HR process safety & security in the industry 4.0. era

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***Abstract* — Digital ecosystems embrace the day-to-day life. Internet is embedded to products and services. Artificial intelligence tools are in support of operational processes of companies. The new technologies have redefined the floor of the work scene.**

The publication describes the impact of the new technologies on human resources management in the ever-changing world, introduces what artificial intelligence is about and how the possibilities of artificial intelligence can be unleashed in human resources management.

The publication presents the new possibilities of the ways of working in human resources management in light of the digital transformation and gives an overview of the expected control measures in the HR function that ensure the safety and security of HR processes. Artificial intelligence in HR function has its benefits and barriers. Within the era of industry 4.0 the publication discusses the so called HR 4.0. Phenomenon.

The publication argues that the entities who go with the flow of the digital organization engage in completely new ways of working that will enhance their long-term competitiveness. As a result of digital transformation companies can easier concentrate on core value added activities that generate real value.

The new phenomena reshape the set of jobs: job functions have been eliminated as a result of automation and on the other hand new ones have been created, new job roles appear in particular in the IT department. The commitment of employees in the change management process is inevitable that place the corporate learning to a new level. This dynamic, changing environment requires organizations to tackle new security threats. The role of safety and security measures in the operational environment continues to stay the fundamental pillar of a successful organization.

Key words: Safety & Security, Industry 4.0, HR 4.0., AI - artificial intelligence, cognitive science

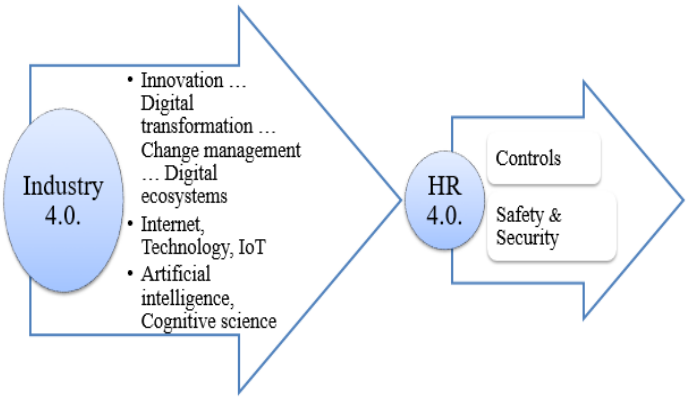
I. INTRODUCTION TO INDUSTRY 4.0

We have arrived to the era of industry 4.0. The society is ageing and the number of available manpower is falling. Robots and automation are available long ago. The internet now revolutionize the process engineering. Digital ecosystems are part of the everyday life.

The internet and the development of technology create the network of human, machines and companies that are any time connected. Information related to the value-added processes is continuously shared. Products are customer-tailored and competitive. New feature is that not the products themselves but the embedded digital services become the source of competitive advantage. Internet of things (IoT) promotes communication between internet-enabled devices. [1]

Big Data became widespread. Enormous data volumes prevail in information technology. Collection, structuring and analysis of increasing amount and complex set of data impact the world's economy. The large amount of information gained reshapes the decision making and promotes business value creation. [2] When it comes to Big Data sample size approaches infinity. Of course quality of the data counts a lot and when it comes to huge data volumes that can be sometimes questionable. Interestingly in Hungary the so called typical Big Data problem is considered to be rather Small Data problem. Small data tools and analytics offer rather solutions for business problems. [3]

The role of process safety and security is fundamental in the industry 4.0. era: this is the foundation of the safety and security of the organization. Proper risk management is also an ongoing process that is in support of the successful operation. [4]



1. Figure Structure of the article

II. HR 4.0.

Out of the processes of an organization the HR process plays a vital role and covers the end to end process of the employment i.e. recruitment and selection, personnel administration, payroll, employee time and attendance, personnel management including performance management/rewards, training, development, and talent management.

With respect to the impact of the digital transformation to HR function in the era of digital ecosystems the industry 4.0 calls for HR 4.0. [5]

Management tools that are in support of the company's decision-making process play a core role in successful company management. [6] By adapting the business models to the evolving market demands with innovative attitude in fact the companies decide about a number of changes within the organization which can enable its profitable market presence.

The implementation of such *innovative* system requires sound project management, allocated budget i.e. investment, cost of introduction, while the maintenance of such system is ongoing cost element. Overall by the end of the process this phenomenon affects the cost efficiency of the organization and helps to promote real value adding activities instead of focusing 'low value' monotonous tasks.

