XI MEĐUNARODNI SIMPOZIJUM
INŽENJERSKI MENADŽMENT I KONKURENTNOST
EMC 2021

EMC2021

11th International Symposium
"Engineering Management and
Competitiveness" 2021

UNIVERZITET U NOVOM SADU
TEHNIČKI FAKULTET "MIHAJLO PUPIN"
ZRENJANIN

University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia

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XI International Symposium

ENGINEERING MANAGEMENT AND COMPETITIVENESS

(EMC 2021)

Proceedings

18-19th June 2021, Zrenjanin, Serbia

Organizer of the Symposium:
University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia

Partners:
Szent István University, Faculty of Economics and Social Sciences, Gödöllő, Hungary
Voronezh State University, Faculty of Economics, Voronezh, Russia
University of Montenegro, Maritime Faculty, Kotor, Montenegro

Publisher: University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Đure Đakovića bb, 23000 Zrenjanin

For publisher: Dragica Radosav, Ph.D, Professor, Dean of Technical faculty

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ISBN: 978-86-7672-345-4

CIP - Каталогизација у публикацији
БиблиотекеМатицесрпске, НовиСад

62:005(082)(0.034.2)

INTERNATIONAL Symposium Engineering Management and Competitiveness (11; 2021; Zrenjanin)
Proceedings [Elektronskiizvor] / XI International Symposium Engineering Management and Competitiveness (EMC 2021), 18-19th June 2021, Zrenjanin; [organizer] Technical Faculty "Mihajlo Pupin", Zrenjanin. - Zrenjanin: Technical Faculty "Mihajlo Pupin", 2021

Način pristupa (URL): http://www.tfzr.rs/emc. - Opis zasnovan na stanju na dan 10.6.2021. - Nasl. sa naslovnog ekrana. - Str. V: Introduction / Dragan Ćoćkalo. – Bibliografija uz svaki rad. - Registar.

ISBN 978-86-7672-345-4

a) Инжењерскименаџмент – Зборници

COBISS.SR-ID 40559881

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INTRODUCTION

Department of Management and Technical faculty "Mihajlo Pupin" from Zrenjanin have started the organization of International Symposium Engineering Management and Competitiveness (EMC) in 2011. Since 2013 the organization of the EMC symposium has been supported by the following foreign partners: Szent István University, Faculty of Economics and Social Sciences, Gödöllő, Hungary, Voronezh State University, Faculty of Economics, Voronezh, Russia and University of Montenegro, Maritime Faculty, Kotor, Montenegro.

The objectives of the Symposium EMC are: presentation of current knowledge and the exchange of experiences from the field of Engineering management, consideration of development tendencies and trends in Serbia and the world as well, gathering researchers from this field with the aim of expanding regional and international cooperation, raising the level of professional and scientific work at Technical faculty "Mihajlo Pupin" from Zrenjanin, expanding cooperation with economic and educational institutions and encouraging young researchers within this field. Taking into account that this Symposium is international, the importance of this event is obvious for the town of Zrenjanin, Banat region, Vojvodina and Serbia. Organization of EMC by the Technical faculty "Mihajlo Pupin" from Zrenjanin represents this scientific-educational institution as one of the major representatives of economic and social development in Banat.

Within this Proceedings all accepted papers received for XI International Symposium Engineering Management and Competitiveness (EMC 2021) are presented. This year at the symposium we have 41 papers and 2 abstracts. The authors come from 11 countries: Bosnia and Herzegovina, Croatia, Greece, Hungary, Iran, North Macedonia, Russia, Slovenia, Slovakia, USA and Serbia. The papers are divided into five sessions: Plenary session, Session A: Management and operation management, Session B: Human resource management, Session C: Marketing management, Session D: Economy, Session E: Abstracts.

We wish to thank the Technical faculty "Mihajlo Pupin" from Zrenjanin and the dean Prof. Ph.D Dragica Radosav for their active role concerning the organization of the Symposium. We are also expressing our gratitude to all authors who have contributed with their papers to the organization of our tenth Symposium EMC.

The EMC Symposiums become a traditional meeting of researchers in June, every year. We are open and thankful for all useful suggestions which could contribute that the next International Symposium Engineering Management and Competitiveness become better in an organizational and program sense.

President of the Programming Committee
Professor Dragan Ćoćkalo, Ph.D.

Zrenjanin, June 2021.

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XI International Symposium Engineering Management and Competitiveness 2021 (EMC 2021)
18-19th June, Zrenjanin, Serbia

Plenary session

Papers (pp. 3-44):

FUZZY HOSPITAL MANAGER SELECTION

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ABSTRACT

Many researchers are investigating the use of multi-criteria decision analysis (MCDA) in decision making in the health care field. Hospital management should have adequate strategic ability to co-ordinate with the dynamic setting. Selection of management as a significant concern is extremely difficult in hospital and Decision Making methods will help one accomplish that purpose. This research provides an approach for the selection of hospital managers, using Fuzzy linguistic assessment. The criteria applicable to the selection of hospital managers were elicited using Delphi method and used to construct a Fuzzy decision-making model. The model was tested on a case study in Mashhad, Iran and it has been proved feasible in applications in the real world. This approach also helps decision-makers to better consider the dynamic relationships of the related attributes in selection problems for hospital managers, which can then boost the decision's acceptability.

Keywords: Hospital managers competencies, Hospital manager selection, Human resource management, Decision-making, Fuzzy linguistic decision making.

INTRODUCTION

Hospitals are complex institutions where good and efficient management is needed. Such organizations' success depends on the manager's efficiency. Managers play an significant role in allocating resources, enhancing the quality of services and eventually cultivating organizational success (Stefl, & Bontempo, 2008). In the case of health care entities concerned with human lives the problem becomes more prominent. The position of hospital managers is distinct from that of other organizations and industries' managers. Both need related skills and know-how in management and organizational growth (Shewchuk et al., 2005). The required assessment of managers therefore plays a crucial role in properly managing resources and promoting health (Pillay, 2008, 2010). Managers at all management levels should have a comprehensive collection of skills and competencies that allow them to deal effectively with those forces that reflect an organization's opportunities and threats (Stefl, & Bontempo, 2008). The challenge is that middle managers manage organizations and are required to have specific management skills, particularly in this competitive market at the moment. Management of health-care entities is a very complex job in theory and practice. This is also important because the staff, services and costly equipment are diverse. Competition in the health sector is based on health care policies due to globalization and superior technology. The efficacy of health care organizations is directly associated with the efficiency of decisions of managers in this section. Latest studies have shown that administrators play an important role in supporting health care programs. The health science community should strive to define and classify the skills required for managers, in particular hospital managers (Herd et al., 2016). Research findings show that management abilities, expertise and skills are required for potential success as an administrator of health care systems (Griffith et al., 2001). Although the existence of an effective and efficient evaluation system is crucial to the identification of managers 'skills and future capabilities, unfortunately, no structured and comprehensive evaluation system has been implemented to evaluate hospital managers' candidates

using rapid, informal and non-objective evaluation methods, will lead assessors to conduct subjective evaluations (Dadgar et al., 2012).

In the related literature some MCDM techniques were used in this method. The MCDM approach uses a score or utility factor that is calculated for each candidate by the decision-makers. In every multi-criteria selection problem one of the initial steps is to define the selection criteria. Insight into the related literatures shows that the majority of the studies examined do not have a standardized framework for selecting parameters. A proper criteria selection method is the building block for successful selection model. On the other hand, individuals tend to express their feelings in most of the situations through verbal phrasing. Fuzzy linguistic assessment can be used in qualitative assessments when decision makers are either unable or unable to represent their interests in the form of quantitative evaluations. Linguistic variables (Siler, & Buckley, 2005) are represented in terms of words or sentences (not numbers) in fuzzy linguistic assessment. Communication ability, for example, is a quality that can be used as a linguistic attribute. Some of the gaps existing in the literature will be addressed through this study:

- The use of fuzzy linguistic variables to perform assessments would inevitably increase decision-making efficiency by reducing the error in utility values.
- In most of the studies examined, community decision-making (GDM), which is a very important element in the systematic problem solving, was not considered. Approaches consisting of one single decision-maker (DM) cannot meet any multi-criteria decision making. The selection of hospital managers is one of the most important aspects in human resource planning; thus, decisions that are more rational will be made by a group of people rather than by a single person.

The goal of this study was to implement a systematic decision process for selecting the best candidates for hospital manager. Our goal is to demonstrate the application of Fuzzy group linguistic decision making to find the best hospital manager.

PRELIMINARIES

Application of MCDA in health care

A lot of research has recently been conducted to examine the applicability and practicability of MCDA methods. Owing to the variety of methods and implementations, MCDA is gaining prompt popularity in healthcare (Glaize et al., 2019; Hansen, & Devlin, 2019; Mühlbacher, & Kaczynski, 2016). The decision-making in health care does not vary conceptually from the decision-making in other sectors. The biggest difference in health care is that health is a priceless and irreplaceable commodity. This particular aspect makes health care decision-makers find it harder to make the right decisions. During the last decades , interest in MCDA has grown in health care (Diaby et al., 2013). MCDA is an extension of decision theory that supports decision-makers who have several goals by breaking down the aims of the decision into criteria. These criteria are assigned a weight of numerical value, and alternative decisions such as medications or therapies are rated on each of the criteria. Then the parameters weights and performance scores are aggregated into an average ranking, used to rank the alternative treatments (Broekhuizen et al., 2015). MCDA applications in healthcare settings have spread to different areas including health resource allocation (Earnshaw, & Dennett, 2003), health policy (Epstein et al., 2007), medical assessment (Oddoye et al., 2007), medical decision (Liberatore, & Nydick, 2008), regional resource (Wilson, & Gibberd, 1990), medical equipment management (Ivlev et al., 2014), resource allocation (Flessa, 2003), surgical case (Cardoen et al., 2009), and surgical waiting lines (Arenas et al., 2002).

The MCDA has seen use in human resource planning at hospitals and in the selection of resident doctors. Kwak et al. (1997) established an AHP human resource planning model for hospital laboratory personnel. Weingarten et al. (1997) discussed an AHP approach for the selection of 5-year general surgery residents. In a similar study, Hemaida and Kalb (2001) applied the AHP for selecting

first-year family practice residents at a Midwest medical center. Chan (2006) applied the AHP to hospital scorecards in performance assessment. The goal of this paper was to analyze the importance of a balanced scorecard in the management of healthcare organizations and to define a system of analytical hierarchy that could be used to assess scorecards of departments and programs within healthcare organizations and the performance of healthcare organizations as a whole. Liao et al. (2009) described the use of ANP in Taiwanese hospital public relations personnel selection process. Serkani et al. (2013) presented the application of AHP to select a project within the field of health care in Iran.

Hospital Managers Competencies

It is well established that management skills are essential in monitoring and enhancing the performance of organizational leaders and managers. Studies indicate that a lack of adequate management and management capacity in the organization of health care leads to targets not being accomplished in the health sector. Hence, all attempts to strengthen the execution of health sector policies have not been implemented or slowly pursued (Mokhtar, 2017). Another study showed that we can make use of adaptable and agile managers and effective leaders to overcome the emerging health care sector challenges. The use of successful managers in this process would therefore avoid resource wastage and increase productivity (Malmoon et al., 2020). Different approaches were used to define and build competency frameworks or models for healthcare managers worldwide to address various contextual needs (Liang et al., 2018). Practitioners and scholars believe that management skills are useful for tracking and optimizing the performance of organizational leaders and managers, with useful application in healthcare (Stefl, & Bontempo, 2008). Different studies have been carried out around the world to determine the competencies required by hospital managers (Stefl, 2003). Pillay described a list of competencies in hospital management in six categories. These apply to skills related to patients , healthcare delivery, self-management, task-based skills, strategic management and future healthcare management program (Pillay, 2008). MacKinnon et al. (2004) classified these competencies in 9 categorized include Leadership, Communication, Lifelong Learning, Consumer/Community Responsiveness and Public Relations, Political and Health Environment Awareness, Conceptual Skills, Results Management, Resource Management and Compliance to Standards.

Linguistic Evaluation Approach

"The fuzzy linguistic approach represents qualitative aspects as linguistic values by means of linguistic variables" (Zadeh, 1975). Linguistic variable is a variable that contains values that are words. These amounts are expressed in the form of expressions. In other words, variables that are not numbers and its value are words and phrases. For example, "Height" is a linguistic variable that can include values such as very low, low, medium, high, very high, etc. Fuzzy numbers (Zadeh, 1965) can be used to display linguistic variables. It is suitable to represent the degree of subjective judgment in qualitative aspect by using linguistic variables than in crisp value by using numbers. In conditions where decision problems are very complicated or not clearly explained to be described appropriately, the concept of a linguistic variable is very useful by using conventional quantitative expressions (Herrera et al., 2009). One of the most useful representation is membership function. Also, depending the nature or shape of membership function a fuzzy number can be classified in different ways, such as triangular fuzzy number (TFN), trapezoidal fuzzy numbered. Triangular fuzzy numbers (TFNs) are frequently used in applications.

FINDINGS

The healthcare organization of the study is a public hospital located in Iran, Mashhad. Imam Reza Hospital is the largest center among referral centers in Mashhad. Its construction was initiated in 1928. It was inaugurated in 1934 under the name of Shahreza. In the beginning, it had only 100 beds and departments including Internal Medicine, Surgery, Ophthalmology, Pediatrics, Infectious Diseases, Maternity, General Clinic, Laboratory, Radiology, Dentistry, Animal Autopsy and other associated

sections. In 1934, the department of Otolaryngology started working and the numbers of beds were increased to 250 until 1948 and 1949. In 1962, the late Dr. Bool Ven was the head professor for surgery ward. This Sympathetic Belgium Doctor has been practicing his knowledge for years with compassion. In those years, 45 doctors were involved. One Dentist, Six Chemists, 18 Medical Assistant, 270 nurses and 5 midwives were responsible for all medical affairs. In 1975, Astan Quds Razavi preceded a ninety- year entrustment protocol according to which the hospital was transferred and directed by supervision of Ferdowsi University. Afterwards, the hospital started to act as a center for medical education. According to some recorded information, the number of beds had been increased to 363 by that time. The great Islamic revolution of Iran caused to change its name from Shahreza to Holly's name of Emam Reza. The Delphi rounds carried out to identify skills of hospital managers working for MUMS under the Ministry of Health in Mashhad, Iran. The proposed linguistic evaluation model applied within MUMS in Mashhad, Iran. MUMS has to select a hospital manager or a rank of hospital manager candidates. After preliminary screening, three persons, P1, P2 and P3, remain for further evaluation. At this stage, the following steps were taken:

Step 1: A group of three-decision maker was chosen to form a decision group. Then these decision makers were asked to specify the hospital manager selection criteria hierarchy. The respondents were all among the managers with relevant knowledge and more than five years of experience in MUMS. A hierarchy constructed in accordance with the criteria and factors.
Step 2: In order to determine which candidate is best for the hospital manager position from candidates, three decision makers invited.
Step 3: The weights assigned by the three decision makers.
Step 4: Each decision maker uses the linguistic variables to determine the rating of each candidate with respect to each criterion.
Step 5: Linguistic weightings resulted from step 3, converted to the fuzzy weightings.
Step 6: The linguistic evaluations converted into triangular fuzzy numbers.
Step 7: Aggregated fuzzy weights of all criteria and sub criteria were calculated and shown in Table 1. For example, fuzzy weighting number of item C11 computed as:

$$\tilde{W}_{11} = \frac{1}{3}\{(0.5,0.75,1)\oplus(0.75,1,1)\oplus(0.5,0.75,1)\} = (0.58,0.83,1)$$

