools, and services in the field of human resources. The goal of our research was to analyse the state of the personnel information system on the example of an industrial enterprise, to identify shortcomings and their impact on employee satisfaction and the perception of managers. The methods used were analysis, synthesis, deduction, questioning in the form of interview and questionnaire.

Keywords: management, information, system, human resources

Introduction

Human resources, i.e., employees, are considered the most important assets and valuable resources in the company. Employees are important because their knowledge, experience and skills increase the company's value in the market. The definition of human resource management is inseparable from the concept of "management". It is a coordinated approach to people management that tries to integrate the different employees of the activity so that they are compatible with each other. (Baterliene, 2017). Rubiano (2016) states that human resources are very important in a business and cannot be ignored. In the whole process, the employee himself is understood as a person who tries to help the growth and development of the company in which he works. The author claims that if the employee is treated well, then his loyalty and the care he devotes to his work will be associated with the success of the company. Yue (2014) says in his publication that human resource management is beneficial for increasing the efficiency of employees' work. From a corporate strategic point of view, human resources management should be based on the needs of employees and growth, taken as a purpose that is mutually beneficial for both employees and the company. Personnel functions enable the company to acquire, use and develop capable and, above all, motivated people. Over the last years, human resource management (HRM) has experienced significant transformations. The focus has passed from the administrative management tasks to becoming a strategic partner of the overall organization strategy, largely with the strong support of information

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technologies' evolution in this field of knowledge area. The extended use of information systems has a deep effect in the way HRM is managed nowadays. Information systems have increased the efficiency of HRM through more effective recruitment methods, organizational communication, employee involvement, and increased skills of HR managers . From there, human resource management areas must relate human capital strategies to the most appropriate technological solutions. It means creating an organization focused on interconnecting people with business strategy to achieve rapid adaptation to changing needs common to people and business. (Wilkerson A. Draft) Currently, the process of globalization has a decisive influence on business management. Globalization is understood as the progressive integration of financial, product and labour markets thus crossing national borders. Guilen (2001) defines globalization as "a process leading to greater interdependence and mutual reflexivity between political, economic, and social units in the world and between individual actors in general. If a company wants to survive in the 21st century, it must adapt global thinking and transform leadership to become globally competitive. Global leaders must be able to turn the risks and threats arising from the process of globalization into opportunities; to motivate people not to just survive in the organization, but to perform excellently and work in international teams to solve problems. In doing so, it is essential to use the most modern information technologies. According to Chiavento (2001), a new philosophy is needed in the new millennium. The concept of "Management of human resources" should be replaced by the new term "Management of people", with the increasing responsibility of middle management. People should be primarily considered as human beings and not as resources of the organization. This concept means that people at all levels should be involved in the business of the organization and responsible for the outcome of the business. Being responsible means that employees have and use the necessary information, apply their knowledge and skills, and at the same time make decisions that lead to the desired success. The personnel information system can be considered an effective technique and help in performing the work of personnel administration. Thanks to such a system, it is possible to collect information from the internal and external environment of the organization and thereby improve personnel processes (He and Li, 2021). The introduction of an information system brings the organization a competitive advantage in several areas of personnel management. These areas can be easily classified into three main groups of personnel information system. (Votto et al., 2021). The use of modern technologies in the management of human resources and the introduction of a personnel information system as part of the corporate information system in small and medium-sized enterprises. Maintaining a good competitive position by responding quickly to changes in HR technology. Personnel information system (PIS) as facilitating the manager's work, reducing bureaucracy in the company, and increasing efficiency. Introduction of a module in the company for human resources management, enabling central registration of information or faster and easier communication with employees within the company. The use of artificial intelligence is the biggest trend in recent years. The goal of the research was to analyse the work with personnel information in the conditions of a SME enterprise, to identify shortcomings and their consequences in the management of human resources. In the research we used methods - literature review, analysis, synthesis, deduction, case study, interview and questionnaire. The article points out the connection between the level of processing of personnel information and the satisfaction of employees and managers.