The *digital transformation* drives HR to new direction: the classical and administrative HR jobs are replaced by supportive and strategic functional objectives that focus on human, motivation and employer branding.

„The success of any organization depends on how effectively it combines *people, process and technology* intelligently to deliver transformational value at optimized cost." [7]

The digitalization of HR function takes place: some of the elements of the HR process are nowadays directly managed by the employees after on-boarding, for instance update of certain master data in the management information system. [7] Recruitment automation rearranges the HR jobs. *Artificial intelligence* (AI) supports how CVs are filtered and selected for specific keywords and abbreviations. Social media became key field of the recruitment process. Tasks and jobs earlier performed by human are automated. The impact of automation on job profiles i.e. automation of low value, repetitive tasks creates new scene in the workplace. Finding the ideal candidate takes time and AI can speed this up. Embedding AI to the recruitment and hiring process creates a completely new work sphere.

As part of the recruitment process AI tools are able to rank and select applicants and choose for the best fit. Simple, clear cover letter with focus on the keywords relevant for the job field supports the applicant in the selection process. AI tools enable to conduct enhanced due diligence on the potential candidates.

Not only CVs and cover letters are looked at from new aspect but also the social media and media activity, the Webpages the candidates follow to gain in-depth overview about them and a summary is prepared about this so called unconscious information. As part of the interview process AI tools are able to analyse non-verbal communication and meta-communication behaviour. Complex picture is gained about the candidate. Once the system is implemented the new way of working operates very effectively. Further to this other manual tasks can be substituted with AI such as arrangement of appointment, automation of onboarding process that eliminate the need for buddies. [8]

The platform of talent management changes as well. With the extensive use of data about people talent management become a much more scientific, fact-based function than ever before. Performance management becomes also more objective. [9]

The smart IT solutions, products and the innovative attitude rearrange the strategic objectives and lead to completely new job roles that have not existed before like Data scientist, Machine learning engineer, IoT and AI developer. [1]

The number of jobs in the IT department is to increase since IT professional manage the data in combination with the advanced technical knowledge of relevant core business functions. [2]

The Nordic region within Europe always tends to be leader in adopting new technology. The study that represents the Nordic HR professionals' views shows therefore also relevant views on the current trend.

The Nordic HR Study 2017 HR's view on future organizational challenges and opportunities - prepared for the Nordic region and represents 644 HR professionals - highlights *job and task automation* as highly relevant HR trend. Most of the respondents believe that more than 10% of internal HR and organizational processes will be automated within the next three to five years. Companies with more than 250 employees rate the importance of automation significantly higher than smaller companies. Competency to exploit automation seems to correlate with the level of strategic integration. More than fifty percent of respondents do not consider their organization to be prepared for handling the individual consequences of automation. Analytics of current situation and automation of tasks were found to be particularly relevant trends. [10]

In the era of industry 4.0. there is sound shift from the traditionally man-powered processes including human resources processes towards the world of fully automated processes. This shift deeply affects the job of HR professionals, employees and applicants as well. There are definitely weak points that need to be assessed when relying on AI. One may question the level of reliance which should be attested to AI tools, such as whether the data used by AI tools in the recruitment process is reliable or how the new risks as a result of digitalization will be managed. This is a challenge to get used to the new ways of working. Despite the trends it remains an open ended question how the benefits will balance the weaknesses of the transformation of human resources function. As we can see now digitaliztation and AI processes will become natural part of human resources management but one may argue that in this profession personal relationships will always remain.

III. ARTIFICIAL INTELLIGENCE AND COGNITIVE SCIENCE

No question artificial intelligence (AI) is a hot topic nowadays. AI became a broadly used term in our day-to-day life. What we understand under AI appears to be somehow mystified as there seems to be no single definition for this. To better understand its impact let us look at its history. *Alan Turing* - British mathematician and logician, is a founding father of AI and modern cognitive science - put the hypothesis that the human brain is mostly a digital computing machine which became organized machine through training. [11]

John McCarthy, a legendary computer scientist at Stanford University used the term artificial intelligence (AI) in 1956 supposedly for the first time. [12] This new field was founded at an academic conference at Dartmouth College in 1956 with the ultimate aim of building

computers and robots that could perform tasks commonly associated with human intelligence. AI is a subset of cognitive science, the interdisciplinary scientific investigation of the mind and intelligence. [13]