Table 1: Importance weights of criteria and sub criteria

Criteria/Sub Criteria	Decision makers			Aggregate fuzzy weights
	D_1	D_2	D_3	
C_1	VI	VI	I	(0.67, 0.92, 1.00)
C_{11}: Conflict Resolution	I	VI	I	(0.58, 0.83, 1.00)
C_{12}: Decision-Making	F	VI	VI	(0.58, 0.83, 0.93)
C_{13}: Perspective	I	I	I	(0.50, 0.75, 1.00)
C_{14}: Problem solving	VI	I	VI	(0.67, 0.92, 1.00)
C_2	I	I	VI	(0.58, 0.83, 1.00)
C_{21}: Discipline	I	I	I	(0.50, 0.75, 1.00)
C_{22}: Staffing Strategies	F	I	I	(0.42, 0.67, 0.92)
C_{23}: Practice Standards	I	VI	VI	(0.67, 0.92, 1.00)
C_{24}: Information systems	VI	I	I	(0.58, 0.83, 1.00)
C_3	F	VI	I	(0.50, 0.75, 0.92)
C_{31}: Communication	I	VI	VI	(0.67, 0.92, 1.00)
C_{32}: Involvement	VI	F	F	(0.42, 0.67, 0.83)
C_{33}: Productivity measures	F	I	I	(0.42, 0.67, 0.92)
C_4	I	F	F	(0.33, 0.58, 0.83)
C_{41}: Equanimity	VI	F	F	(0.42, 0.67, 0.83)
C_{42}: Ethical principals	VI	I	VI	(0.67, 0.92, 1.00)
C_{43}: Optimism	I	I	I	(0.50, 0.75, 1.00)

Step 8: Aggregate fuzzy ratings was calculated and shown in Table 2. For example, fuzzy evaluation value of item C11 with respect to candidate P1 computed as:

$$\tilde{X}_{11} = \frac{1}{3}\{(0.75,1,1) \oplus (0.25,0.5,0.75) \oplus (0.75,1,1)\} = (0.58,0.83,0.92)$$

Table 2: Linguistic ratings of candidate P1

Criteria/Sub Criteria	Decision makers			Aggregated fuzzy ratings
	D_1	D_2	D_3	
C_1				
C_{11}	VG	F	VG	(0.58, 0.83, 0.92)
C_{12}	F	G	F	(0.33, 0.58, 0.83)
C_{13}	VG	G	G	(0.58, 0.83, 1.00)
C_{14}	F	VG	G	(0.50, 0.75, 0.92)
C_2				
C_{21}	G	F	P	(0.25, 0.50, 0.75)
C_{22}	F	VG	F	(0.42, 0.67, 0.83)
C_{23}	F	F	G	(0.33, 0.58, 0.83)
C_{24}	G	G	F	(0.42, 0.67, 0.92)
C_3				
C_{31}	VG	G	G	(0.58, 0.83, 1.00)
C_{32}	G	G	F	(0.42, 0.67, 0.92)
C_{33}	VG	VG	G	(0.67, 0.92, 1.00)
C_4				
C_{41}	G	F	G	(0.42, 0.67, 0.92)
C_{42}	VG	G	VG	(0.67, 0.92, 1.00)
C_{43}	F	F	G	(0.33, 0.58, 0.83)

Step 9: The transformation values of fuzzy weights of all criteria and factors are computed. The transformation values of fuzzy weights of all criteria and factors are computed as shown in Table 3. The utility values of fuzzy linguistic approach of all candidates are computed as shown in Table 3. Finally, based on the results of the fuzzy evaluation method, the utility values of each candidates P_1, P_2 and P_3 found to be 0.348, 0.304 and 0.383 respectively. The ranking order of the three alternatives is $P_3 > P_1 > P_2$.

Table 3: Crisp values of fuzzy weighting and fuzzy ratings

Criteria/Sub Criteria	Weight	Transformation values of fuzzy ratings		
		P_1	P_2	P_3
C_1	0.815			
C_{11}	0.761	0.750	0.695	0.750
C_{12}	0.750	0.571	0.500	0.865
C_{13}	0.707	0.761	0.359	0.815
C_{14}	0.820	0.695	0.641	0.695
C_2	0.761			
C_{21}	0.707	0.500	0.761	0.761
C_{22}	0.641	0.623	0.571	0.865
C_{23}	0.815	0.571	0.500	0.695
C_{24}	0.761	0.641	0.429	0.571
C_3	0.695			
C_{31}	0.815	0.761	0.761	0.761
C_{32}	0.623	0.641	0.707	0.865
C_{33}	0.641	0.815	0.641	0.815
C_4	0.571			
$_{41}$	0.623	0.641	0.641	0.641
C_{42}	0.815	0.815	0.571	0.707
C_{43}	0.707	0.571	0.429	0.571

CONCLUSION

The major contribution of this paper lies in the development of a comprehensive methodology, which incorporates diversified issues for the selection of a hospital manager. This study clearly demonstrated that hospital manager selection process could be improved in several ways by implementing the fuzzy linguistic evaluation, group decision making, and Delphi method. The proposed methodology was applied to a large Iranian hospital as a case study, and the results are found to be satisfactory. The development of a fuzzy expert system as a decision support system to solve the problem of selecting hospital managers in medical sectors will be a research opportunity in the future.

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RANKING OF THE FACTORS AFFECTING THE TOTAL PRODUCTIVE MAINTENANCE IN PARS ALUMAN KAR COMPANY

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ABSTRACT

Total productive maintenance system is one of the most important issues in designing a stable and productive structure in industry. Therefore, having an efficient system in this case is very essential. So, the purpose of this paper is to improve the maintenance process by identifying the effective factors in implementing total productive maintenance. This research have been conducted in three dimensions: managerial, operational and personnel. In this paper, the effective factors have been weighted and prioritized by Analytical Hierarchy Process (AHP). The method has been used in a case study and the result and data have been evaluated.

Keywords: Total productive maintenance, Analytical Hierarchy Process, TPM Factors.

INTRODUCTION

Designing and deploying maintenance systems is one of the most pressing and vital issues in today's industry. Maintaining the capital and reduce the cost of the machinery and equipment in the organizations, requires rational, planned, timely maintenance and repair of the machinery and equipment to use. The strengths and weaknesses of this sector directly affected on the productivity and profitability of production as well as the reliability of industrial services (Mohammadi, 2007). Today, the advanced industrial countries in terms of maintenance and repair systems are pursuing the goals of total productive maintenance system. The countless benefits of implementing this maintenance system may encourage any production unit at any level of facilities and technology to implement and execute it (Tabriz et al., 2009).

Decision making models are divided into two categories: multi-objective decision making models and multi-attribute decision making models. Multi-objective decision making models are used for design problems, while multi attribute decision making models are used to select the best alternative (Asgharpour, 1992). Hwong and Yoon describe multiple decisions making as follows: multiple decision making is applied to preferable decisions (such as assessment, making priority and choice) between available classified alternatives by multiple attribute (and usually opposite) (Hwang et al., 1995). MADM methods are classified as to following groups:

- Compensatory methods: If a production has high expenditure but good quality, in this case high expenditure is compensated by high quality. These models are: ELECTRE, MDS, MRS, TOPSIS, SAW, LINEAR ASSIGNMENT and etc.
- Non compensatory methods: When the attributes are separated e.g. for taking driving license tree non compensative important factors are brought up. These are: normal eye test, driving rule test and practical driving examination, which one's strength in one of the tests doesn't compensate the others. These models are: DOMINANCE, LEXICOGRAPH, ELIMINATION, PERMUTATION and etc. (Korhonen et al., 1992).

Every MADM problem has some attributes that should be recognize in problem by decision maker in due courses. All MADM methods require information that should be gained based on relative importance of the attribute. This information usually has serial or main scale. Attribute weights can be allocated to criteria directly by decision maker group or by scientific methods. These weights specify relative importance of every attribute (Anisseh et al., 2007). The Analytic Hierarchy Process (AHP) is a decision- aiding method developed by Saaty in 1970th. It aims at quantifying relative priorities for a given set of alternatives on a ratio scale, based on the judgment of the decision-maker, and the stresses the importance of the intuitive judgments of a decision-maker as well as the consistency of the comparison of alternatives in the decision-making process (Saaty, 1990).The strength of this approach is that it organizes tangible and intangible factors in a systematic way, and provides a structured yet relatively simple solution to the decision-making problems (Skibniewski et al., 1992). Below we give enough of the general approach to enable the reader to follow the paper with ease.

METHODOLOGY

The method procedure could be presented as following steps:

Step 1: Identify the evaluation criteria that connected to system goals

Step 2: (structuring the hierarchy). Group related components and arrange them into a hierarchical order that reflects functional dependence of one component or a group of components on another. The approach of the AHP involves the structuring of any complex problem into different hierarchy levels with a view to accomplishing the stated objective of a problem.

Step 3: (performing paired comparisons between elements/decision alternatives). Construct a matrix of pair wise comparisons of elements where the entries indicate the strengths with which one element dominates another using a method for scaling of weights of the elements in each of the hierarchy levels with respect to an element of the next higher level. Use these values to determine the priorities of the elements of the hierarchy reflecting the relative importance among entities at the lowest levels of the hierarchy that enables the accomplishment of the objective of the problem. The scale used for comparisons in AHP enables the decision maker to incorporate experience and knowledge intuitively and indicates how many times an element dominates another with respect to the criterion. The decision maker can express his preference between each pair of elements verbally as equally important, moderately more important, strongly more important, very strongly more important, and extremely more important. These descriptive preferences would then be translated into numerical values 1, 3, 5, 7, 9, respectively, with 2, 4, 6 and 8 as intermediate values for comparisons between two successive qualitative judgments. Reciprocals of these values are used for the corresponding transposed judgments (Saaty, 1990).

RESULTS

This study was performed in PARS ALUMAN KAR COMPANY that manufacturers of aluminum sheets and aluminum coils in Iran.

Step 1: We asked a group of fifth engineers to take part in the study as experts. It should be mentioned that attributes studied by literature review and Delphi method are:

Table 1: Total productive maintenance criteria

Attributes	
Strategic planning	Management support and commitment
Emphasis on technology	Research efforts
Participation of suppliers	Incentive system
Management motivation	Orientation towards the mission
Automatic and scheduled maintenance	Equipment development
Feedback information	Employee participation

Step 2: Structuring the hierarchy

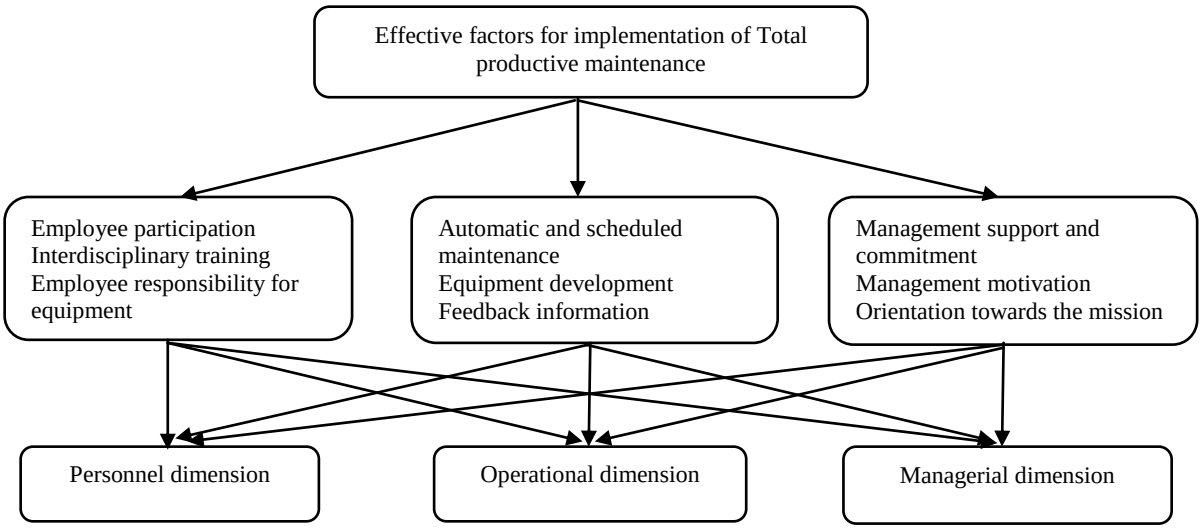

Figure 1: Hierarchy Model

Step 3: Comparisons between decision elements by assigning numerical scores that indicate the priority or importance between the two decision elements by expert of the organizations as followings:

Table 2: Scale of preferences between two elements

Preference weight	Definition	Explanation
1	Equally preferred	Two activities contribute equally to the objective
3	Moderately preferred	Experience and judgment slightly favor one over another
5	Strongly preferred	Experience and judgment strongly favor one over another
7	Very strongly preferred	An activity is strongly favored and its dominance is demonstrated in practice
9	Extremely preferred	The evidence favoring one activity over another is of the highest degree possible of affirmation
2, 4, 6, 8	Intermediate values	Used to represent compromise between the preferences listed above

Table 3: Dimensional paired comparisons

	Operational dimension	Managerial dimension	Personnel dimension
Operational dimension	1	1	3
Managerial dimension	1	1	2
Personnel dimension	0.33	0.5	1

Table 4: Operational dimension paired comparisons

	Automatic and scheduled maintenance	Equipment development	Feedback information
Automatic and scheduled maintenance	1	4	2
Equipment development	0.25	1	0.5
Feedback information	0.5	2	1

Table 5: Managerial dimension paired comparisons

	Management support and commitment	Management motivation	Orientation towards the mission
Management support and commitment	1	5	3
Management motivation	0.2	1	0.33
Orientation towards the mission	0.33	3	1

Table 6: Personnel dimension paired comparisons

	Employee participation	Interdisciplinary training	Employee responsibility for equipment
Employee participation	1	3	1
Interdisciplinary training	0.33	1	0.5
Employee responsibility for equipment	1	2	1

Step 4: The weights were calculated as followings:

Table 7: Normalized dimensional paired comparisons

	Operational dimension	Managerial dimension	Personnel dimension	Alternatives weights
Operational dimension	0.429185	0.4	0.5	0.4431
Managerial dimension	0.429185	0.4	0.3333	0.3875
Personnel dimension	0.141631	0.2	0.1667	0.1694

Table 8: Normalized operational dimension paired comparisons

	Automatic and scheduled maintenance	Equipment development	Feedback information	Weights
Automatic and scheduled maintenance	0.571429	0.5714	0.5714	0.5714
Equipment development	0.142857	0.1429	0.1429	0.1429
Feedback information	0.285714	0.2857	0.2857	0.2857

Table 9: Normalized Managerial dimension paired comparisons

	Management support and commitment	Management motivation	Orientation towards the mission	Weights
Management support and commitment	0.653595	0.5556	0.6928	0.634
Management motivation	0.130719	0.2309	0.0762	0.146
Orientation towards the mission	0.215686	0.3333	0.2309	0.26

Table 10: Normalized Personnel dimension paired comparisons

	Employee participation	Interdisciplinary training	Employee responsibility for equipment	Weights
Employee participation	428571	0.5	0.4	0.4429
Interdisciplinary training	0.142857	0.1667	0.2	0.1698
Employee responsibility for equipment	0.428571	0.8	0.4	0.5429

The results were analyzed based on the analytic hierarchy process (AHP) method, to explore the probable preference of the mentioned attributes in order to give them more importance and emphasis as followings:

Table 11: Final Weights of Effective factors for implementation of Total productive maintenance

Effective factors for implementation of Total productive maintenance	Operational dimension	A_1	0.4431	Automatic and scheduled maintenance	C_1	0.5714
				Equipment development	C_2	0.1429
				Feedback information	C_3	0.2857
	Managerial dimension	A_2	0.3875	Management support and commitment	C_4	0.634
				Management motivation	C_5	0.146
				Orientation towards the mission	C_6	0.26
	Personnel dimension	A_3	0.1694	Employee participation	C_7	0.4429
				Interdisciplinary training	C_8	0.1698
				Employee responsibility for equipment	C_9	0.5429

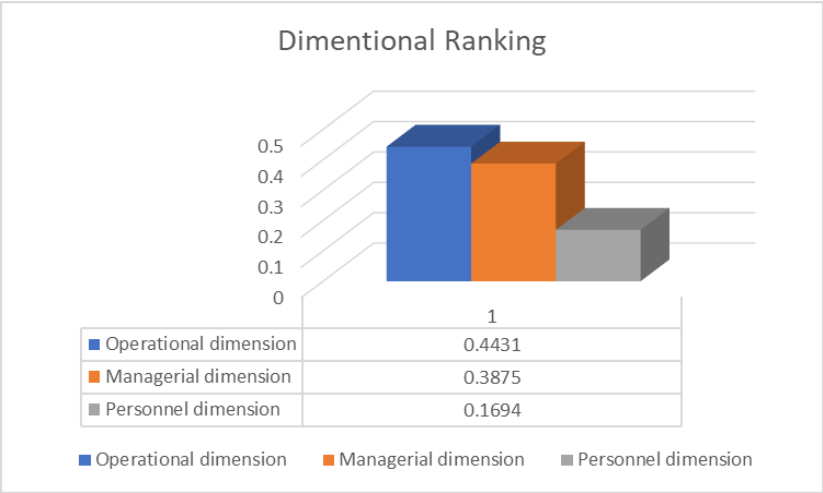

Figure 2: Dimensional Chart

Regarding the Table 11, alternatives were classified. Therefore, the ranking order of three dimensional elements will be as follows: $A_1 > A_2 > A_3$ So, A_1 Operational dimension is the best dimension among the three dimension. As shown in Table 11:

Operational dimension (A_1):	$C_1 > C_3 > C_2$
Managerial dimension (A_2):	$C_4 > C_6 > C_5$
Personnel dimension (A_3):	$C_9 > C_7 > C_8$
Final weights:	$C_4 > C_1 > C_9 > C_7 > C_3 > C_6 > C_8 > C_5 > C_2$

CONCLUSION

The issue of the efficiency and productivity has been raised as the most important matter by industry owners and managers in the word. Regarding the fact that the total productive maintenance is one of the most important of organizational tools to increase efficiency and productivity. Therefore, the implementation of total productive maintenance is important, thus the appropriate factors must be identified in each organization. So, in this paper nine criteria are extracted by Delphi method. The criteria are evaluated by analytic hierarchy process (AHP) method in three dimensions. As a result, operational dimension is the best alternative and Management support and commitment criterion is the most important criterion.