Research Results and Discussion

PIS should provide a sufficiently wide range of information that is used not only for processing records (the number of workers, incapacity for work due to illness, overtime work, absence, foreign nationals workers….), statistics and reports, but based on them, it is possible to carry out the necessary analyses of the workforce, job positions, work efficiency, etc. PIS is supposed to provide both individual data and collective data, e.g., for statistical processing. PIS provides information for management levels both up to date - i.e., continuously supplemented, but also historical information. The collection, storage, processing, analysis, and distribution of personnel information is usually carried out by personnel specialists. It is appropriate if the PIS contains the following subsystems: information about workers, information about jobs, information on personnel activities, information about external conditions (environment). The personnel information system must serve its purpose. Use and development is daily associated with the characteristic features of the subject of the organization's business activity in connection with the set goals. It serves as a navigation for making the right decisions. A successfully implemented information system positively affects the information environment and culture throughout the organization. (Vymetal, 2006)

Personal information system in company

The personnel information system represents a summary of information about workers, jobs and all activities that take place in the company. The personnel information system is the carrier of the solution for personnel activities in the company. Personnel activities, which we dealt with in the previous chapter, deserve automation due to efficiency, functionality, and correctness. We took the liberty of citing several definitions from different authors, for the sake of a better understanding from several points of view. Management information systems provide organizational processes and tools for capturing, organizing, and managing knowledge. (Hwang, 2018) The basic

function of information systems in a company is to obtain, process and provide reliable information to managers in the required quantity and quality, at the appropriate time and in the appropriate form. (Dudinská, 1996) The personnel information system represents a summary of personnel data on individual employees, jobs, and personnel activities, which the employer needs to fulfil obligations arising from legal regulations and ensure personnel work in organizations. (Šikýr, 2014) The organization's information system should be created as a basic information source and decision-making tool at all management levels of the organization. (Vymetal, 2006) From a complex point of view, it is necessary to see the term information system as a set of all methods and means that serve to process all formal information, such as is somehow recorded on any medium. (Žufan, 2012) The three basic components of the information system are: the input, which includes elements that allow capturing information and other inputs to be processed, or to interconnect the inputs; processing, includes elements that ensure the transformation of inputs into the desired output; output, represents elements that can transfer information and other outputs to the recipient. (Gála et al., 2009) The computer personnel system enables connection with other information systems, e.g., the information system of the institution of the labour market, social and health insurance, state statistics and other institutions. (Koubek, 2000)

The Effectiveness of PIS

For the personnel information system to be used effectively, it is required to use all necessary information about all elements that enter personnel activities. Ensuring that this information is regularly updated can eliminate the deficiencies that have arisen. The purpose of the information system is to ensure the appropriate expression of information and its processing. (Gála et al.,2009) The topic of organized digital information focuses attention on efficiency. Where it is important to assess the relevance of the data that will be stored for the purpose of their involvement in management. Jerry Jacques discussed in his analysis: The relevance of four basic activities for the analysis of personnel information from individuals in a professional context. "Inclusion" "Exclusion" "Selection" and "Deletion" -this four-activity distinction complements the information organization process and organizational system model. It focuses on the specifics of the organizational process and analyses of interviews from informants. It affects the importance of the collection, the boundaries of understanding the characteristics of resources and relationships, their translation into structural relationships enabling interaction with through various functions. The essence of the categorization of information is its subsequent use in the performance of business activities. Where important information can become helpful in achieving business goals. (Jacques, 2020) The constant updating of new knowledge will support the better use of the personnel information system, as progress in technology has no ceiling. As Chen also draws attention to the fact that: Currently, the development of information technology is changing every day. (Chen, 2022) He also states in his publication how important it is for the system to be simple, understandable, and easy to use. These features lead to efficient use. Masum emphasizes: Currently, the human resources information system plays a strategic role in the decision-making process for effective human resources management. (Masum, 2018)

The role of HR manager in PIS

We would like to point out that the relation of HR manager to HR information system has its meaning. Therefore, it is necessary for the person who will work with the personnel information system to be familiar with its operation. If this is not done, it may affect the functionality of the personnel information system itself. Michael Gallivan developed a conceptual framework document that discusses employee use of information systems and their impact on use. Our results show that an employee's co-workers have a significant effect on IT use, while individual factors show more modest effects. (Gallivan, 2014) The result of the document was that there is an influence of the employee himself on the information system. It is beneficial to take steps that lead to the employee being competent to use their skills to the full and to imparting all the important knowledge. Training, a course, IT support can be helpful. Kulik emphasizes: Employers today need specialists with certain skills and abilities who can develop them and adapt to specific projects. Therefore, short-term courses are very popular today, especially online and with a mentor — a specialist in a certain field. (Kulik, 2022) Competitiveness The correct use of the information system leads to saving expenses, which are a cost for the company and increases competitiveness, moves the company one step forward. Mount says that: Human resource management has been influenced by several factors since its development, among which is the information technology revolution. Beginning with the early invention of computers, human resource management practices have found a way to utilize these electronic means to increase process efficiency. Therefore, the concept of a human resource information system has rapidly evolved, attracting the attention of organizations and HR leaders for its proven contribution to cost savings and competitiveness. It is necessary to note the role and influence of the information system in the competitive position. Hussain emphasized: The use of HR information systems enables the HR professional to become a strategic player. With increasing functionality and affordability, HR systems are widely used in organizations of all sizes. Despite this, surprisingly little is known about current use, whether there are differences between companies of different sizes, or what effect the HR information system has on the overall professional status of the HR professional. (Hussain, 2007)