The proposal for the Dartmouth summer research project on artificial intelligence contained the statement about AI that: "The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of *intelligence* can in principle be *so precisely described that a machine can be made to simulate it*."[14]

AI pioneer *Marvin Minsky*, American mathematician and computer scientist defined AI as "the science of making machines do things that would require intelligence if done by men." [15]

In 1959 Minsky and McCarthy cofounded the Artificial Intelligence Project (now the MIT Computer Science and Artificial Intelligence Laboratory). [15] They are also recognized amongst the six founders of *cognitive science*. [13]

As we can hear from Andrew Ng, Stanford Graduate School of Business 'Artificial intelligence is *the new electricity'* and just like electricity transformed everything hundred years ago, now AI plays a role like that. [16]

The new age: artificial intelligence for human resource opportunities and functions paper defines AI as a tool trained to do what human can do. This technology is different from ordinary software with its features of high-speed computation, a huge amount of quality data and advanced algorithms. There is great potential to improve human resources management through AI technology such as recruitment and talent acquisition, payroll, reporting self-service transactions, access policies and procedures. [7]

When artificial intelligence algorithm is behind the recruitment and selection process in fact a number of changes are triggered within the organization. This makes the process faceless but also objective: it befrees namely the process from the subjective filter that human may have had and which would affect the selection chances of certain applicants for instance based on age or origin. But there is, as always, a downside. There is risk that the input data process is manipulated by the applicant, and in this case the thought to be robust process deliver unreliable outcome.

The vision of artificial intelligence solutions in the HR operation is strong; however the everyday HR operation practice has not yet arrived there. The readiness to keep pace with the latest trends varies depending on region, company size and strategy. The widespread digital communication tools – such as video interview, video communication – are generally used. There is a tendency to build in state of art technology – such as Chatbot software to replace direct personal conversations with software agent for basic conversations.

The role of digitalization and artificial intelligence processes in HR will enhance in the future but the traditional role of human relationships in HR function will most likely stay.

IV. THE ROLE OF CONTROLS AROUND HR DATA

There certainly are benefits and barriers of implementation of new technologies in HR function. Data privacy and security are in particular key areas to be addressed with appropriate controls. Social media networks like LinkedIn, Facebook as well as various entities store tremendous amount of personal information which raises data privacy and security concerns.

In the digital sphere, both companies and employees, potential employees can become "victims".

Companies expect to deliver better outcome through investing in and applying AI in their processes.

With the spread of AI in the HR selection process and the level of reliance to these systems and tools, however, companies are exposed to the risk of relying on falsified data. There is risk that the applicants' data is manipulated on social media, for instance previous experience, or study records are overstated and the selection process is run on false profile. The usage of this information sources poses threat to the integrity of the selection process. This has become a key question for practitioners if they rely on AI how to prevent these threats, what is the cost of the adequate actions and when and where is that worth to pay that cost. As a control measure the vetting process is expected to identify this misconduct.

When proving private data for job applications and for the employment or contractual period and even thereafter, personal data is handled by the companies. HR function is deeply affected by the requirements set by the EU General Data Protection Regulation 2016/679 (GDPR). GDPR requires companies to register the company's data management activities and to demonstrate compliance. Basic principle is to process only as much personal data (name, address, tax identification number, social security number, e-mail address and password, bank account number, IP address, portrait, etc.) and only for as long as and to the extent that is strictly necessary. Non-compliance with the GDPR is privacy incident. [24] Protection of personal data in AI context raises significant concerns and has become a key security issue to focus on.

We can see that as a result of the new technology a number of concerns are raised and are to be tackled, also on legislative level. Employees' lives are also changing; job roles are reorganized, some roles are taken by 'robots'. Employees may feel fear that robots will take their job. AI technology and automation reshape the everyday jobs of the employees. Employees are forced to keep pace with the changes and embrace life-long learning, learn new processes that are desired on the market. In the changing environment the role of trust in these digital services is inevitable and the commitment of the employees is essential for the successful transformation.

There is therefore a number of prerequisite to have a successful digital enterprise implemented. Trust is a fundamental element of this. The outcome of a survey on building digital enterprise confirms that trust in the security of data and communication of all parties involved and protection of their intellectual property are essential for properly functioning digital ecosystems. These ecosystems awake the issues around cybersecurity. In the survey the nr. 1 data security concern was disruption due to cybersecurity breaches. This was followed by risks through data loss; unauthorized data extraction/modification within company-internal data flow; misuse of data during exchange of information with partners; loss of intellectual property; violation of regulations and laws on data security or data privacy and endangerment of operators or users. [17]

More and more personal information become available for the employer and this require special control. Personal and professional lives of employees are often hard to separate. This can pose specific cyber security risk as well like blackmail. As a response to the digital risk the mitigation element is the preparedness for threats and disruptions.