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NEW PARADIGM IN CONDUCTING BUSINESS AFTER THE COVID-19 PANDEMIC

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ABSTRACT

Quality The COVID-19 pandemic has brought tremendous challenges for SMEs and it severely affected the healthcare systems of countries around the world. The economic impact of the pandemic is manifested through mild to deep recession in developing and developed countries. New business models and a new paradigm of conducting business in various industries are an imperative in the post-COVID-19 period. These changes in conducting business affect SMEs and big corporations. Traditional employment structures and traditional business structures are modified. In this paper the goal is to concisely highlight and to discuss the changes in conducting business that the pandemic has brought. In addition, concepts to conducting business in the new business paradigm are analyzed. As studies arise in the domain of COVID-19, healthcare, and economy, it is important to continuously address changes in various settings (industry, country, local communities) in order to develop future strategies for pandemic-like situations, thus reducing its negative impact. The paper offers significant insight into the dynamics of conducting business in the post-COVID-19 era, and provides a solid basis for future research.

Keywords: New business paradigm, COVID-19, Pandemic, Competitiveness, SMEs.

INTRODUCTION

Amidst the COVID-19 pandemic, enterprises, especially, micro, small and medium-sized enterprises (MSMEs) face difficult challenges. The negative effect of the pandemic on economic growth brings uncertainty to existing business structures and business models. The lean approach to manufacturing is backfiring as bottlenecks in supply chains arise. Due to the global impact of the pandemic, and the spider-web-like relations between countries, national economies experience a strong negative impact while spillover from one country to another is inevitable (Fernandes, 2020). In addition to the pandemic, domestic enterprises are already facing challenges due to the globalization of markets and the fourth industrial revolution - Industry 4.0, that brings a new framework of conducting business (Popkova, Ragulina, & Bogoviz, 2019). In such conditions domestic enterprises experience continuous difficulties when it comes to achieving and maintaining a competitive position on the market (Bakator, Đorđević, & Ćoćkalo, 2019). The pandemic has invited measures such as social distancing, quarantine, and non-essential business shutdowns, all of which negatively affect enterprises. In addition, the risk that enterprises won't reopen after the shutdown is high. In the first wave of the epidemic in Serbia, weekend-long curfews were part of prevention measures, and non-essential businesses were closed. The second wave was less intense, while the third wave brought the most cases per day. The fourth wave was less severe compared to the third. Overall, the negative effects and the changes that are brought by the pandemic have re-shaped the way business is conducted, not only

for domestic enterprises but for enterprises in developed countries as well. During, and after the pandemic, fiscal policies and economic relief strategies were introduced in countries across the globe with the goal to reduce economic downturn. The Serbian government has managed to keep the first and second wave of the epidemic at bay, while the third wave has seen an increased number of cases that put a strain on hospital capacities. Overall, it is evident that the COVID-19 pandemic negatively affected the domestic and global economy. Various studies are conducted regarding the health implications as well as the economic implications of the COVID-19 pandemic. The focus of these studies is to better understand the dynamics that such pandemics cause.

In this current paper the impact and challenges of the COVID-19 pandemic are analyzed. More precisely, future business philosophies and new approaches to conducting business are discussed. The goal of the paper is to concisely highlight the changes that will occur in the modern business world. Undoubtedly, a new business paradigm is inevitable. The paper consists of three main sections (excluding the Introduction and Conclusion sections). The first section addresses the impact and challenges of the COVID-19 pandemic. Next, the new ways of conducting business and overall the new approach to conducting business is analyzed. The third section discusses suggestions and guidelines regarding the post-COVID-19 economic period from the aspect of domestic MSMEs. Finally, conclusions are drawn and future research is discussed.

THE IMPACT AND CHALLENGES OF THE COVID-19 PANDEMIC

The COVID-19 pandemic has rocked both large and small economies due to spillover effects, and supply chain disruptions between countries. The intensity and severity of the pandemic varied across countries and time periods. Policies and strategies were introduced in order reduce the negative economic impact. Challenges are present in all industries, but the tourism, transport and other service industries suffered the largest economic shocks. Governments face mild to deep economic recessions, while the overall global economy shrinks. The difference in the economic impact between developed and developing countries varies across economies, and there is no clear correlation between impact severity and country size. Even if there are differences, due to the globalization of markets and interconnectedness of economies the spillover effects are inevitable, thus practically no economy is unscathed. China, the "ground zero" of the epidemic has prepared fiscal packages, and implemented policies regarding tax deduction, subsidies and debt rollovers (Huang, Lin, Wang, & Xu, 2020). The EU implemented large-scale financial assistance to enterprises, while the European Central Bank offered financial support to regional development banks (Ilzetzki, 2020). The United States suffered massive numbers of new cases across the country. The US Congress implemented stimulation packages that included unemployment insurance expansion, handouts, enterprise spending support, and non-refundable or partially-refundable loans for enterprises (Miller, 2020). The IMF had to develop detailed strategies that included policies for liquidity and solvency in three main aspects: financial sector, enterprises, and households (Dell'Ariccia, Mauro, Spilimbergo, & Zettelmeyer, 2020).

In Serbia, the economy has suffered an impact that shrunk the GDP by 3%. The majority of EU countries experienced over 5% reduction of their GDP growth. In the first and second wave, the Serbian government has managed to effectively and adequately implement four categories of measures. These are: tax measures (postponement taxes on salaries and contributions for privates enterprises; tax exemptions for donations; postponement of advance tax payment), direct support for enterprises (flat-rate taxes for SMEs; 50% wage subsidies for every employee in large enterprises), economy liquidity measures (support through funds from the Development of the Republic of Serbia; economy support through banks), and other measures (100 euro handouts for all adult citizens; moratoriums on dividend payments) (Fiskalni Savet 2020). Overall, the pandemic has caused moderate to strong GDP losses across countries. In 2020, the negative impact on GDP has put a large number of economies into recession. The majority of EU countries has experienced a loss of more than 5% of their GDP, while in 2021 the forecast indicates a more positive outlook. In Table 1., GDP growth for 2020 and the forecast for GDP growth in 2021 for several countries are presented.

Table 1: GDP growth for 2020 and GDP growth forecast for 2021

Country	GDP growth in 2020 (%)	GDP growth forecast in 2021 (%)
Serbia	-2.47 **	5.48 **
Croatia	-9 **	6 **
Slovenia	- 7.5 * -6.47 **	4.7 * 5.15 **
North Macedonia	-5.40 **	5.50 **
Bosnia and Hercegovina	-6.50 **	5 **
Montenegro	-11.99 **	5.49 **
Romania	-6.55 * - 4.79 **	4.7 * 4.58 **
Bulgaria	-7.1 * - 3.45 **	2.7 * 4.73 **
Hungary	-8 * -5.91 **	4.6 * 4.11 **
Albania	-7.53 **	6.09 **
Austria	-6.2 * -7.16 **	4 * 4.13 **
Greece	-8 * -9.28 **	4.5 * 4.37 **

(Source:*OECD, 2020; ** IMF, 2020)

Even though the majority of countries experienced moderate to major GDP shrinkage in 2020, according to the OECD and IMF economic forecasts, a moderate to high increase of GDPs can be expected in 2021. As seen in Table 1. for Serbia, the OECD doesn't present data on GDP growth, while the IMF forecasts a 5.48% growth for 2021. These estimations are based on multiple macroeconomic metrics, thus the actual percentage of GDP growth can vary. The Serbian economy has experienced four waves of the COVID-19 pandemic. The first two waves were addressed adequately with lockdowns and curfews. This resulted in with a smaller number of new cases per day. The third wave hit the hardest as thousands of new cases were reported on a daily basis. Overall, the Serbian economy experienced moderate challenges and moderate negative effects.

Furthermore, it is clear and somewhat logical that an increase in GDP growth is expected after a moderate to severe downturn. However, even though national economies will recover, and the overall global economy will "stand on its feet", dynamic changes will and already occur when it comes to conducting business. Namely, as the pandemic shook existing business models and put a lock on a large number of SMEs, uncertainty looms and the workforce as well as enterprises have to adapt to changes in the way business is conducted.

NEW PARADIGM IN CONDUCTING BUSINESS AND CHANGES IN BUSINESS PHILOSOPHY

As noted in the previous section, after the COVID-19 pandemic (and during the pandemic as well) new concepts of how business is conducted emerge. A shift in business philosophy occurs and a new paradigm is evident. There are four main concepts that redefine the way business is conducted and the way employers and employees interact. These are remote work, green collar jobs, the evolution of the gig economy, and automation and workforce AI augmentation (WEF, 2020a).

Remote work: During the COVID19 pandemic large corporations such as Google, Facebook, Siemens, Microsoft etc., have implemented remote-work policies. These policies are long-term strategically oriented or even permanent. It was found that remote workers were more productive compared to on-site working. However, such remote work can increase burnout rates and the feeling of isolation among workers. Additionally, objective monitoring is a challenge for employers, and therefore management faces barriers when trying to implement rewarding systems (Jensen, et al., 2020).

Green collar jobs: Due to the increased rise of ecological awareness and the implemented climate change mitigation policies, heavy job losses in the carbon fueled industries are expected. Now, on the other side there is a rise in the green business economy. Similarly, how digital technology has been implemented into the majority of industries, green technologies, clean technologies and sustainable solutions will also have an increasing presence in a large number of industries. The rising number of green infrastructures and new enterprises based on sustainable technologies provide new workplaces for green collar workers (King, & Shackleton, 2020).

The gig economy: Remote workers and on-demand labor platforms offer a new concept of conducting business. Modern ICTs have opened doors for white collar workers to work remotely and as freelancers. Agility that freelance employees offer to an enterprise can be crucial in dynamic and disruptive market conditions (such as a pandemic). Human resource management activities have to be designed in manner that will optimize between three main gig economy actors. These are intermediary platforms, employee requesters and gig workers/freelancers (Meijerink, & Keegan, 2019).

Automation and workforce AI augmentation: The globalization of markets and the fourth industrial revolution - Industry 4.0 has brought automation to a vast number of manufacturing processes. Workplace reduction is expected as AI machines and robots replace workers. However, augmented reality along with human operators is far more reliable compared to fully AI solutions. Therefore, it can be argued that technology will not necessarily eliminated the need for humans as workers, but it will enhance manufacturing and other processes, making them more productive and more safe and less stressful for the employee. Augmented reality can implement sensors, controllers, detectors and other elements that are present in a virtual reality (VR) environment (Naylor, Morrison, Ridout, & Campbell, 2019). Other changes in business philosophy include the transition from traditional, rigid, board-room structures to more agile, and flexible business formats. As the pandemic affected supply chains, local manufacturing gains on importance. This way, countries can meet their own needs. Innovation cycles should be shorter, and enterprises should focus on innovative ideas. Further, the importance of primary healthcare is emphasized as well as the necessity to reconnect with nature and to focus on sustainable and green initiatives. Sustainable and effective primary healthcare is important for protection from future pandemics. The new paradigm in conducting business also includes a stricter control on financial institutions with the goal to detect and deter financial crime (WEF, 2020b).

Further, in Table 2. the top ten most important employee skills for 2015. and 2020. are presented. This data provides an overview on how conducting business changed and who certain skills have became more important while other became less important. The rankings in Table 2. are indeed surprising given the fact that the changes are only five years apart.

Table 2: Top ten most important employee skills in 2015. and 2020

Rank	Skill ranking in 2015	Skill ranking in 2020
1.	Solving complex problems	Solving complex problems
2.	Coordination with others	Critical thinking
3.	People management	Creativity
4.	Critical thinking	People management
5.	Negotiation	Coordination with others
6.	Quality management	Emotional intelligence
7.	Orientation to services	Assessment and decision making
8.	Assessment and decision making	Conditional orientation
9.	Active listening	Negotiation
10.	Creativity	Cognitive flexibility

(Source: WEF, 2020c)

In sum, it is evident that an array of changes in conducting business arise and are imminent. This indicates that big changes are expected on global markets. These new conditions in the business

environment affect the competitiveness dynamics and enterprises have to adapt and change in order to achieve or maintain their competitive ability (WEF, 2020b).

SUGGESTIONS AND GUIDELIES

It is evident that changes in the business world are eminent. The pandemic has showed how the traditional way of conducting business is vulnerable. Millions of jobs were lost across countries. The negative impact of the pandemic lingers even after the major waves have subside. Based on the analyzed literature and existing data, suggestions and guidelines for domestic enterprises are proposed. The goal of these suggestions is to increase enterprise business performance and overall competitiveness on the international market. The following is suggested:

- SMEs should consider implementing modern ICT in order to increase exposure into other markets.
- Long-term, strategic plans of enterprises should incorporate sustainability as a crucial factor of success. In addition, green initiatives should be taken into consideration.
- Improving employee knowledge and skills in a sustainable manner is an imperative for innovation and development.
- Improvements should exceed minimal requirements of the market. This means that continuous improvements should be conducted in all business processes.
- Remote work and remote work optimization options have to be considered. Developing an agile workforce is key in crisis situations.
- Remote work infrastructure should be placed in large enterprises (and if possible).
- Value creation should remain the core of conducting business. Customer satisfaction is important even in pandemic-like scenarios.
- Freelancing should be encouraged and promoted not only by enterprises, but also by the government. This would open up the economy through flexibility and increased productivity.
- Green technologies and clean-tech should be investigated as viable business models for industries that could benefit from such as sustainable approach.
- Modern ICTs should be implemented for creating and applying knowledge for product and service innovation.
- ICTs bring many benefits and improvements, however, they also bring vulnerability and higher risk from data breaches. Enterprises should provide security for customer data as well as for their own data.
- Local manufacturing could be incentivized, with developed distribution channels.

Domestic enterprises faced difficulties on international markets even before the COVID-19 pandemic. The globalization of markets and conducting business a within the frameworks of Industry 4.0 already brought challenges to Serbian enterprises when it comes to achieving and maintaining a competitive position. Some of the key concepts of improving competitiveness from the aspect of globalization and Industry 4.0 are also applicable and necessary when it comes to the changes brought by the pandemic. Namely, ICTs, sustainability, innovation were required even before the crisis. Effective and stable healthcare, local manufacturing, remote work, and freelance business concepts are additional concepts that are gaining importance.

CONCLUSION

The COVID-19 pandemic affected not only the domestic economy, but the economies of other countries as well. More precisely, the global economy experiences a moderate to severe downturn. Based on the analyzed literature in this domain and after evaluating the available data, it can be concluded that similarly to how COVID-19 brought inevitable negative effects, the implementation of sustainable business models is also inevitable, especially if competitiveness is to be achieved. Therefore, domestic enterprises have to address and try to implement new business models and concepts that characterize the new paradigm of conducting business.

The main limitation of this article is the lack of empirical data from enterprises. However, as the paper aims at providing a concise overview on the new business concepts and new business philosophies, this limitation is not severe. Another limitation is that the literature sources are in English and Serbian, while articles in other languages are not addressed. This has a small probability to create bias. However, the paper focuses on the domestic economy and domestic enterprises, thus such potential bias is not a concern. For future research, additional data could be reviewed and a meta-analysis can be conducted.