Identification of deficiencies in the administration of personnel information - Case study

The goal of our research was to examine current problems in the field of information management on the example of a small and medium-sized enterprise. We selected a successful medium-sized enterprise that uses the latest technologies in production, but has a relatively high turnover rate and does not use a modern personnel information system. The company has 176 employees, 139 men and 37 women. The top management consists of three managers and the other employees are managed by 7-line managers who represent important subjects of human resources management. The investigated company does not have any modern information system; focuses on modern technologies in the field of production and accounting. In the research, we used the interview method with managers and the questionnaire method for employees. The questionnaire was administered to 160 employees, 127 respondents completed the questionnaire, which represents a suitable sample. The personnel information management audit provided us with information for the analysis and identification of key deficiencies in the company's management system. Based on pilot research, we established the hypothesis that the processing of personnel information is insufficient and has an impact on employee dissatisfaction; the hypothesis was confirmed. Managers feel the absence of summary personnel information, mainly for the area of human resource planning from a long-term perspective in connection with the strategy and long-term planning in the company. There is also an absence of a comprehensive up-to-date overview in the field of employee training needs in connection with the development of technologies. For line managers, we have identified the need for systemic management of adaptation, and employee training and evaluation linked to the remuneration system. There are no documents on changes in the scope of work, which makes effective management of human resources, correct determination of criteria for selection and evaluation of employees impossible. Employee evaluation is carried out randomly, mostly verbally, and no notes are made. There is also a lack of central records in the field of employee training. Line managers influence the variable component of wages based on the performance of the managed department, but the lack of connection between employee evaluation and remuneration causes non-transparent remuneration. Line managers would welcome the possibility of identifying educational needs and retraining employees in an online space with the possibility of evaluating the training and the possibility of returning to the subject of the training. The personnel information system would ensure a uniform system of employee evaluation with updated criteria and would enable realistic setting of goals for subordinates. The mentioned deficiencies are felt by the management in control of the fulfilment of tasks; they focus on the performance of the tasks of the entire department and company, but the performance of individual employees is insufficiently assessed. Artificial intelligence, in addition to current help in the search and selection of candidates, can also be beneficial for your company by seeing into the future. By analysing the current situation, personnel systems can reveal when, how many and what kind of people you will need in near future. The higher turnover for the company (13.5%) also attracts attention. Fluctuation is a consequence of several activities in the company and depends on the quality of their performance. Each company is specific and at the same time changes over time. This has a direct impact on the employee's life cycle. If we can collect, to analyse and evaluate data in the individual phases of the employee's life cycle in the company, we can evaluate the quality of the processes performed and at the same time identify the reasons that cause dissatisfaction and, ultimately, the employee's departure. Recruitment, selection, onboarding, engagement, motivation, absenteeism... In general, a certain degree of fluctuation is natural and inevitable, it is not a negative phenomenon. Various factors influence its level. For example, the size and environment of the company, the sector and region in which it is located or macroeconomic indicators, such as unemployment. From our experience, the natural rate of turnover is a very strong, but not always relevant argument to be satisfied with the given situation. There can be several reasons:

- Employees are overworked.
- Workers leave where they will be paid more.
- Employment is not promising for them.
- The company does not offer them sufficient training.
- Misunderstanding with management.
- There is a bad atmosphere in the company.