The response to a crisis plays a vital role. There should be sound action plan when something goes wrong: the speed and effectiveness, and also the management of the recovery process are essential. This is part of the digital resilience. [9]

V. SAFETY AND SECURITY ASPECTS OF THE EMPLOYMENT

Safety and Security Sciences can be defined narrowly and broadly. This study field is relevant for the employment lifecycle as well: personal safety, health and safety protection and accident prevention, information security, as well as the hot topic of cybersecurity. [18]

The key information security aspects of HR are the preliminary due diligence of prospective employees; privacy, safety and security requirements in the employee contract and afterwards; policies for termination and requirements for the post-termination period. [19]

The job of the preliminary due diligence of the employee is to validate the references, the completeness and accuracy of the CV, verification of professional and scientific qualifications in the CV, independent verification of the identity, in-depth checks such as searches for criminal records. This is the so called vetting process. For highly sensitive jobs further requirements ensure the match for the trusted job role, special professional requirements to meet related to the safety and security job role. [19]

These criteria are equally important when it comes to entering to contractual arrangement to any third party, being vendors or suppliers of the company and correspond to the ethical values that lay the foundation for strong operation.

Before and during the contractual arrangement a number of safety and security measures are to be followed.

Health and safety protection and accident prevention has key role in the day-to-day operation; policies have to be defined in a way that their operation ensures sufficient protection for the employees, there is no threat to health and safe working conditions exist. [20]

As previously mentioned prior to the employment the due diligence takes place while during the contractual period further arrangements are required and misconduct may even result in termination of the contract.

Few examples of these safety and security requirements are for instance that employee is bound by confidentiality obligation during the term of employment contact before getting access to company information as well as after termination for an unlimited period of time; clarification of roles, responsibilities and accountabilities; safeguarding the company assets; adherence to the ethical values, code of conduct of the company; adherence to data protection rules; access management tailored to the job role; adequate management of changes process, timely changes to the accesses following changes in responsibilities as part of user access management process. Relevant company policies are in support of compliance to these safety and security requirements. Behind the contact the Labour Code and any other relevant legal regulation govern. [19]

Remote working and flexible working arrangements became popular solutions applied for office workers. This brings benefits for both the employer and employee. This calls for sound digital safety requirements since employees can connect to the company's systems any time from any location.

The code of conduct and the corresponding ethical values are highly important which should be deeply embedded to the company culture to have strong ethical foundation behind all processes of the entity. This helps to cope with the challenges that are present in the operation.

2. Figure Overview of safety & security measures of the employment

The support of the employees, and their adherence to the highest ethical standards are required for instance to identify and address external cyber-attacks, identify and escalate cases of any misconduct, f.i.: money laundering cases. To enforce this aims strong company programs are necessary in form of e-learning, online and face to face trainings. Certification and recertification of training programs, tailored tests, and case studies help to deepen the knowledge and the readiness to response to potential threats.

This corporate learning is not a one-off exercise; the raising of awareness on an ongoing basis is essential to build and maintain the compliance culture. Leaders are role models to follow and their commitment is essential.

Beyond the roles of the policies and the procedures that concern the employees, the role of human controlling calls for attention as well.

Out of the production factors the human factor plays a vital role which is true for mostly mechanized and automated production processes as well. There is close relation between the HR function and function of HR controlling. [21]

HR controlling uses performance indicators, scorecards to monitor employee performance. The controlling function strengthens the safety and security framework of the organization.

The role of performance management in the safety and security context is essential; this starts from the fundamental values: ethics, commitment, trust and competency to deliver value for the entity.

To have the performance management system well implemented, the set standard should be followed by all the participants of the process and allow quality measurement, honest conversations and capture the lessons learnt. When the performance management process is not followed properly and that is considered as a ticking the box exercise, the added value of the process is lost and this can be also demotivating on the long term.

Duly planned Performance management procedures capture not only the top down evaluation approach but consider bottom up evaluation as well that adds specific value to the organization and help to accomplish strategic objectives. Using solely top down approach may result in bias in the evaluation process as this fail to consider the voice of the employees.