ACKNOWLEDGEMENT

This paper was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia As a part of the current project TR-35017.

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A COMPARATIVE STUDY OF THE THEACHER PERCEPTION OF SERVANT LEADER'S AND ORGANIZATIONAL COMMITMENT

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ABSTRACT

This study developed and tested a theory-based comparative research of teacher leading using separate samples obtained from Republic Serbia, and the United States as well as Republic of Croatia. Results revealed a positive relationship between comparative of teacher perception of servant leader's in USA, Serbia and Croatan. Implications for of teacher perception of servant leader's research and practice are discussed. Servant leadership style was measured through OLA scale developed by Laub, J. A. (1999), and job satisfaction was measured through a scale developed by Mohrman, A. M. et. al., (1977) scale. Having established the of the factor structure across the three samples, we then compared the fit of the three-factor structures, to further assess if the results obtained using U.S. sample different results in a Serbian and Croatia sample. We concluded that the model of well-elected efficient the teacher perception of servant leader's. The purpose of this study is to investigate teachers' perceptions about servant leadership organizational commitment. 50 teachers answered the questions asked in USA, Serbia and Croatia. Organizational commitment of teachers and servant leadership perceptions are related to each other. This relationship is positive and low. Our result shows that, to improve employee loyalty, the managers should not only develop their servant leadership style, but also take into consideration the individual needs to improve psychological satisfaction.

Keywords: organizational commitment, servant leadership, teacher, perception.

INTRODUCTION

An interesting example of a normative theory of leadership is servant leadership. Robert K. Greenalf's book, Servant Leadership: A Journey into the Nature of Legitimate Power and Greatness, presents a view of how leaders ought to be. However, the best way to understand servant leadership is to read Journey to the East, by Hermann Hesse (Greenleaf, 1977). Hesse's story is about a spiritual journey to the East. On the journey, a servant named Leo carries the bags and does the travelers' chores. There is something special about Leo. He keeps the group together with his presence and songs. When Leo mysteriously disappears, the group loses their way. Later in the book the main character. Hermann Hesse, (1978) discovers that the servant Leo was actually the leader. The simple but radical shift in emphasis is from followers serving leaders to leaders serving followers. It is a very old normative view of leadership that can be found in ancient Eastern and Western thougt.

Servant leadership has not gotten as much attention as transformational leadershipin the literature, but students and business people often find this a compelling characterization of leadership (THe Greenleaf, K. Robert Centar in Indianapolis). According to Greenleaf, the servant leader leads because he or she wants to serve others. People follow servant leaders freely because they trust them.

Like the transforming leader, the servant elevates people. Greenleaf says servant leadership must pass this test: “Do those served grow as persons? Do they while being served become healthier, wiser, freer, more autonomous, more likely themselves to become servantes?“ He goes on and adds a Rewlsian proviso, „And, what is the effect on the least privileged in society?“ (Greenleaf, 1977) According to Ciulla, Joanne (2004) As normative theories of leadership, both servant leadership and transforming leadership are areas of leadership ethics that are open to ethical analysis and provide a rich foundation of ideas for developing future normative theories of leadership.

To find and understand your role, you must first understand yourself (At the entrance to Delphi on the lion's door it says "Meet yourself"), your passion and motivation that drives you. Then look for an environment that can match your personal purpose with the purpose of the organization. By publishing the essay "Serving as a Leader" in 1970, followed by Greenleaf, "Leadership in Service" (1977), a different paradigm of leadership entered the hearts and minds of people, organizations and societies. Greenleaf, R. (1977) suggested that service should be a recognizable characteristic of leadership. Not only will they create a better, stronger society, but people themselves will "find greater joy in their lives if they have raised the aspect of serving their leadership and built more institutions of service." Greenleaf, R. (1977) is known publicly for the development of the concept of "service management". He clarifies the importance of service and places the ministry as the primary purpose of leadership. Greenleaf, R. (1977) states that if people feel that you are honest in engaging in the service of others, they will follow you fully committed to the common goal.

Sajfert, D. et. al. (2017) The paper presents the results of the study of the influence of the leader's ethical behavior on individual and organizational performance in enterprises in Serbia. Specifically, the study consists of the examination of the (EL) influence on job satisfaction (JS), organizational commitment (OCM). According to Seifert, D. et al (2017) The basic conclusions of the study an organizational commitment gender and age of examiness, of servant leaders to be served performance ratio.

Laub, James, Alan (1999) identified six characteristics of servant leaders:
valuing people (listening respectively, serving the needs of others first and believing in people);

- developing people (providing opportunities for learning, modelling appropriate behaviour and building up others through encouragement);
- building community (building strong relationships, working collaboratively and valuing individual differences);
- displaying authenticity (integrity and trust, openness and accountability, and a willingness to learn from others);
- providing leader ship (envisioning the future, taking the initiative and clarifying goals);
- sharing leader ship (creating a shared vision, sharing decision making power and sharing status and privilege with all levels of the organization).

Sharon L. Drury, (2004) A report on a quantitative study of servant leadership and other organizational constructs is the focus of this paper. Organizational commitment was measured with the Meyer, Allen commitment scales.

According to Mehta Sunita, & Pillaly Rajkmur (2011) The study compared the perceptions of servant leadership of employees at different positions in the organizations. The study also goes on toinvestigate whether servant leadership correlates with desirable leadership outcomes such as job satisfaction by conducting a literature review, conducting a survey, analysis of data and offering recommendations to leaders, managers and also organizations wishing to understand Servant Leadership.

According to Chughati Ali Aamir (2016) This study investigated the mediating role of organizational identification and psychological safety in the relationship between servant leadership and two employee outcomes: employee voice and negative feedback seeking behavior. Results showed that organizational identification and psychological safety partially mediated the effects of servant leadership on voice and negative feedback seeking behavior.

According to Haider Aftab, Hafiz Mushtaq Ahmad, (2017) The study specifically examined six dimensions of servant leadership with teacher’s job satisfaction, such as value people, develops people, builds community, display authenticity, provides leadership and share leadership.

According to Peterson Christopher, et. al (2017) The purpose of this study is to evaluate how the five variables that measure servant leadership (Altruistic Calling, Emotional Healing, Persuasive Mapping, Organizational Stewardship, and Team Learning) impact on teachers' perception of principal Wisdom. According to Rahayany Yayan (2010) In educational setting, servant leadership seems to be the most compatible leadership compare to transformational and charismatic leadership. Teachers serve the need of student and in turn this will encourage students consciously to become leader for themselves to be more independent.

According to Chan, C. H. Simon, Mak W., (2014) Purpose – The purpose of this paper is to examine the relationship between servant leadership, subordinates' trust in leader and job satisfaction, and whether subordinates' organizational tenure moderated the effect.

According to Barbuto E. John, Wheeler W. Daniel (2006) This article presents an integrated construct of servant leadership derived from a review of the literature. Subscale items were developed to measure 11 potential dimensions of servant leadership: calling, listening, empathy, healing, awareness, persuasion, conceptualization, foresight, stewardship, growth, and community building.

According to Pažur Monika (2020) The main purpose of this article is to describe the process of development and validation of a research instrument for measuring the presence of servant school leadership characteristics.

According to Donghong Ding, et. (2012),There is a growing concern about the relationship of servant leadership and employee loyalty recent years, but few are focusing on the intervening mechanisms between them. Using the structural equation model (SEM) method, and reach two conclusions: servant leadership is significantly positive correlated with employee loyalty; employee satisfaction is found to play mediating role which occupies 77% of the total effect between servant leadership and employee loyalty. Our result shows that, to improve employee loyalty, the managers should not only develop their servant leadership style, but also take into consideration the individual needs to improve psychological satisfaction.

According to Nathan Eva, et. al. (2019) Notwithstanding the proliferation of servant leadership studies with over 100 articles published in the last four years alone, a lack of coherence and clarity around the construct has impeded its theory development.

According to Jeyaraj Joanna Joseph, Franco Gandolfi, (2019) This paper intermingles the theories of servant leadership and critical pedagogy to uncover what lessons can be learnt when trying to empower followers and create a more equitable future for individuals. The paper posits that trust, a shared value between servant leadership and critical pedagogy, needs to be the foundation on which the quest for empowerment is built upon.

According to Chen Zhijun, et. al. (2014). Building on a social identity framework, our cross-level process model explains how a manager's servant leadership affects frontline employees' service performance, measured as service quality, customer-focused citizenship behavior, and customer-oriented prosocial behavior.

METHOD

Research model is survey model because investigate the differences between perceptions about servant leadership and organizational commitment in accordance with gender, seniority, tenure in school and branch. Survey model was supply to understand people's attitudes, beliefs and so on (Mcmillan& Schumacher, 2001)**.** According to Balci Ali (2011) Among the major powers building the contemporary context of educational and school leadership; learner centered leadership, picking the research evidences and decision making upon the data, increasing competition and school selection, system oriented social integration, globalization and the phenomenon of knowledge society can be counted. McMillan and Schumacher (2001) point out: Inductive reasoning allows one to explore and discover with an emerging research design. According to McMillan & Schumacher, (2001) An effective research design outlines the defined purpose in which there is coherence

between the research questions and the methods or approaches proposed that generates data that is credible and verifiable.

McMillan and Schumacher (2001) and Ritchie and Lewis (2003) point to strategies to enhance validity in the conduct of qualitative inquiry and the qualitative researcher can use as a combination: • Field work and long-term observation;• Constant comparative method;• Triangulation;• Respondent language; verbatim accounts; • Low-inference descriptors;• Record data; • Respondent review;• Negative or deviant cases.

Population and Sample

The population of research consists of teachers. The convenience sampling method was used and 50 teachers of sample US, Serbia and Croatia answered the scales. This method supply researcher easiness about money, time and workforce (Kreiner, J. et. al. 2020).

Table 1: Demographic information of participants

US Sample 1				Serbia Sample 2				Croatia Sample 3			
Variable	Groups	n	%	Variable	Groups	n	%	Variable	Groups	n	%
Gender	Male	23	46	Gender	Male	12	24	Gender	Male	13	26
Gendeer	Fermale	27	54	Gender	Fermale	38	76	Gender	Fermale	37	74
Gender	Total	50	100	Gender	Total	50	100	Gender	Total	50	100
Branch	Branch teac	24	48	Branch	Branch teach	14	28	Branch	Branch teach	60	40
Branch	Classr. teac	26	52	Branch	Classrom tea	36	72	Branch	Classrom tea	86	58
Branch	Total	50	100	Branch	Total	50	100	Branch	Total	50	100
Tenure in Sch	1-5 years	3	15	Tenure in Sch	1-5 years	5	10	Tenure in Sch	1-5 years	6	12
Tenure in Sch	6-10 years	13	26	Tenure in Sch	6-10 years	12	24	Tenure in Sch	6-10 years	13	26
Tenure in Sch	11-15 years	9	18	Tenure in Sch	11-15 years	8	16	Tenure in Sch	11-15 years	7	14
Tenure in Sch	16-20 years	12	24	Tenure in Sch	16-20 years	9	19	Tenure in Sch	16-20 years	8	16
Tenure in Sch	21 and over	13	26	Tenure in Sch	21 and over	16	32	Tenure in Sch	21 and over	16	32
Tenure in Sch	total	50	100	Tenure in Sch	total	50	100	Tenure in Sch	total	50	100
Seniority	1-5 years	17	34	Seniority	1-5 years	9	18	Seniority	1-5 years	7	14
Seniority	6-10 years	12	24	Seniority	6-10 years	15	30	Seniority	6-10 years	16	32
Seniority	11-15 years	9	18	Seniority	11-15 years	12	24	Seniority	11-15 years	13	26
Seniority	16-20 years	8	16	Seniority	16-20 years	8	16	Seniority	16-20 years	9	18
Seniority	21 and over	4	8	Seniority	21 and over	6	12	Seniority	21 and over	5	10
Seniority	total	50	100	Seniority	total	50	100	Seniority	total	50	100

The frequencies and percentages are given in accordance with gender, branch, tenure in school, seniority.

The term *demographics* refers to particular characteristics of a population. The word is derived from the Greek words for *people* (*demos*) and *picture* (*graphy*). Examples of demographic characteristics include age, race, gender, ethnicity, religion, income, education, home ownership, sexual orientation, marital status, family size, health and disability status, and psychiatric diagnosis Salkind, N., (2010).

Instruments

In this study, the Servant Leadership Scale which was developed by Girard, S. H. (2000). The scale consists of 9 dimensions and 28 items. It is Likert Rensis (Likert, 1932) type scale. The alpha value for the whole scale is 95. In this study, the Organizational Commitment Scale which was developed Allen, N. J. & Meyer, J. P. (1990). The scale consists of 3 dimensions and 24 items. It is Likert type scale. The alpha value for the whole scale is 78.

Analyses

Independent Samples T Test, Kruskal Wallis Test (1952) and Pearson (20 June 1895) Product Moment Correlation Coefficient were used while analyzing the data. In this study, it was assumed that teachers answered internally the questions in the applied scale. The research is limited to the teachers working in primary and secondary schools in United States, Serbien and Croatien. The findings are limited to the qualities measured by the scales.

RESULTS

Data obtained from scales were analyzed. Findings are as follows:

Table 2: Teachers' perceptions about servant leadership and organizational commitment in accordance with gender

US Sample 1							Serbia Sample 2							Croatia Sample 3						
Points	Gen.	N	Mean	Std. Dev.	t	p	Points	Gen.	N	Mean	Std. Dev.	t	p	Points	Gen.	N	Mean	Std. Dev.	t	p
Organ. Comm.	Male	21	21.8	10.7	1.4	8	Organ. Comm.	Male	9	9.5	11.7	1,8	9	Organ. Comm.	Male	8	9.3	12.1	1.7	10
Organ. Comm.	Femal	29	24.3	8.9			Organ. Comm.	Femal	41	11.3	13.6			Organ. Comm.	Femal	42	12.3	15.8		
Serva. Lead.	Male	21	45.6	21.6	1.21	23	Serva. Lead.	Male	9	43.2	17.8	9,5	13	Serva. Lead.	Male	8	41.2	18.9	7.9	21
Serva. Lead.	Femal	29	56.3	22.4			Serva. Lead.	Femal	41	44.7	15.9			Serva. Lead.	Femal	42	45.7	19.2		

Teachers' perceptions about servant leadership and organizational commitment don't vary in accordance with gender (p>.05). The points of male and female teachers seem similar.

According to Seifert, D. et al (2009), research on the gender structure of management has become a particularly current and interesting problem in recent times for three reasons:

- Modern societies and schools are increasingly sensitive to cultural and other forms of discrimination at work;
- The diversity and even the superiority of the so-called "Women's style of management" Helgesen, S. (1995) applied to new business conditions and the role of managers, oriented to the maximum development and use of human resources, as the most important property of every school;
- Managing diversity, which includes gender diversity.

Table 3: Teachers' perceptions about servant leadership and organizational commitment in accordance with branch

US Sample 1							Serbia Sample 2							Croatia Sample 3						
Points	Branc	N	Mean	Std. Dev.	t	p	Points	Branc	N	Mean	Std. Dev.	t	p	Points	Branc	N	Mean	Std. Dev.	t	p
Organ. Comm.	Branc	22	25.2	9.6	1.3	.12	Organ. Comm.	Branc	12	23.7	8.7	1	,11	Organ. Comm.	Branc	11	21.9	7.6	2	.15
Organ. Comm.	Femal	28	24.8	7.8			Organ. Comm.	Femal	38	22.8	9.7			Organ. Comm.	Femal	29	31.4	8.7		
Serva. Lead.	Branc	22	45.8	16.9	-5	.41	Serva. Lead.	Branc	12	39.3	14.7	4	.36	Serva. Lead.	Branc	11	41.6	18.8	-3	.45
Serva. Lead.	Class-room	28	56.8	15.3			Serva. Lead.	Class-room	38	42.1	21.7			Serva. Lead.	Class-room	29	51.7	16.3		

Teachers' perceptions about servant leadership and organizational commitment don't vary according to branch (p>.05). The points of branch and classroom teachers seem similar.

The research question for this study was whether restaurant employees' perceptions of their supervisor's servant leadership practices were associated with the employees Chee Piong (2016).