In the investigated company, 57% of respondents feel that they are excessively overwhelmed with work that they do not have time to complete within the set deadlines. If their workload is repeated regularly every week, they lose motivation. 27% of respondents said that they would leave their current job and go work elsewhere for a 10 percent salary increase. It is necessary to treat workers with fair financial compensation because the company will pay much more for hiring and training a new employee. The employee's contribution to the company or successfully completed projects must be considered. If there is such a person in the company, but his salary has been the same for several years, it is appropriate to reward him even without him asking for it himself. 37% of respondents perceive the business climate as unsatisfactory; there is a lack of dialogue with the management of the company. Employees use the electronic attendance record system, but they do not have available current summary information, e.g., in a week. 43% of respondents stated that they do not have an up-to-date overview of overtime hours worked. 38% of respondents stated a lack of information regarding adaptation and the absence

of a clear adaptation program. 34% of respondents consider training after starting work to be insufficient. In the field of education, 52% of employees would welcome the possibility of online education, especially with the possibility to return to the subject of the educational activity. Work in production is associated with increased risks, and an information system would ensure the possibility to follow and repeat safe procedures online. Onboarding is a course of activities aimed at increasing the probability that new employees will become a productive part of the company in the shortest possible time. Insufficient training of newcomers is the fourth most common reason for their early departure from employment. At the same time, up to 86% of employees expect initial training during the first week at work. Solution: Do not underestimate the re/qualification of workers. The sooner they adapt to their virtual reality also helps, for example, in the adaptation of employees. Although virtual reality is most often associated with gaming, it is not its only use. It can serve as an excellent educational supplement in human resource management. Through fictitious scenarios, new employees can learn how to work on real cases without breaking anything if they fail. However, in addition to safety, employee training through virtual simulations has another advantage, which is low cost. Thanks to the data from the personnel system, artificial intelligence will provide the new employee with input information that corresponds to his needs and educational level. A person who is completely new to the company will receive a detailed briefing, but if it is, for example, the transfer of an employee to a new position, the system will spare him information he already knows and will only provide him with relevant information, workload, the faster they become efficient workers. However, virtual reality can also be used when introducing an employee to the company culture. A virtual tour of the workplace can facilitate and speed up the involvement of the employee, because he can see the premises of his new job from the comfort of his home. The employees would welcome a more transparent assessment of their performance, including statistics, which would represent a significant motivational element for 64% of them. 58% of employees consider the remuneration system to be non-transparent and do not see a connection between remuneration and the quality and quantity of work performed. 24% of employees feel discriminated against in terms of remuneration regarding the difficulty of the work performed. The company provides benefits to employees, but they do not reflect the needs and interests of employees. The possibility of feedback and dialogue with superiors is also absent in this area. Employee evaluation is not carried out uniformly in all departments. It is the evaluation of employees as a central problem that unites the interests of line managers and employees. Žufan (2012) emphasizes the benefit of the personnel information system: The implementation of standardized evaluation through PIS brings an effect both to the evaluators, who have at their disposal the evaluation history of their employees, ideally during their time in the organization, regardless of organizational changes and changes in the superiority and subordination of the evaluated employee, and to the personnel department. In a modern organization, performance evaluation is considered an important starting point for improving its operation. Based on its balancing of the real work potential that the organization has and the required work potential in terms of the adopted goals, the knowledge, skills, attitudes, value orientation, creativity, motivation, cooperation, and other characteristics of each employee can be programmatically developed. In addition to the development of employees, evaluation can have a positive impact on the entire personnel management system, which should ultimately be reflected in increasing the efficiency of the organization. (Kachaňáková et al., 2013) A certain evaluation system should be introduced in all organizations, which must meet the established criteria, be reliable, concrete and generally acceptable. Also, the evaluation should be clearly understandable for the evaluators and the evaluated employees. Performance evaluation is fundamentally necessary for the effective management of the organization's human resources and the evaluation of the employees themselves. It helps to develop individuals, improve organizational performance, and contribute to organizational planning. (Ahmed et al., 2013) Even though evaluation represents a certain management tool, it is intended to contribute not only to the development of employees but also to senior employees and entire organizations. (Lee et. al., 2019) Employee evaluation is an important element of human resource management. In modern business, employee evaluation is considered an important starting point for improving organizational performance. Evaluation is generally a structured process that is used in awarding employees or drawing consequences. (Mlkva, 2017) The weak point of the company is also the human resources management department, which is represented by one employee, who devotes most of his time to operational management, which does not meet the requirements of practice in a modern company. It issues guidelines for some personnel activities, but the creation of concepts and uniform application in individual departments is lacking. The personnel manager is aware of the advantages of the personnel information system, but he encounters the reluctance to implement such a solution on the part of top management. The effects of the lack of information and its incorrect processing in the investigated company are ultimately reflected in the increased rate of turnover, the reasons for which can be summarized as follows:

- low employee wages and an incorrectly set employee compensation system,
- insufficient motivation of employees in the form of various benefits (allowance for vacation or recreation, preventive examinations, sick days, possibility of home office work, corporate, social, and cultural events, discount vouchers, allowances for housing for new employees, allowances for meals, etc.),
- the company does not have clearly defined values and the corporate culture is also absent,
- the management of the company does not communicate sufficiently with its employees and is not interested in their needs,

- problems pointed out by employees and without feedback are not solved for a long time
- the process of training and adapting a new employee to the work environment is underestimated,
- the employee does not have a sense of self-realization and does not receive recognition from management,
- the company does not recognize modernization, rejects innovations and any changes in the field of people management.