More and more companies consider the employees' views important and seek ways to capture that. The so called Pulse survey is a way to capture the perception of employees as well. Companies such as Apple, Airbnb, Microsoft and Amazon are using employee pulse surveys to measure engagement levels amongst their teams. [22]

"Companies with highly engaged work forces outperform their peers by 147% in earnings per share." [23]

It is perceived that these surveys help to promote positive employee engagement. Improved employee engagement is marked as repeatedly benefit of these surveys and research has shown it has huge organization benefits: more productive employees, less time off, happier customers, higher level performance and passion that can lead to innovative ideas.

Of course the survey has to be duly planned and the results of the survey have to be turned to sound actions so that the desired benefits can be achieved. [22]

Overall these benefits of the long term commitment of the employees strengthen the stability and as thus the safety and security of the company which is a solid basis for long-term endurance on the competitive market.

VI. SUMMARY

The foundation of the house ensures its stability. The same applies for the integrity of an organization. In the era of industry 4.0 the challenges of the digital ecosystem rearrange the playfield of companies and the most innovative companies tend to gain competitive advantage. The internal processes of these innovative companies are transformed to keep pace with the changes.

Human resources management has a core role in the era of artificial intelligence as well. The digital transformation drives HR to new direction: the classical and administrative HR jobs are replaced by supportive and strategic functional objectives that focus on human, motivation and employer branding. Artificial intelligence, Big data, social media became part of the day-to-day HR management but the new security threats are required to be managed for a successful operation.

New phenomenon in the HR is the shift in activities, some elements of the recruitment process are automated and at the same time resources can be reallocated to other value-added activities. Personal connections will continue to have core role in this function but innovative technical solutions create new landscape in the processes of HR.

Adequate safety and security measures in the HR process are the building blocks of stable operation. Adherence to the ethical values and commitment to the code of conduct are values always essential. Human controlling and performance management promote the strategic objectives with their tools. Human drive is essential in the era of artificial intelligence.

REFERENCES

[1.] Nagy, J.: The definition, components of Industry 4.0 and its impact on the value chain (Retrieved from: Az ipar 4.0 fogalma, összetevői és hatása az értéklánc ra); Occasional Paper Nr. 167.; HU ISSN 1786-3031, 2017. November, Corvinus University of Budapest, Institute of Business Economics; pp. 4-14; [online]; Available at: http://unipub.lib.uni-corvinus.hu/3115/1/Nagy_167.pdf (downloaded: 25.02.2020)

[2.] Nyikes, Z. Rajnai, Z.: Big Data, As Part of the Critical Infrastructure SISY 2015 • IEEE 13th International Symposium on Intelligent Systems and Informatics • September 17–19, 2015, Subotica, Serbia; pp. 1-4; [online]; Available at: https://www.researchgate.net/publication/308730036_Big_data_as_part_of_the_critical_infrastructure (downloaded: 03.03.2020)

[3.] Sebényová, G.: 7-argument for our data science training (Retrieved from: 7-érv-data-science-kepzesunk-mellett); [online]; Available at: https://kurtakademia.hu/blog/7-erv-data-science-kepzesunk-mellett/ (downloaded: 03.03.2020)

[4.] Michelberger, P.: Information-, process- and enterprise safety (Retrieved from: Információ-, folyamat- és vállalatbiztonság), Óbuda University Keleti Károly Faculty of Economics ÓE-KGK-4086, Budapest, 2018, p. 81

[5.] Kürt Academy: HR 4.0. Course; [online]; Available at: https://kurtakademia.hu/kepzeseink/hr-40/ (downloaded: 25.02.2020)

[6.] Francsovics, A.; Kemendi, A.; Piukovics, A.: Controlling as a Management Function In: Szikora, Péter; Fehér-Polgár, Pál (eds.) 17th International Conference on Management, Enterprise, Benchmarking. Proceedings (MEB 2019) Budapest, Magyarország, Keleti Károly Faculty of Business and Management, Óbuda University, (2019), p. 35

[7.] The new age: artificial intelligence for human resource opportunities and functions EY paper; pp. 1-6; [online] ; Available at: https://www.ey.com/Publication/vwLUAssets/EY-the-new-age-artificial-intelligence-for-human-resource-opportunities-and-functions/$FILE/EY-the-new-age-artificial-intelligence-for-human-resource-opportunities-and-functions.pdf (downloaded: 15.02.2020)