Table 4: Teachers' perceptions about servant leadership and organizational commitment in accordance with tenurein school

US Sample 1						Serbia Sample 2						Croatia Sample 3					
Points	Tenure in sch	N	Mean Rank	x2	p	Points	Tenure in sch	N	Mean Rank	x2	p	Points	Tenure in sch	N	Mean Rank	x2	p
Organiz. Commit.	1-5 years	3	64.1	1.54	,65	Organiz. Commit.	1-5 years	5	56.4	1.34	.56	Organiz. Commit.	1-5 years	6	67.3	1.45	.57
Organiz. Commit.	6-10 years	13	78.6			Organiz. Commit.	6-10 years	12	73.2			Organiz. Commit.	6-10 years	13	64.3		
Organiz. Commit.	11-15 years	9	56.9			Organiz. Commit.	11-15 years	8	65.2			Organiz. Commit.	11-15 years	7	76.3		
Organiz. Commit.	16-20 years	12	79.6			Organiz. Commit.	16-20 years	9	75.2			Organiz. Commit.	16-20 years	8	67.8		
Organiz. Commit.	21and over	13	81.2			Organiz. Commit.	21and over	16	78.3			Organiz. Commit.	21and over	16	80.1		
Sevent Leader	1-5 years	3	65.3	1.76	.87	Sevent Leader	1-5 years	5	54.2	1.58	.76	Sevent Leader	1-5 years	6	57.3	1.78	.76
Sevent Leader	6-10 years	13	54.2			Sevent Leader	6-10 years	12	45.1			Sevent Leader	6-10 years	13	54.8		
Sevent Leader	11-15 years	9	71.3			Sevent Leader	11-15 years	8	68.9			Sevent Leader	11-15 years	7	71.6		
Sevent Leader	16-20 years	12	65.4			Sevent Leader	16-20 years	9	64.3			Sevent Leader	16-20 years	8	65.3		
Sevent Leader	21and over	13	94.2			Sevent Leader	21and over	12	91.3			Sevent Leader	21and over	16	89.2		

Teachers' perceptions about servant leadership and organizational commitment don't vary in accordance with tenure in school (p>.05). The points of teachers have different tenures seem similar, both in the USA and in Serbia and Croatia.

One of the contemporary leadership stylesthat holds great promise for effective organizational performance as well as enhancing employee loyalty and commitment to the organization is servant leadership(Olesia, W. et. al. 2013).

Table 5: Teacher's perception about servant leadership and organizational commitment in accorance with seniority

US Sample 1						Serbia Sample 2						Croatia Sample 3					
Points	Tenure in sch	N	Mean Rank	x2	p	Points	Tenure in sch	N	Mean Rank	x2	p	Points	Tenure in sch	N	Mean Rank	x2	p
Organiz. Commit.	1-5 years	3	78.4	2.65	.67	Organiz. Commit.	1-5 years	5	65.7	2.67	.56	Organiz. Commit.	1-5 years	6	56.8	2.89	.67
Organiz. Commit.	6-10 years	13	89.4			Organiz. Commit.	6-10 years	12	78.8			Organiz. Commit.	6-10 years	13	76.9		
Organiz. Commit.	11-15 years	9	76.9			Organiz. Commit.	11-15 years	8	76.4			Organiz. Commit.	11-15 years	7	56.9		
Organiz. Commit.	16-20 years	12	75.4			Organiz. Commit.	16-20 years	9	56.9			Organiz. Commit.	16-20 years	8	76.8		
Organiz. Commit.	21and over	13	71.7			Organiz. Commit.	21and over	16	74.3			Organiz. Commit.	21and over	16	59.6		
Sevent Leader	1-5 years	17	79.7	2.45	.78	Sevent Leader	1-5 years	5	75.3	2.23	.78	Sevent Leader	1-5 years	7	76.6	2.45	.69
Sevent Leader	6-10 years	12	70.6			Sevent Leader	6-10 years	12	67.8			Sevent Leader	6-10 years	16	59.4		
Sevent Leader	11-15 years	9	87.4			Sevent Leader	11-15 years	8	89.3			Sevent Leader	11-15 years	13	87.9		
Sevent Leader	16-20 years	8	76.3			Sevent Leader	16-20 years	9	78.9			Sevent Leader	16-20 years	9	77.4		
Sevent Leader	21and over	4	67.8			Sevent Leader	21and over	16	67.9			Sevent Leader	21and over	5	69.8		

Teachers' perceptions about servant leadership and organizational commitment don't vary in accordance with seniority (p>.05). The points of teachers have different seniorities seem similar. According to Made Ardana et. al. (2019), This research has purpose to find out the influence of servant leadership on job satisfaction and organizational commitment of lecturers at Dhyana Pura University. Research result showed that the servant leadership has a positive effect to the organizational commitment, the servant leadership has a positive effect to the job satisfaction and job satisfaction has a positive effect to the organizational commitment.

According to Al-Asadi, R. et.al. (2019) Purpose The purpose of this paper is to examine the extent to which perceived servant leadership of the supervisors impacts the intrinsic and extrinsic job satisfaction of the followers. Design/ methodology/ approach Servant leadership factor structure was evaluated by applying Liden C. Robert et. al. (2008) measure, and used the second-order model to test its relationship with the intrinsic and extrinsic job satisfaction. Liden C. Robert, (2008) Servant leadership stresses personal integrity and serving others, including employees, customers, and communities. This article focuses on a servant leadership measure that was created by identifying 9 dimensions.

Table 6: Relationship between teachers' perceptions about servant leadership and organizational commitment

US Sample 1				Serbia Sample 2				Croatia Sample 3			
		Organiz. Commit	Sevent Leader			Organiz. Commit	Sevent Leader			Organiz. Commit	Sevent Leader
Organiz. Commit	Pearson Corela	1	.17	Organiz. Commit	Pearson Corela	1	.16	Organiz. Commit	Pearson Corela	1	.19
Organiz. Commit	Sig. (2-tail)		.034	Organiz. Commit	Sig. (2-tail)		.023	Organiz. Commit	Sig. (2-tail)	.45	0.49
Organiz. Commit	N	50	50	Organiz. Commit	N	50	50	Organiz. Commit	N	50	50
Sevent Leader	Pearson Corela	.187	1	Sevent Leader	Pearson Corela	.177	1	Sevent Leader	Pearson Corela	.167	1
Sevent Leader	Sig. (2-tail)	.43		Sevent Leader	Sig. (2-tail)	.34		Sevent Leader	Sig. (2-tail)	.45	
Sevent Leader	N	50	50	Sevent Leader	N	50	50	Sevent Leader	N	50	50

Organizational commitment of teachers andservent perceptions are related to each orther,both in the USA in Serbia and Croatia. This relationship is positive and low. According to Murphy, David, Earl (2020) This non-experimental quantitative study aimed to determine if servant leadership influenced teacher retention or student achievement and if teacher retention influenced student achievement.

DISCUSSION

But the volatile and intangible characteristics associated with the process of customer service (Laub, J. A. (1999) led us to expect that servant leadership may play a stronger role in organizational commitment. This is mainly because servant leadership has a developmental, self-reflective, and altruistic orientatio.

Extending research, we found that servant leadership explained additional variance in teacher employees' service performance behaviors in school. We also found that employees' self-identity indicated by their self-efficacy and group identification mediated the relationships between servant leadership and organizational commitment . Our results thus highlight the predictive validity of servant leadership in a setting. This finding is noteworthy because about how and why servant leadership approaches differ from each other (Yukl, 2010). In particular, and social comparison processes to account for the prominent effects of servant leadership on organization commitment. We encourage future studies to confirm these processes and develop between servant leadership and rezultats outcomes organization commitment.

The findings of this study include strong positive relations between teachers' assessments of leader's servant leadership and the quality organizational commitment. Dimensions of servant leadership had significant relationship to organizational commitment. This means that leaders who are perceived as able, and willing, to connect to colleagues at an emotional level build stronger relationships with these colleagues. This infers that who view their teachers as possessing servant leadership qualities and using servant leadership skills develop strong, positive exchanges with them.

The interpretations of the results of this study are limited by the procedures used in the study. Future studies should also sample from as wide a target population as possible and continue to eliminate Servant leaders' discretion in the process of member selection. The results of this study provide powerful and useful information on research results leader servant and relationships organizational commitment.

CONCLUSION

This paper makes important contributions. To begin with, this paper strengthened the research information on servant leadership to fill the gap in the empirical literature. Besides, this study added more knowledge to the association between teachers servant leadership characteristics and organizational commitment.

A popular theory of leadership that's appropriate educational setup is servant leadership. When teachers perceive that their top management is showing more concern towards them and focusing on their professional development, they feel motivated (Taylor et al., 2007).

This work tested relationships between servant leadership and organizational commitment, resulting in strong relationships across the dimensions of servant leadership and organizational commitment. The variance accounted for should not be taken lightly as most studies rarely exceed, even with single method sampling procedures. It is our hope that others will continue to study servant leadership and organizational commitment, collectively, and in separate research designs – to test the.

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ASSESSMENT OF DISTANCE LEARNING OPPORTUNITIES BY EMPLOYERS AND UNIVERSITY LECTURERS

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ABSTRACT

The purpose of the paper is to identify the opportunities provided by distance learning at the university by using expert assessments of employers and lecturers. In the context of the forced expansion of distance learning in universities, there is no accurate data on its opportunities. However, all education stakeholders have to be prepared for the real consequences of distance learning. The expert method was accepted as the main research method. The data was processed using the fuzzy logic device. The analysis of expert opinions of employers-representatives of the manufacturing sector of the economy and lecturers showed that the opportunities of the distance learning are mostly evaluated at a low and medium level. At the same time, employers estimate the quantitative parameters of opportunities better than by lecturers. According to both groups of experts the most significant opportunities for distance learning are: the acquisition of remote work skills; the development of computer literacy; the implementation of the concept of lifelong learning. Employers estimate the impact the distance learning opportunities higher than the probability of its implementation, which can be explained by their distrust of the ability of universities to realize the potential of distance education.

Key words: Distance education, Distance education opportunities, Expert assessments, Fuzzy logic.

INTRODUCTION

The problems of higher education are the subject of numerous studies. Isayeva and Stepygina (2016), Stepygina (2015, 2016) considered a wide range of issues related to the development of vocational education in the regions; tools for interaction between universities and business structures in the context of operational risks; and the polyvariance of the educational services market. Sirotkina et al. (2011, 2012, 2015) paid special attention to the role of universities in innovation processes at the national and regional levels, in the formation of research and production clusters, and participation in the implementation of priority areas of socio-economic development of regions.

Distance learning in higher education has become quite widespread in domestic and foreign universities. Its advantages and disadvantages are largely studied. However, the peculiarity of today is that its spontaneous expansion has occurred, radically changing not only the educational process itself, but also the relations of universities with organizations of managerial, industrial, and social profile in connection with the coronavirus pandemic.

Practice-oriented academic disciplines, as well as forms of conducting classes that require active participation of students, such as seminars and laboratory work, were in unfavorable conditions of teaching. In addition, several training sessions are practical actions of students carried out by them

under the guidance of lecturers or employees of organizations of state and municipal administration, manufacturing, financial and social sectors of the economy. For conducting such classes in a remote form, the methodological apparatus is not fully formed.

The actual consequences of the significant and spontaneous expansion of distance learning in higher education under the influence of the pandemic are not currently known. To identify and understand them, it will take at least two or three years, when the current students will come to the production and social sphere. In this regard, one of the few available forms of studying the consequences of changes in the structure of the educational process is expert assessment. In this case it is not a reflection of the actual knowledge of the results, but a kind of forecast of representatives of the manufacturing sector of the economy and lecturers in relation to the impact of distance learning on the acquisition of the necessary competencies, employment, and subsequent practical activity of university graduates.

RESEARCH METHODS

The main research method is the assessment of distance learning opportunities by experts. The experts were senior and middle managers of enterprises in the manufacturing sector of the economy and university professors. The questions of the questionnaires were formulated by experts representing the higher education and research sector of the Voronezh region economy. Expert assessments are widely used to assess various actual and predicted phenomena. Similar studies in relation to socio-economic processes and institutional phenomena were conducted earlier by Endovitsky et al. (2017), Risin et al. (2017), Tabachnikova (2016), Tabachnikova (2017), Treshchevsky, Nikitina et al. (2017), Treshchevsky, Plugatyreva et al. (2017), Treshchevsky, Voronin et al. (2018).

The composition of the formulated distance learning opportunities and their numbering, used in Tables 2, 3, are presented in Table 1.

Each opportunity was evaluated from two positions: the power of influence and the probability of implementation. The probability in this case was estimated not in fractions of one, as is customary when using probability theory in the study of repetitive processes, but in points, as well as the power of influence. This approach makes it possible to compare the results of the study in both aspects. The application of this approach is due to the fact that the power of influence and the probability of the realization of an opportunity or threat differ in their magnitude and have different consequences, but should be given in a comparable form. The score is made as follows: if the power of influence of the opportunity is the highest, the expert gives a rating of "5", high – "4", insignificant – "3", insignificant- "2". If the probability of implementation the opportunity is very high, then the score is "5", high – "4", medium – "3", low – "2".

The expert survey involved 26 experts-employers and 18 experts-lecturers, which usually provides an acceptable level of accuracy of assessment and consistency of expert opinions. The assessment of the consistency of expert opinions and general indicators that characterize the power of influence of opportunities in relation to the probability of their implementation was carried out using the fuzzy logic device. The data were processed in accordance with the methodological provisions developed by Tabachnikova (2017) in relation to expert assessments of predicted events. The interpretation of the data processing results is as follows:

- average estimation: 4.0 points or higher – high level of influence of opportunities or probability of their implementation; 3.0 – 3.99 – medium level; less than 3.0 points – low level;
- values of the fuzziness index: 0.1 and less – a high level of consistency of expert opinions; 0.11-0.15 – an medium level of consistency of expert opinions; 0.16-0.2 – a low level of consistency of expert opinions; more than 0.2 – expert opinions are not consistent.

The maximum value of the generalized indicator of each opportunity is 25 points ("5" points – the power of influence and "5" points – the probability of implementation). Accordingly, the actual values

are interpreted as follows: 20.0 points and above – very high significance; 17.5 – 19.99 – high significance; 15.0 – 17.49 – medium significance; below 15.0 – low significance.

Table 1: List of distance learning opportunities and their numbering

Number	Distance learning opportunities
1	High level of computer literacy of graduates.
2	With the help of distance learning, it is possible for a modern specialist to study almost all his life without hindrance to his main activity.
3	Distance learning is individual in nature, the student chooses the pace and time of training.
4	A student can study at several universities and at various courses in a short time.
5	The student gains experience in solving tasks of varying complexity in remote mode, which will make it easier for him to further master the remote format of performing labor functions.
6	The graduate gains experience in organizing training, which is carried out in combination with permanent work.
7	A student who is engaged in labor activity is capable of more motivated and successful assimilation of competencies that are in demand in the professional sphere.
8	A student who has received experience of distance learning is capable of activities that are characterized by a" condensed " work schedule, increased intensity.
9	Distance learning contributes to the development of students ' academic and scientific independence. The development of these skills requires knowledge of the general rules of how to act in the given situations of the educational process, research activities, and then-in the situations of the professional sphere.
10	Increased motivation. The educational and scientific independence of students allows for the transition to individualization of education, which ensures maximum involvement of students in the learning process and research activities and contributes to the growth of their motivation level.
11	A student employee does not need a vacation, as he studies in his free time and does not miss work.
12	Many companies prefer interactive learning because it is more measurable. Most companies use some form of e-learning (advanced training, etc.). Graduate students with similar experience will be highly valued in the labor market.
13	Interactivity, which distinguishes the organization of the educational process, based on the development of a joint solution through the exchange of views, discussion and interaction, active involvement in dialogue interaction with both the teacher and students.
14	Accessibility and openness of learning. The ability to be anywhere (work, travel) or spend more time with loved ones during learning, which undoubtedly has a positive effect on the mental state and development of the student.

RESULTS

Table 2 shows the results of calculations performed in accordance with the methodological provisions.