If the management of the company thought about the above-mentioned reasons for turnover and realistically evaluated whether they offer their employees what their employees expect from them, or what they will offer and fulfil when they start, the turnover rate in their company would be significantly reduced. Information strategy should currently be among the key strategies of companies. Information and communication technologies are gradually penetrating the entire company and represent an ever-increasing volume of financial resources. The information system is beneficial for management, administration, and control in the company. With its software solution, it ensures better security of important data, information, and application programs. A comprehensive information system including links to personnel information would benefit the examined enterprise and its further perspective and competitiveness in the current world of constant changes. The information strategy of a small or medium-sized enterprise should be built in such a way that it solves the existing problems of the enterprise, and at the same time creates new opportunities for the enterprise in the future. SMEs in Slovakia should pay the necessary attention to its development, most SMEs do not pay any or only minimal attention to the information strategy. Users of the company's information system can be managers, technical and professional specialists (experts) or officials, or regular staff. The information needs of managers are different and depend on the level of the organization. For this reason, management activities are not the same at individual levels of management, therefore working with different information coming from different sources. If an activity is performed in several company operations, it must be performed everywhere in the same way so that it can be monitored and evaluated from the management level, because a transparent flow of information will enable the operative and transparent management of the entire company. Information systems must meet some basic requirements reflecting their quality. Among them is mainly the need for the information to correspond to the nature and needs of individual levels of management. Large companies continue to push the development of e-business, but SMEs are catching up, with small businesses filling the gaps even faster. However, SMEs are still not sufficiently aware of the importance of ICT and its potential, they are at a disadvantage due to limited budgets for ICT investments and problems in acquiring ICT experts. A serious deficiency in SMEs is the ability of people to work with the given technologies or make full use of their capabilities in increasing work productivity.

Conclusions

The case study pointed to deficiencies in the management of personnel information in the environment of a manufacturing small and medium-sized enterprise and the consequences of these deficiencies in the management of human resources. We pointed out the connection between the quality of personnel information processing and employee satisfaction, and management bottlenecks from the point of view of managers. We see the solution in the use of complex information systems. In further research, it is necessary to analyze the situation in a larger sample of small and medium-sized enterprises and examine the possibilities of state support of innovation in this area. In Slovakia, digital trends in HR are little used; although some of the mentioned possibilities have been a common part of HR management in the world for a long time, many people in the personnel departments of Slovak companies are still not familiar with them. The area of human resources is currently undergoing a major modernization, which brings more effective procedures for searching, selecting, recording, evaluating, and rewarding, as well as the training of employees. The use of a complex personnel information system represents costs for companies, but their return we can see in praxis. The use of modern technologies in the management of human resources and the introduction of a personnel information system as part of the corporate information system in SME enterprises ensures the maintenance of a good competitive position by a quick response to changes in technologies in the field of human resources. The personnel information system we should understood as facilitating the manager's work, reducing bureaucracy in the company, and increasing efficiency. The introduction of a human resource management module in the company enables central registration of information or faster and easier communication with employees within the company.

Literature

- Ahmed, I., Sultana, I., Paul, SK., Azeem, A. (2013) Employee performance evaluation: a fuzy approach, *International journal of productivity and performance management.* 62(7), 718-734. ISSN 1741-0401.
- Baterliene, N. (2017) The Impact of Human Resource Management on the Competitiveness of Transport, *Transbalistica: Transportation science and technology*. Elsevier science BV. 187, 110-116. DOI: 10.1016/j.proeng.2017.04.356
- Chen, H. - Cui, X.(2022) Design and Implementation of Human Resource Management System Based on B/S Mode. *Procedia Computer Science.*208, 442-449, Elsevier, DOI: https://doi.org/10.1016/j.procs.2022.10.062