[8.] Kiss, F.: The Holy Grail of human resources has been found, Robot in the chair of the HR manager (Retrieved from: Megvan a humánerőforrás Szent Grálja, Robot a HR menedzser székében), IT-BUSINESS, [online]; Available at: https://www.itbusiness.hu/human/behaviour/work/Robot_a_HR-menedzser_szekeben (downloaded: 15.02.2020)

[9.] Schwieters, N.: Trust_ Ten digital trust challenges_ PwC; [online]; Available at: https://www.pwc.com/gx/en/issues/trust/ten-digital-trust-challenges.html (downloaded: 01.03.2020)

[10.] Nordic HR Study 2017 HR's view on future organizational challenges and opportunities EY paper, pp. 11-16; [online]; Available at: https://www.ey.com/Publication/vwLUAssets/Nordic_HR_Survey/$FILE/B18001_Nordic%20HR%20Survey_final_SWEDEN_new.pdf (downloaded: 15.02.2020)

[11.] Britannica Online Encyclopedia: Alan Turing; [online]; Available at: https://www.britannica.com/biography/Alan-Turing (downloaded: 27.02.2020)

[12.] Professor John McCarthy, Welcome to John McCarthy's (Sept 4, 1927 - Oct 24, 2011) new website. Contributions and Impact; [online]; Available at: http://jmc.stanford.edu/index.html; http://jmc.stanford.edu/contributions/index.html (downloaded: 27.02.2020)

[13.] Britannica Online Encyclopedia: Cognitive science; [online]; Available at: https://www.britannica.com/science/cognitive-science (downloaded: 27.02.2020)
[14.] A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence, J. McCarthy, Dartmouth College, M. L. Minsky, Harvard University, N. Rochester, I.B.M. Corporation, C.E. Shannon, Bell Telephone Laboratories August 31, 1955; [online]; Available at: http://www-formal.stanford.edu/jmc/history/dartmouth/dartmouth.html (downloaded: 27.02.2020)
[15.] Britannica Online Encyclopedia: Marvin Minsky; [online]; available at: https://www.britannica.com/biography/Marvin-Lee-Minsky (downloaded: 27.02.2020)
[16.] Ng, Andrew: Artificial Intelligence is the New Electricity, Stanford Graduate School of Business, 2 Feb 2017; [online];Available at: https://www.youtube.com/watch?v=21EiKfQYZXc
[17.] 2016 Global Industry 4.0 Survey, PwC, Industry 4.0: Building the digital enterprise, p. 20; [online]; Available at: https://www.pwc.com/gx/en/industries/industries-4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016.pdf (downloaded: 25.02.2020)
[18.] Berek, L.: Safety technology (Retrieved from: Biztonságtechnika), National University of Public Service, Budapest, 2014, p. 4; [online]; Available at: http://real.mtak.hu/19709/1/biztonsagtechnika.original.pdf (downloaded: 25.02.2020)
[19.] Horváth, Zs. L.: Protection of the critical infrastructure (Retrieved from: A kritikus infrastruktúra védelem), Óbudai University, Kandó Kálmán Faculty of Electrical Engineering, Institute of Instrument technology and Automation, Information security notes (V.01. / 2015-04-06), pp. 56-57.
[20.] Summary of the legal framework: Health and safety at work (Retrieved from: Jogszabályi keretek összefoglalása A munkavédelemről); p. 1; [online]; Available at: http://www.neak.gov.hu/data/cms1012223/Jogi_osszefoglalo_Munkavedelem.pdf (downloaded: 25.02.2020)
[21.] Francsovics, A.: Management accounting and controlling (Retrieved from: Vezetői számvitel és controlling), Óbuda University, Budapest 2011, electronic notes, pp. 125-152.
[22.] Everything You Need to Know about Employee Pulse Surveys; [online]; Available at: https://inside.6q.io/everything-you-need-to-know-about-employee-pulse-surveys/ (downloaded 24.02.2020)
[23.] A Complete Guide to Staff Pulse Surveys; [online]; Available at: https://peoplepulse.com/resources/useful-articles/complete-guide-staff-pulse-surveys/ (downloaded: 25.02.2020)
[24.] Michelberger, P., & Kemendi, Á. (2020). DATA, INFORMATION AND IT SECURITY - SOFTWARE SUPPORT FOR SECURITY ACTIVITIES. Problems of Management in the 21st Century, 15(2), #108-#124. https://doi.org/10.33225/pmc/20.15.108, ,http://www.scientiasocialis.lt/pmc/files/pdf/108-124.Michelberger_Vol.15-2_pmc.pdf
[25.] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32016R0679 (downloaded 22.02.2021)