The following results provide the most general idea of the employer's assessment of opportunities:

- all opportunities, both in terms of the power of influence and the probability of implementation, are evaluated at high and medium levels (with the exception of opportunity 4 due to the low probability of implementation);
- the power of the influence of opportunities in general is estimated significantly higher than the probability of their implementation (the sum of the average, respectively: 54.12 and 47.88);
- each opportunity is also rated higher in terms of the power of influence than the probability of use; this result can be regarded as a low level of confidence of representatives of the manufacturing sector in the opportunities of distance learning in universities;
- the values of the fuzziness indexes for assessing the power of influence of opportunities do not exceed 0.15, which indicates a high and medium consistency of expert opinions on each opportunity;
- the values of the fuzziness indexes for the probability of implementation of opportunities in most cases also do not go beyond 0.15;
- the values of the fuzziness indexes for three opportunities (3, 5, 11) range from 0.16 to 0.19, that indicates a weak consistency of expert opinions regarding the probability of their acquisition in the process of distance learning and use in the process of work activity;

- the consistency of expert opinions on the power of influence of opportunities is higher than in terms of the probability of implementation (the sum of the indices, respectively: 1.67 and 1.89);
- overall evaluation of each opportunity (for synthesis in the parameter) is not above medium.

Table 2: Employers' assessment of distance learning opportunities

Number* of distance learning opportunities	Assessment of opportunity (average)		Fuzziness indexes		Generalized indicator of opportunity	Index of assessment of opportunity
	Power of influence	Probability of implementation	Power of influence	Probability of implementation		
1	4,24	3,92	0,11	0,10	16,45	1,00
2	4,12	3,96	0,07	0,13	16,17	0,98
3	3,68	3,32	0,06	0,16	12,10	0,74
4	3,84	2,96	0,11	0,15	11,17	0,68
5	3,48	3,20	0,14	0,19	10,84	0,66
6	3,88	3,32	0,15	0,13	12,62	0,77
7	4,04	3,40	0,13	0,13	13,50	0,82
8	3,84	3,36	0,13	0,15	12,65	0,77
9	4,00	3,56	0,15	0,10	14,03	0,85
10	3,40	3,12	0,11	0,07	10,52	0,64
11	3,84	3,32	0,15	0,17	12,41	0,75
12	3,88	3,76	0,13	0,15	14,31	0,87
13	3,60	3,04	0,13	0,13	10,76	0,65
14	4,28	3,64	0,10	0,13	15,39	0,94
Сумма	54,12	47,88	1,67	1,89	-	-

*The numbering corresponds to the opportunities numbers in Table 1

The data in Table 2 allows us to draw the following conclusions on particular opportunities. Opportunity 1 "High level of computer literacy of graduates" is rated first in importance, because its index of assessment of opportunity is 1.0. The level of consistency of experts' opinions on this opportunity is medium, but it is one of the highest in the entire information set. The opportunity is medium significance. The assessment of the power of influence of this opportunity occupies the second position after the opportunity 14 "The ability to work in remote mode", but the experts consider the probability of the implementation of the opportunity 1 to be higher than 14. As a result, the index of the assessment of the opportunity 14 is high (0,94), but it occupies only the third position.

The opportunity to study almost all life without hindrance to main activity is rated second in importance; its index of assessment of opportunity is 0.98. The degree of consistency of opinions in terms of the power of influence is high, in terms of the probability of implementation – medium. The opportunity is medium significance. The average score of the assessment of the power of influence is 4.12 (the third in the list), but the probability of implementation is estimated as the highest (3.96 points). Thus, none of the opportunities is of high or very high significance, and only three of them are rated at an medium level. The remaining opportunities, taking into account the power of influence and the probability of implementation, are estimated at a low level. Table 3 presents data on university lecturers' assessment of the opportunities provided to students by distance learning.

The data in Tables 2 and 3 allow us to draw the following conclusions:

- the assessment of the power of influence of opportunities is rated by university lecturers much lower than by employers. The only opportunity (to study almost all life without hindrance to main activity) is rated at an medium level, all the others have a low level;
- in contrast to employers, university lecturers generally assessed the power of influence of opportunities and the probability of their implementation at approximately the same level (the sum of the average values, respectively, 46.90 and 47.67);
- in contrast to employers, university lecturers assessed the ratio of the power of influence and the probability of implementation specific opportunities in different ways;

– the values of the fuzziness indexes for university lecturers' assessment of the power of influence of opportunities and the probability of their implementation are much lower than in the assessments of employers, which indicates a higher consistency of expert opinions;
– the consistency of the opinions of university lecturers regarding the influence of the opportunities and the probability of implementation is higher than employers (the sum of the fuzziness indexes, respectively, of 1.14 and 1.67 for the power of influence and 1.27 and 1.89 for the probability of implementation).

Table 3: University lecturers' assessment of distance learning opportunities

Number* of distance learning opportunities	Assessment of opportunities (average)		Fuzziness indexes		Generalized indicator of opportunity	Index of assessment of opportunities
	Power of influence	Probability of implementation	Power of influence	Probability of implementation		
1	3,75	4,00	0,07	0,09	14,91	0,96
2	3,90	4,00	0,04	0,09	15,55	1,00
3	3,35	3,47	0,06	0,04	11,61	0,75
4	3,55	3,00	0,05	0,11	10,59	0,68
5	3,45	3,42	0,10	0,11	11,68	0,75
6	3,45	3,74	0,06	0,13	12,79	0,82
7	3,30	3,47	0,10	0,06	11,40	0,73
8	3,20	3,37	0,07	0,12	10,69	0,69
9	3,40	3,42	0,10	0,07	11,55	0,74
10	2,95	2,89	0,10	0,13	8,43	0,54
11	2,85	2,84	0,14	0,13	7,96	0,51
12	3,20	3,26	0,07	0,03	10,42	0,67
13	2,95	3,21	0,08	0,06	9,42	0,61
14	3,60	3,58	0,10	0,10	12,76	0,82
Сумма	46,90	47,67	1,14	1,27	-	-

*The numbering corresponds to the opportunities numbers in Table 1

At the same time, it should be noted that the composition of the most significant opportunities is the same. The first and second positions are occupied by opportunity 1 "High level of computer literacy of graduates" and opportunity 2 "Ability to study almost all life without hindrance to main activity". The corresponding Index of assessment of opportunities by employers are 1.00 and 0.98, by university lecturers are 0.96 and 1.00. The overall assessment of these opportunities by these groups of experts is different: employers rated them at an medium level (16.45 units and 16.17 units), university lecturers rated the first opportunity at a low level, the second – at an medium level. According university lecturers' assessments, the least significant opportunities with values of generalized indicator below 10.00 are the following: opportunity 11 "|The student employee does not need a vacation, since he studies in his free time and does not miss work", opportunity 10 "Increased motivation. Educational and scientific independence of students allows for the transition to individualization of learning, which ensures maximum involvement of students in the educational process and research activities, contributes to the growth of their level of motivation", opportunity 13 "Interactivity, which distinguishes the organization of the educational process, based on the development of a joint solution through the exchange of views, discussion and interaction, active involvement in dialogue interaction with both the teacher and the students". Note that employers rated these opportunities low, but none of the total set of opportunities was rated below 10.00 points.

CONCLUSION

Employers assessed the distance learning opportunities at the medium and high level, while the estimates of the power of influence are higher than the probabilities of their implementation. This fact may be explained by the lack of confidence of representatives of the manufacturing sector of the economy in the ability of universities to realize the positive potential of this form of education. The

consistency of the opinions of expert employers regarding the impact of opportunities and the probabilities of their implementation ranges from medium to high. The assessment of distance learning opportunities by university lecturers is significantly lower than by employers. Only one opportunity is evaluated by university lecturers at medium level, all the others have a low level. Thus, university lecturers are more skeptical about the opportunities of distance learning.

The composition of the most significant opportunities of distance learning is the same for employers and university lecturers. These include: achieving a high level of computer literacy of graduates; learning without interrupting work activities. The opinions of employers and university lecturers are also similar regarding the least significant opportunities. The level of consistency of university lecturers' opinions is much higher than that of employers. This can be explained by the fact that lecturers have more information about the actual state of distance learning.

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THE SITUATION OF ZALA COUNTY'S COMPANIES UNDER THE COVID-19 VIRUS

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ABSTRACT

The Covid-19 virus causes problems in several areas of life, of which logistics is no exception. If we take a closer look at the current situation of the industry, we can see that logistics, as the key element of the globalization process, is under particular pressure due to the pandemic constraints. Identifying the challenges caused by the virus is a really important task, as similar ad hoc problems may occur in in the future. As we previously described, in the current article the main goal is the identification of the logistics processes caused by the Covid-19 virus, within the founding research was carried out among the logistics companies of Zala County.

Key words: logistics, Covid-19, Zala County, strategy, planning.

INTRODUCTION

In December of 2019, the world had to face with an absolute new virus. The originally only between animals spreading illness – named SARS-CoV-2 began to spread among humans for unknown reasons. Because of its infectivity, the virus has grown into a global problem in a short period of time which could be only effectively treated with restrictions and closures. As we mentioned earlier, the epidemic situation became a worldwide health danger in early March 2020 which not just affected the global health care negatively but also the global and domestic economic processes. The Hungarian Central Statistical Office summarized the ongoing processes as follows: "*In addition to foreign trade in products, the epidemic has also caused a significant decline in foreign trade in services that has withstood previous crises. In April and May 2020, foreign trade performance fell sharply, affecting a wide range of goods and services. As the epidemic has become global, aviation has come to a near standstill, with an unprecedented decline in the performance of the tourism and service sectors, which has also led to a significant decline in foreign trade in services, which has withstood previous crises."* (KSH, 2020) As we can see from the quote, we are facing a global trade downturn due to the closures. Accordingly, the first part of the research presents the economic situation in the European Union and Hungary with the help of which we can get an insight into the broader economic environment surrounding the logistics industry as well as other factors affecting the industry. After the literature review, we implemented a summary of previous scientific researches on the narrow topic of logistical difficulties during the pandemic situation which was finally followed by a qualitative part. This part seeks the answers for questions of the increase in raw material procurement and delivery times as well as the related financial shortfalls. Basic research results can already be read in the topic which determine the main damaged processes but we are still suffering from the lack of quantifiable specific data (eg increase in lead times). As the location of the research we chose Zala County because of its frequented location and the ongoing logistics developments, the county provides an ideal possibility to carry out the analysis. In summary, despite the fact that scientific research has already been done on the subject, it is still worthwhile to make spatial measurements as these provide a much more complete set of results that will make it easier for us to face a global problem of a similar volume in the future.

COVID-19 IN THE ECONOMY

Even before the virus appeared the more conservative estimates described the basic economic situation in the European Union with a a more significant economic slowdown which was largely due to the declining performance of the German car industry. (Szabó, K. et al., 2020) In the early stages of the pandemic, it was easy to predict a possible recession which fortunately has so far avoided the Union. Besides that we avoided the greater trouble, there are already signs of an economic downturn that were expected due to the current situation. It is important to highlight that the experience of the 2008 crisis - of which the interventionist and invigorating approach of Keynesian theory (Keynes, 1936) was a key element - contributed greatly to the avoidance of recession. Thanks to this experience and the previously used and existing model, the treatment of the negative economic effects caused by the virus was not delayed by the periods of the search of theoretical solutions. (Czeczeli et al., 2020) Besides these characteristics, we have to speak about the differences. A very special situation has developed within the EU compared to the 2008 crisis in the field of global and domestic demands which situation is called exogenous demand shock: "In the case of the coronavirus households would be very willing to consume and companies would invest, but state restriction and / or caution (fear) impose physical barriers to accessing services and products." (Czeczeli et al., 2020) These factors are strongly related to the decline in logistics processes (e.g., border closures or the determination of cautious production batch sizes). On the ground of this we can rightly state that the decline of the industry contributes greatly to the overall crisis.

The research has already partially covered domestic relations in connection with KSH's summary which includes the decline of foreign trade in products and services. As mentioned earlier, aviation has come to a near standstill and the performance of the tourism and service sectors has fallen to an unprecedented level. As the situation grows globally, these tendencies have not only spread to Hungary, but of course they are also present on EU level. One of the most significant problems was the situation of the labor market and the steady decline of employment. In the employment of wholesale and retail trade (also includes logistics), transportation, accommodation and hospitality sectors a decrease of 8.71% was visible in the second quarter of 2020. (Tóth et al., 2021) Besides the question of the employment, we have to study the liquidity of the domestic economy as an other significant factor. Szilárd Hegedűs points out in his article, titled *"The evaluation and analysis of the economic effects of the COVID-19 pandemic in terms of corporate performance indicators in the Hungarian economy+*, the Hungarian economy is currently in a hibernated state. Most of the sectors were already in a difficult situation before the virus but with the onset of the pandemic businesses expect a significant drop in demand coupled with low creation of reserve with which prudent and cost-saving strategies have come to the fore in the market. From a logistical point of view, the study also points out that the epidemic situation caused outstanding disruptions in the supply chain, 63% (!) of the domestic enterprises experienced some disruption according to the MNB survey. (Hegedűs, 2020) Another factor which we have to highlight, the question of the geographical differences. Within this it's clearly visible that areas which have been marginal so far may lag further behind the domestic average. (Koós, 2020) Due to the territorial differences, we can state that the research in specific geographical areas is a key factor to the understanding of economic and sectoral effects of the epidemic (eg. the current study in Zala County). As the summary of the section, we received the following main results:

- A strong economic slowdown was predicted even before the virus appeared
- The experience of 2008 is a great help in handling the current crisis
- Compared to the crisis of 2008, there is a special situation: the demand for consumption is visible but due to physical limitations, purchase is not possible
- The domestic economy is hibernated, cautious investment spirit and limited opportunities

LOGISTICS DURING COVID-19

In this section, we analyze that what were the main results of the scientific findings in the topic of logistics under the pressure of the epidemic situation. First of all, we have to clear the subject of the

study, the supply chain. *"The supply chain covers all the activities which are related to the manufacturing and delivery of a product, beginning from the supplier's supplier to the final consumer. The four main processes — planning, purchasing, manufacturing and delivery — which define the supply chain include the management of demand-supply, the purchase of raw materials and components, the manufacturing, the assembly, the warehousing and order processing. the distribution and the delivery to the final consumer. "* (Szegedi, 2012; Réthi et al., 2014) As mentioned earlier, relatively just a few dissertations are available on the narrower topic but the available literature largely agrees that supply chain problems can be summarizedin to the following main reasons:

- Border closures, canceled flights
- Changes in market demand
- Lean management and JIT systems(Nagy et al., 2021)

Among the reasons *the border closures* (and related flight cancellations) provide relatively little explanation as the presence of the problem is a physical barrier to the smooth operation of the supply chain. In contrast, *the crash of the market* needs much more explanation. Within this, suppliers of some components of finished products have become unavailable so many products are only available with a very significant delay. Lack of raw materials and resources has led to shortages in many sectors. What further aggravated this not simple situation was the high demand for health products used against COVID-19 which further exacerbated the market imbalance. The trends outlined earlier should definitely be complemented by the role of *the Just in Time and lean management*. The world's leading companies have been producing according to these principles in recent decades so which means that they typically do not build up emergency stocks so in such a vis major situation JIT-based producers simply cannot issue (especially if raw material shortages are included). (Pató & Herczeg , 2020) Both domestic and international studies agree that the current situation requires the re-planning of supply chain and manufacturing strategies which is worthy for some critical remarks. (Cselényi et al., 2005, Kovács et al., 2007) On one hand, previous papers don't not go into depths where a specific loss of profit is expected, delay times and the resulting loss are not quantified. (This article seeks to induce an examination of this "gap.") On the other hand, if we have specific figures, it is still basically a "Make or buy?" question. Within this we have to analyze that the financial decline related to the present pandemic situation is in what proportion to the complete re-planning of the supply chain? (Does it worth it to re-plan the chain?) If we want to describe it in a concrete way then we need to think strategically about the additional costs of a shorter supply chain or deviation from JIT, and we have to calculate with that how much this investment represents compared to the loss of profits during COVID-19 and disasters with similar volumes.