- Chiavenato ,I. (2001) Advances and challenges in human resource management in the new millenium.In: Public Personal Management; Spring 30 (1). https://doi.org/10.1177/009102600103000102
- Gála, L., Pour, J., Šedivá, Z. (2009) *Podniková informatika*. 2. vyd. Praha: Grada Publishing, a. 496p. ISBN: 9788024726151.
- Gallivan, M., Spitler, V. K., Koufaros, M. (2014) Does Information Technology Training Really Matter? A Social Information Processing Analysis of Coworkers' Influence on IT Usage in the Workplace, *Journal of Management Information Systems*, 22 (1), 152-192.
- Guilen, M. F. (2001) Is Globalization Civilizing, Destructive or Feeble? A Critique of five Key Debates in the Social Science Literature , *Annual Review of sociology*, 27, 235-260.
- He, Y. a Li, M.(2021) Human resource management structure of communication enterprise based on microprocessor system and embedded network, *Microprocessors and Microsystems*. 81,   DOI: 10.1016/j.micpro.2020.103749

- Hussain, Z., Wallace, J., Cornelius, N. E. (2007) The use and impact of human resource information systems on human resource management professionals, *Information & Management*, Elsevier, 44 (1), 74-89. https://www.sciencedirect.com/science/article/abs/pii/S0378720606001157
- Hwang, Y**.** , Lin, H., Shin, D. (2018) Knowledge system commitment and knowledge sharing intention: The role of personal information management motivation, *International Journal of Information Management*, 39, pp. 220-227. https://doi.org/10.1016/j.ijinfomgt.2017.12.009
- Jacques, J., Mas, S., Maurel, D., Dorey, J., (2020) Organizing personal digital information: an analysis of faculty member activities, *Journal of doumantation ,* ISSN: 00220418. https://www.emerald.com/insight/content/doi/10.1108/JD-03-2020-0034/full/html
- Kachaňáková, A. a kol. (2013) *Riadenie ľudských zdrojov v organizáciách pôsobiacich na Slovensku*. Bratislava: Iura Edition, 132 p. ISBN 9788080786069
- Kulik, A., Chukhray, A., Havrylenko, O. (2022) Information technology for creating inteligent computer programs for training in algorithmic tasks. Part 1: Mathematical foundations. Scopus, DOI:10.20535/srit.2308-8893.2021.4.02
- Koubek, J. (2000). *ABC praktické personalistiky*. Praha: Linde nakladatelství , 400 p. ISBN 8086131254.
- Lee, HW., Pak, J., Kim, S., LI, LZ. (2019) Effects of Human Resource Management Systems on Emplyee Proactivity and Group Innovation. *Journal of management.* 45 (2), 819-846.
- Masum, A., Hoque, K. E., Beh, L-S. (2018) Intelligent human resource information system (i-HRIS), *A holistic decision support framework for HR excellence. International Arab Journal of Information Technology.* Zarka Private University, 15 (1), 121-130. ISSN 16833198.
- Mlkva, M., Vanova, J., Szabo, P. (2017) Evaluation of employees´performance – identification of problems and proposals for their elimination. *Ad alta-journal of interdisciplinary research.* 7 (2), 219-224. ISSN 1804-7890.
- Rubiano, J. (2016) Practical guide for the management of the human resources. *Anurio turismo sociedad.* Bogota: University Externado Colombia. 18, 189. ISSN 0120-7555. DOI:10.18601/01207555.n18.11
- Šikýř, M. (2016) *Personalistika pre manažérov a personalistov*. Praha: Grada publishing, 208p. ISBN 9788024758701
- Votto, A. , Valecha, R., Najafirad, P., Rao, R. H. (2021). Artificial Intelligence in Tactical Human Resource Management: A Systematic Literature Review. *International Journal of Information Management Data Insights.*1 (2), DOI: 10.1016/j.jjimei.2021.100047
- Vymetal, J., Diačiková, A., Váchová, M. (2006). *Informačný a znalostný manažment v praxi*. Praha: LexisNexis CZ s. r. o., 399 p. ISBN 8086920011.
- Wilkerson A. (2015) *Draft The Impact of Information technology on HRM* . [Online], [Retrieved February 20, 2003], https://www.academia.edu/8301970/Draft_The_impact_of_information_technology_on_HRM
- Žufan, J. (2012) *Informačné systémy*. Praha: Wolters Kluwer ČR, 219 p. ISBN 9788073579555.
- Yue, Y. (2014). Human Resource Management under Enterprise Strategic Perspective. In: *Proceedings of the 2014 international conference on education, management and computing technology*. Atlantis press. 169, 185-189. ISSN 1951 – 6851. 14-15 Juni 2014, Tianjin, China