ZALA COUNTY, THE STUDIED REGION

We chose Zala County for the place of the current study as 5 capital cities are located within a radius of 250 kilometers, and compared to Hungarian conditions, short-distance transport is usual so logistics became more valuable in the economic life of the county. Furthermore, it's also important to highlight that in the current development directions (ZalaZone Automotive Test Track, Metrans container terminal) logistics have a major role so it seemed logical to implement the current research in the area. (Szabó et al., 2019) The previous conditions, the current development directions and the availability of the data provide an opportunity together with which we can obtain concise and accurate results. As the present research is only the initial stage of a larger-scale study, it may be conducted in other domestic or international areas in the future. (Szabó et al., 2020)

METHODOLOGY

As mentioned earlier, previous papers have had relatively few quantifiable outcomes. Accordingly, the aim of the study was to develop a research design from which we can quantify the changes that occurred during the epidemic. In choosing of the methodology, we definitely wanted to start from a qualitative basis as this approach gives space to learn about more complex processes. (Babbie, 2008) As the

relationship between the sources of the problems explored by the literature and the problems of Zala County (the relationship between the model level and the reality level) was not known before the research, the focus was on a semi-structured qualitative interview. (Gubán & Hua, 2014) With literature review, this approach changed in such a way that the interviews were supplemented by a so-called scale, creating a mixed methodology with which we receive quantifiable data. We did all this with an understanding and adaptive review of qualitative and quantitative methodologies. (Horváth & Mitev, 2015.; Lewin, 1946) With the accepted methodology, our first task was to determine the metrics. Within this, we have marked a unit of measurement that can be interpreted and compared for each company, so the purchase time, delivery time and loss of profit due to possible delays were selected. In parallel with the definition of the metrics, the research questions and hypotheses were formulated:

Q1: Is there any change in raw material procurement time due to Covid-19 at the companies of Zala County?

H1: As a result of Covid-19, the raw material procurement time experienced so far has increased in the case of companies of Zala County.

Q2: Is there any change in delivery times due to Covid-19 at the companies of Zala County?

H2: As a result of Covid-19, the production / delivery time experienced so far has increased in the case of companies of Zala County.

Q3: Is there any decrease in profit due to Covid-19 due to the increase in lead times?

H3: As a result of Covid-19, a financial (profit) deficit arises in the case of enterprises in Zala County due to logistics lead times.

In individual semi-structured interviews for the first two research questions, interviewees were asked to indicate on an infinite scale how their purchasing / delivery time changed. The base unit -value 1 - was the previously experienced purchase / delivery times. (If the time doubled, the value was 2. If it was halved, then the value is 0.5. We gave the interpretation based on oral instructions.) In the third research question, we were curious for the concrete specific percentage change of the profit. In the framework of the qualitative research, we aimed to collect interviews till that it doesn't include new information anymore but minimum 5 interviews at least. The research framework was given by Zalaegerszeg Local Government database from which we choose companies with the following characteristics (filtration): minimum 10 employees, significant material flow (min. weekly order) and willingness to participate in research. After the filtration, we chose 50 companies and sent invitations to them. From the potential answers, we planned to make the interviews with the first feedback giving ones. The planned timeframe was 3 month, from 1 December, 2020 – 28 February, 2021. The planned location of research was the meeting room of the Mayor's Office of Zalaegerszeg. (Saunders et al., 2009.; Király & Géring, 2016).

RESULTS

Within the framework of the qualitative research, we conducted interviews with a total of 10 company leaders with which we achieved the preliminary goal. We had 18 positive answers for the interview invitation overall but as we mentioned we planned to collect interviews till that it doesn't include new information anymore which situation came at the 10^{th} interview, so due to strategic reasons we didn't continue this part of the research after it. The location of the research was the meeting room of given company and only we were present as a researcher. In the field of qualitative interviews, we conducted interviews with the same structure with the managers. As explained earlier, we worked with semi-structured interviews that had the same basic questions, but the interviewees were able to answer according to their own responsibilities and experiences. The interview questions were not received by managers before the interview, the questions were only known during the interview. The main elements of the interviews are summarized in Table 1 (in terms of the position of the interviewees and the date of the interview). The timeframe of each interview was different, but was typically between 30 and 60 minutes. We interviewed only one expert at a time. During the interview, we asked the questions in order, after which we recorded the interviewee's answers in writing and sound recorder for each question. Due to the time factor, handwritten materials were created from which we made a transcript.

Table 1: Qualitative interviews among enterprises of Zala County (Source: Own editing)

Number	Industry	Employees	Position	Date
1.	Electronic assembly	10	Owner	10/12/20
2.	Printing industry	56	Managing director	17/12/20
3.	Furniture industry	32	Director	18/12/20
4.	Wood industry	25	Logistics Manager	12/01/21
5.	Electronic assembly	more than 250	Sales Manager	29/01/21
6.	Automotive industry.	26	Owner	01/02/21
7.	Hospitality	10	Owner	01/02/21
8.	Manufacturing	10	Sales Manager	13/02/21
9.	Tool manufacturing	51	Managing director	26/02/21
10.	Clothing industry	13	Production leader	28/02/21

The first of the questions asked was the change in raw material procurement times, where we obtained the following result;

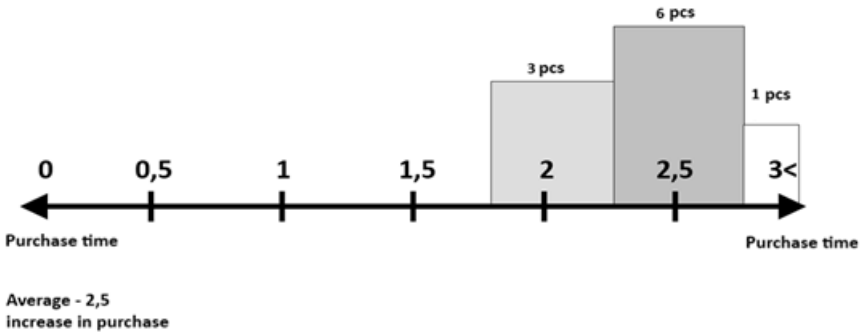

Figure 1: Changes in purchase times among Zala County enterprises (Source: Own editing)

As it's visible on the Figure 1, the virus caused an average 2,5x increase in raw material purchase and availability. As a limitation of the research, it is important to highlight that the interview did not address the time distribution of delays, we only established an average metric. With this result, we consider hypothesis H1 to be accepted, as a result of Covid-19, the raw material procurement time experienced so far has increased in the case of Zala County companies. The second main topic of the interview was the possible changes in delivery times, where we got the following result.

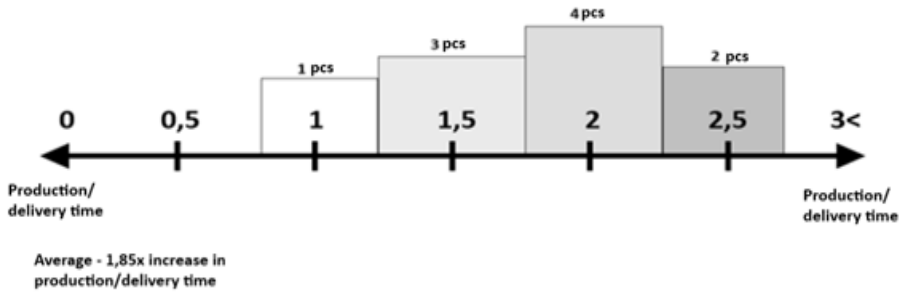

Figure 2: Changes in delivery times among Zala County enterprises (Source: Own editing)

In the case of deliver time, a lower increase was visible which was 1,85x time. This was largely due to the ordering of larger batch sizes, which thus led to an increase in warehousing costs. In this question, there was also a high degree of unpredictability, i.e., although the average increase was 1.85 times, this showed markedly large differences over time. With this result, we consider hypothesis H2 to be accepted. As a result of Covid-19, the production / delivery time experienced so far has increased in the case of logistics companies in Zala County.

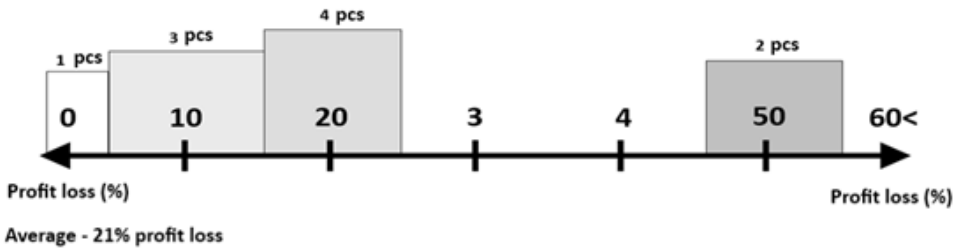

Figure 3: Profit loss among Zala County enterprises (Source: Own editing)

As it's visible in the figure, 1 company responded with no decrease in profit, 3 with a decrease of 10%, 4 with a decrease of 20% and two with a significant decrease of 50%, resulting in an average decrease in profit of 21%. With this result, hypothesis H3 is accepted. Due to the effect of Covid-19 in the case of logistics enterprises in Zala County, a financial deficit arises in the case of enterprises.

CONCLUSION

In the research, we analyzed the impact of the COVID-19 epidemic on Zala County Enterprises. Our preliminary hypotheses have been proven; the large volume of delays in purchase and delivery times is visible which led to a significant loss of profit. As a limitation, we can state that the research worked with averages, and the study of the time distribution of the decreases may be worth further study. In addition, the present research exclusively assessed the enterprises of Zala County, the territorial expansion may also deserve further research work. Another dimension of the further research can be the comparison of profit loss and available EU rescue packages. All in all, we could examine the smaller SMEs as well as the bigger local companies through we got a complex and representative picture of the situation in the county.

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Session A: MANAGEMENT AND OPERATION MANAGEMENT

Papers (pp. 47-132):

CONSTRUCTION PROJECT RISK MANAGEMENT

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ABSTRACT

Project risk management is a concept which becomes very popular in construction projects. Many companies often establish a risk management procedure in their projects for improving the performance and increase the profits. Projects undertaken in the construction sector are widely complex and have often significant budgets, and thus reducing risks associated should be a priority for each project manager. This study presents an application of risk management in the early stage of a project life cycle of a construction project. In order to examine how risk and risk management process is perceived a case study of a construction project was chosen. Moreover, based on the conducted interviews, the research presents how risks change during a project life cycle. All analyses are based on a theoretical background regarding risk, risk management process and project life cycle approach in the construction sector.

Keywords: Project risk management, Construction projects management, Project management, Construction Management.

INTRODUCTION

Risk management (RM) is a concept which is used in all industries, from IT related business, automobile or pharmaceutical industry, to the construction sector. Each industry has developed their own RM standards, but the general ideas of the concept usually remain the same regardless of the sector. According to the Project Management Institute (PMI), project risk management is one of the 14 most critical parts of construction project management (Ahmed & Mohammed, 2019). This indicates a strong relationship between managing risks and a project success. While RM is described as the most difficult area within construction management (Winch, 2010) its application is promoted in all projects in order to avoid negative consequences (Potts, & Ankrah, 2014).

One concept which is widely used within the field of RM is called the risk management process (RMP) and consists of four main steps: identification, assessment, taking action and monitoring the risks (Cooper et al., 2005). In each of these steps, there are a number of methods and techniques which facilitate handling the risks. More construction companies are starting to become aware of the RMP, but are still not using models and techniques aimed for managing risks. This contradicts the fact that the industry is trying to be more cost and time efficient as well as have more control over projects. Risk is associated to any project regardless the industry and thus RM should be of interest to any project manager. Risks differ between projects due to the fact that every project is unique, especially in the construction industry. However, there are still many practitioners that have not realized the importance of including risk management in the process of delivering the project (Smith et al., 2014). Even though there is an awareness of risks and their consequences, some organizations do not approach them with established RM methods. The construction industry operates in a very uncertain environment where conditions can change due to the complexity of each project (Pich et al., 2002).

The aim of each organization is to be successful and RM can facilitate it. However it should be underlined that risk management is not a tool which ensures success but rather a tool which helps to

increase the probability of achieving success. Risk management is therefore a proactive rather than a reactive concept. Many previous studies (Lyons, & Skitmore, 2004) have been conducted within the field of RM but each presents a different approach to this concept.

The research in this study focuses on the construction industry and how the subject is practiced in the everyday operation. The concept of RM is presented in a systematized project life cycle (PLC) approach to show differences between elements of RMP in different project phases. The research for this study was conducted together with a consultancy company working with construction project management, which consults a variety of construction projects. This organization works with risks in a way that they are aware of risks, but do not use any specific structured methods to handle them. However, they believe that a project's performance can be improved by implementing risk management methods. At the time when research was conducted, the company was working on Mashhad-Mall Project in the Mashhad, Iran, which is the case study in this study. The project was chosen in order to investigate the practices of risk management across project organization.

The purpose of this study is to evaluate how the risk management process is used in the construction industry and how the practitioners are managing risks in everyday situations. The theory of the risk management process will be compared to the actual practice in order to investigate similarities and differences. In other words, the main idea is to see if the construction industry is working with risk management as it is described in the literature regarding the methods and techniques presented. In order to achieve the purpose, the following research question have been formulated to support the investigation:

– How are risks and risk management perceived in a construction project?

PRELIMINARIES

Project life cycle

Each activity or process, regardless of the area of business domain, has a beginning and an end. Similar concepts are used in the engineering world to systemize projects over time. The term project life cycle is used as a management tool to improve a project's performance. The scope of life cycles differs among industries and diverse terminology with a various number of phases is used depending on the sectors. However, several terms are often used within one particular sector even though a number of phases can vary (Smith et al., 2014). Therefore, it is difficult to systemize and provide one common scope and definition of a project life cycle. Bennett (2003) presents a PLC framework which is typical for construction projects. The framework differs from those general models mentioned above, and distinguishes phases and steps characteristic for the construction project. It consist of six phases of different lengths and starts with Pre-project phase followed by Planning and design, Contractor selection, Project mobilization, Operations, and Close-out and Termination phase. The construction industry requires a special approach due to the complexity of projects undertaken and thus such modified PLC should bring benefits to project management and its performance. It is also this approach which will be used in this paper.

Construction project management

A construction project is characterized not only by its size and complexity, but also by various events and interactions which take place during the life cycle of a project. The work environment is constantly changing due to the number of participants involved, the project duration and the events along the way. In the construction industry, the most common way of working is within project teams, which often are only temporary organizations. Winch (2010) describes a project as relying on human and equipment resources. This constellation will be different in each project, since all projects are unique. Human resources, the actors, working in the project form a project team. The aim of such a group is to achieve the objectives set for the project. Dependencies between members can be compared to a hierarchical structure. In such an organizational form, a formal leadership is executed

by a project manager who has the overall responsibility for the project, and organizes its structure and operation (Sears et al., 2008). Within the project team, the tasks are divided among the members, depending on their areas of expertise. The main task for a project manager is to ensure that the project is properly managed in order to complete it in time, within budget and with required performance. These most important project factors are exposed to risks and uncertainties. The project manager should use an RMP in order to ensure that the risks have been identified, analyzed and managed. Some companies have a separate risk management department which is a highly specialized unit within the field of risks. Their role is to assist project managers in handling risk associated to the project. It means that risks are managed in the organization and the responsibilities are shared within the company (Liu et al., 2013).

Risks in construction projects

Due to the nature of the construction sector, RM is a very important process here. It is most widely used in those projects which include high level of uncertainty. These types of risk investments are characterized by more formal planning, monitor and control processes. The easiest way to identify risk is to analyze and draw a conclusion from projects which failed in the past. To make sure that the project objectives are met, the portfolio of risks associated with all actors across the project life cycle should be considered (Cleland, & Gareis, 2006). In the early stages of the project where planning and contracting of work, together with the preliminary capital budget are being drawn, risk management procedures should be initiated. In later stages, RM applied systemically, helps to control those critical elements which can negatively impact project performance. In other words, to keep track of previously identified threats, will result in early warnings to the project manager if any of the objectives, time, cost or quality, are not being met (Chapman, 2003).

There are a number of risks which can be identified in the construction industry and which can be faced in each construction project regardless of its size and scope. Changes in design and scope along with time frames for project completion are the most common risks for the construction sector. The further in the process, changes in scope or design are implemented, the more additional resources, time and cost, those changes require. Project completion ahead of time may be as troublesome as delays in a schedule. Too quick completion may be a result of insufficient planning or design problems which in fact shorten the completion time but on the other hand lead to a low quality of final product and increased overall cost. Being behind schedule generates greater costs for both investors and contractors due to non-compliance with contracted works (Walker, 2015).

MATERIALS AND METHODS

The research method is a technique for collecting data which can involve specific instruments such as self-completion questionnaires or structured interview. For the purpose of this study a qualitative research method has been chosen to provide a description of how people experience the application of RM in the complex project organization. According to Bell et al. (2018) the choice of the method should be made based on the nature of the research problem. Qualitative methods are based on the facts which are socially constructed rather than objectively and are based on peoples experience (Noor, 2008). Qualitative research is an inductive approach where theories are generated out of collected data. Thus this method is most appropriate for this study since it uses people's experience. In order to understand and examine the application of RM in a project organization, the case was chosen study as a research design. Case study is one form of research design and is not intended as a study of the entire organization. Its purpose is to focus on a particular issue, feature or unit of analysis and consists of direct observation of the study.

The case study in this study is a construction project of Mashhad-Mall Project. The project was intended to last for 3 years. Due to the limited time for the research in this study, our observations were made only for the project's initial stage. Many actors with various backgrounds were involved in the project and it thus was interesting to see how RM can be applied in such a complex organization.

Further to collect data, semi- structured interviews were chosen in order to obtain most accurate answers based on the interviewees' opinion and experience, and to facilitate further analysis. The interview is an insightful tool which focuses directly on the studied topics but also includes bias and can be manipulative. Interviewing is one of the most common sources for collecting qualitative data. There are a number of different types of interviews and some of them are more applicable to one method then to the other. For instance the most common types, structured or semi-structured interview, are most often used in qualitative research. In the semi-structured form, the interviewer prepares a number of questions that are in the general form of an interview schedule. It is standardized in order to minimize differences between interviews within one project. Moreover, the sequence of questions may vary and the follow up questions can be asked in response to some significant replies (Bell et al., 2018).

FINDINGS

The project used in this case study is a construction project related to Mashhad-Mall Project, located in the city of Mashhad, Iran. At the time of investigation, the investment was in its initial stage where plans, layouts and documentation were being prepared. The project duration was estimated to be approximately 2.5 years, and started in the end of 2020. The temporary organization formed for the purpose of the construction project involved a number of professionals from the municipality as well as from the construction industry. The PLC used in the project was adapted from the model presented by Bennett (2003), which divides the PLC into six phases. The chosen PLC was a typical model used for construction projects. The conducted interviews revealed how RM is used in practice and how actors in the project are familiar with this concept. This part presents results obtained from the research and relations between risk practices applied by the engineer, architect, client, users and project managers in the project environment. The respondents represented each phase of the PLC and their roles varied from active to passive, depending on the project stage. Most of the interviewed professionals were active only in the two first phases, the pre-project phase and the planning and design phase, and more passive during rest of the project. The results are the findings from the case study. The description of the project is followed by the results from the conducted interviews.

Risk identification: The techniques used for identifying risks in this specific project varied among the respondents. Since the project was relatively large with several actors engaged in it, the majority of work depended on cooperation between them. Therefore, discussions were the most widely used tools used to identify risks in the project. Another tool was a self-control which was constantly performed. Further experience was mentioned as a main source of potential risks which could occur in the current project. Checklists and manuals were applied by those who provided technical services in the project, while the practitioners used more detailed precision in their work. Observation was one more technique that was brought up, as another tool to identify risks. As a follow up to risk identification techniques, all respondents were asked to identify the biggest risks in each phase of the project they were operating in.

Risk assessment: Interviews revealed that respondents were using a variety of methods to prioritize already identified risks. The most common way was to set criteria in order to rank the most critical risks. The type of criteria used depended on the profession of the actor. Based on the created pattern, all potential risks were then listed and put in order. An example of the order obtained from prioritizing risks was the economy related problems which were ranked higher in the hierarchy than the time related problems. One respondent identified resources, economy and technical aspects as the set of criteria used in all projects undertaken by his organization. The respondent who used such a hierarchy also thought that the economy related problems are extremely important regardless of the project type. Moreover the economy related category was mentioned by all respondents as the most important factor to prioritize risks in the project.

Risk response: As emerged from the interviews, dealing with risks was performed in rather unstructured ways. Whereas some organizations had procedures or used checklists to minimize risks,

others felt more comfortable with transferring it to experts in the relevant area. Moreover, a discussion had again been mentioned as yet another tool used to mitigate the problem. Further on, for each problem identified during the interview, respondents were asked to propose an action which should be taken in order to respond to the risk.

Risk monitor and control: The respondents shared different opinions of how risks were managed within the project. Although everyone agreed that no structured way of working with risk was established. It was the responsibility of the individual organization to manage their own risks identified in the project. However, this did not mean that risk was ignored. An activity which gave a chance to exchange experience and raise potential problems was a project kick-off, an introduction to the project involving all participants. At that meeting, all actors involved in the initial stage of the project were discussing issues related to the project. Furthermore, some actors worked with specific checklists and manuals which are considered to be Risk management tools.

CONCLUSION

Professionals in the construction industry are using techniques described in the literature concerning RM, but are not aware of it. Risks are being managed every day in the industry, but not in such a structured way as the literature describes. As also other researchers confirmed, the knowledge of RM and RMP is close to zero, even though the concept of risk management is becoming more popular in the construction sector. As the research showed, unstructured form of RM is to some extent used in the construction sector. Thus application of actual RM into companies should not be difficult. As proved by the research, knowledge is the factor which is missing for organizations to implement RM. Thus, this aspect of application of RM could be further investigated in terms of how to facilitate use of RM in a construction sector. Moreover a simple RM manual could be developed including basic theoretical information as well as ready-to use guidance for one of the RM methods.

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INVESTIGATING THE EFFECT OF CITY COUNCIL SUPERVISORY DIMENSION ON COUNCIL PERFORMANCE

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ABSTRACT

The integration of urban management and the Islamic Council of Cities has emerged as a new approach in participatory management to solve problems and plays an important role in urban life. The Program and Budget Commission is one of the most basic commissions in terms of financial burden among all the commissions in the council are counted. The purpose of this study was to investigate the effect of the supervisory dimension of the Program and Budget Commission of the Islamic Councils of the cities of North Khorasan Province on other dimensions of the above commission such as planning dimension, approval dimension, executive dimension and cooperation-consulting dimension. The method of the present study was survey-descriptive. A researcher-made questionnaire was used to collect data; the reliability coefficient of the questionnaire using Cronbach's alpha was 0.889. SPSS and EXCEL software were used to analyze the data and descriptive statistics and inferential statistics were used. The results of the research showed that the supervisory dimension has an effect on the executive dimension, and the cooperation-consulting dimension and there is a significant relationship between them; but the supervisory dimension does not affect the planning dimension and the approval dimension. Although the oversight dimension seems to have no effect on the two dimensions of planning and approval, but city managers should not ignore the importance of these two dimensions and, along with other influential aspects of the commission, should pay attention.

Keywords: Urban management, City council, urban planning, Council performance.

INTRODUCTION

Today, the importance of councils in managing affairs is such that in the current situation, it is the most important feature of the decentralization of governments, and through it, political and administrative power is transferred to the provincial urban and rural levels. The Islamic Council is considered as one of the important elements of the urban management system as a policy-making, decision-making body with a little legislative tolerance at the local level, which must have a functional comprehensiveness to play its role in order to fulfill its policy-making and oversight responsibilities (Faghri, 2008). The positive attitude of the people towards the councils strengthens its foundations. It is natural that the performance of councils from different dimensions has a great impact on shaping the attitude of the people and its supervisory dimension. Thus, the performance of councils is influenced by several factors that determine the success or failure of councils, so that among the various factors that affect the success of councils, the council's oversight role in municipal affairs and public participation is much more prominent. While emphasizing the need for principled planning and training courses to improve the monitoring index in the Islamic councils of cities and villages, it can be said that if the oversight dimension is strengthened in the councils, underemployment, abandonment of actions and violations will be greatly reduced. In Iran, on the one hand, the councils are the main elected representatives of the masses and are elected from within the local community, and on the other hand, their election or approval or revocation of membership and approval of their

approvals is under the control of the central government. In fact, according to the constitution, the councils have the duty to supervise the planning institutions that affect the fate of the people and their quality of life. On the other hand, the mechanisms are selected in such a way that the supervised institutions themselves are responsible for overseeing the councils. In other words, both institutions are responsible for monitoring and controlling each other. Undoubtedly, good governance depends on reducing the size of government and reducing local and regional enterprises, so after the transfer of these enterprises and the removal of additional branches from the government tree, we can see efficiency and effectiveness in various areas, especially policy-making. , Was effective government oversight and management. Therefore, the institution of the council is the most basic and principled platform that can be developed to bring the capacities of different individuals in all areas to the field of service and effectiveness. By expanding the powers and promoting the position of the councils, it provided the necessary ground for distributing various maps at the national, regional and local levels and handing them over to the people (Faghri, 2008).

Examining the common patterns of urban management in different countries of the world and the position of city councils in these patterns, shows that despite the diversity in form, content and methods of communication between the city council and other elements of urban management, councils have broad powers and responsibilities in local affairs. This scope is such that, especially in developed countries, local councils can be considered, both legally and practically, as the main policy-making and oversight body for all local affairs (Hachard, 2020).

Based on preliminary studies conducted by researchers; The supervisory role of the council is their most important task, and each of the dimensions of the Program and Budget Commission of the Islamic Council of Cities includes a wide range of matters that consequently affect each other, and this complicates the relationship between the dimensions. The above commission; Indicators and variables of the Islamic Council that have been measured in this study; In general, it is divided into six dimensions, which include the dimensions of supervision, approval, planning, supervision, implementation and cooperation-consultation. Supervisory dimension, including overseeing the proper implementation of decrees, overseeing the proper administration of municipal property and assets, overseeing health affairs, overseeing the construction of cemeteries, overseeing the implementation of urban development projects, overseeing the proper administration of municipal finances, and overseeing theaters Is. The planning dimension examines economic, cultural, social, and health matters. The executive dimension includes reviewing transactions, reviewing articles of association, reviewing city tolls, reviewing service rates, and reviewing existing organizations. Cooperation-consulting dimension, including cooperation with executive officials of government institutions and organizations, cooperation with the municipality to approve and implement approvals, cooperation with the city supply council, recognizing urban deficiencies and shortcomings, cooperation in forming associations and government institutions, participating in administrative council meetings and Provide suggestions to executive agencies. The questionnaire used in this research was prepared by researchers and the advice of university professors based on the above components. This study examines the role of city councils in the form of five indicators of supervision, planning, implementation, approval, cooperation and consulting and other dimensions to clarify the most effective role and its impact on other performance indicators of councils and thus to promote urban management. Improve the quality of life, solve the living and physical problems of citizens, try to emphasize the basic roles and reduce or eliminate the ineffective roles of the council. The proposed model, while being practical and aims to establish an optimal fit between the roles of the council, is used as a model for evaluating the performance of councils in terms of describing the current functional status of councils. The main purpose of this study is to investigate the impact of the supervisory dimension of the Program and Budget Commission of the councils on other dimensions of the commission.

This research, while separating and clarifying each of the dimensions, seeks to answer the question that what effect does the supervisory dimension of the commission have on its planning, approval, implementation, and cooperation-consulting dimensions? And what is the relationship between them? Expressing the issue of how vital and sensitive the issue of supervision of Islamic councils on the performance of municipalities and urban affairs is, so we decided in this study to examine as closely as

possible the impact of the oversight dimension of one of the six council commissions (Program and Budget Commission). All 22 cities of North Khorasan province, Iran to be used for council members and to grow and improve the performance of municipalities and councils as much as possible and to be a factor to raise the level of awareness of city managers, employees and citizens.

THEORETICAL FRAMEWORK

The city is considered as a source of development and the position of urban management has a very important and decisive role in the process of urban development and improvement of urban settlements (Angelidou et al., 2018). City councils are a manifestation of democracy and sovereignty of the people and the purpose of forming these councils is to monitor the proper way of urban management and participation of people in the management of local affairs and thus the people indirectly by their representatives in councils, urban management performance and They oversee the municipality and see themselves as involved in the fate of the place where they live (Darskhan, 2018). About the theoretical framework of the present study, the keywords of urban management, city council and council performance are presented:

Urban management is basically a spatial level and category of local management to manage all the affairs of a city as a spatial unit. Urban management as a part of the local government system provides the services needed by the population living in cities and the requirements of collective life. Urban management is closely related to the economic development of the city and plays the most important role in improving human settlements and the sustainability of urban development. Protection of citizens' rights, encouragement of sustainable economic and social development and protection of the physical environment (Abbott, 2013). Urban management and social planning have been around since the 1960s. In that decade, governments and city managers realized that social unrest such as ethnic, racial, and class; it is a threat to economic and political stability in cities (Lipman, 2013). Hence, the category of social planning became popular. In fact, social planning was interpreted as a sign of equality and participation of the government and city managers. Urban management is a process of related responsibilities and actions including policy-making, planning, organizing, implementing, monitoring and control, which is set up to achieve specific operational goals at the level of urban communities (Wong et al., 2006). The formation of this process and the realization of its operational goals requires a proportionate and efficient structure for management practices. In this regard, urban management should adopt a more comprehensive view of the components and elements of the urban system. And have a comprehensive and holistic approach to the city building process. A holistic approach requires strong leadership to achieve the necessary coordination and alignment in the process of urban management, and the most desirable driving force will certainly be a strong urban or local government at the city level (Pieterse, 2013).

The city council is a local council at the city level whose representatives are elected by the people of that city. The main task of this assembly is to elect the mayor, approve the budget and monitor the performance of the municipalities. The purpose of forming councils is to involve the people of each city in managing the affairs of their city so that the citizens feel more responsible for managing their place of residence (Blanco et al., 2020). This type of participation, which is one of the conditions and characteristics of a society with popular sovereignty, causes the progress and improvement of society, development and prosperity of the city and the welfare of citizens. With the formation of the government of the Islamic Republic and the need to institutionalize Islamic rules in society, the issue of the council was considered as the decision-making pillars of society in the process of governing the country. According to the principles of the Constitution of the Islamic Republic of Iran, the administration of the country's affairs must be based on public opinion. In fact, the council is formed in order to involve the people as much as possible in their destiny and to manage the affairs by the people themselves. Since micro-collective council decision-making prevails, so the participation and consensus of the people under the name of the council can reduce some of the fruitless decisions and the people will be directly involved in the structure of the system and government.

The performance of urban organizations, municipalities and other local public organizations affects the quality of life of citizens and sustainable urban life and evaluating the performance of these institutions is a constructive and reforming measure for their growth and dynamism (Appio et al., 2019). That is why the performance management of local organizations as a management strategy has attracted the attention of local authorities and has forced government officials to adopt scientific and legal measures to improve the performance of local organizations. Among the various countries, the UK experience of the city council performance management movement has been associated with remarkable successes and initiatives. Performance management is the use of performance measurement information to create a positive change in organizational culture. Performance appraisal refers to a set of activities that are performed to increase the level of optimal use of facilities and resources in order to achieve goals and methods combined with efficiency and effectiveness. In recent decades, this program has become common in most developed countries and some developing countries, so that the adoption of special performance appraisal laws is a requirement. The purpose of evaluating the performance, measuring, evaluating and judging the performance of the executive organs of the country based on the approved laws and regulations, is the approach of effective criteria, economic and ethical efficiency to improve the quality of government services. One type of performance appraisal is performance appraisal by the public. This type of performance appraisal is discussed because on the one hand, people's satisfaction plays an important role in the success of the municipality in achieving its goals, and citizens who are satisfied with the city council are more confident in their citizenship duties such as paying taxes and participating in public programs. They do, and on the other hand we can boldly say that only those who can understand the problems and issues well are the people themselves (Hvinden, & Johansson, 2007).

RESEARCH METHOD

The main method of this research is non-experimental correlation. To identify each of the variables of commission performance and supervisory structure as well as the components of commission performance variable, a researcher-made questionnaire was used in two sections of general and specialized questions. The questionnaire was extracted using valid sources and with the opinion of professors, therefore its validity is confirmed. The present study is an applied research in terms of purpose and descriptive and correlational in terms of method and is a field in terms of data collection.

To collect the required information, according to the literature on the subject and research background, as well as modeling of valid and standard samples, a researcher-made questionnaire was used with the opinion of university professors. The statistical population of this study includes all members and economic experts of the councils of 22 cities of North Khorasan province, numbering 173 people. To determine the sample size, Morgan table was used and 118 people were randomly selected as the sample by stratified sampling method. To describe and analyze the data, descriptive indicators such as frequency and frequency percentage and Kolmogorov–Smirnov statistical test and Spearman correlation were used. Data processing was performed using SPSS software. In order to test the reliability, a questionnaire was distributed among 20 members of the sample. In the reliability analysis, after correcting and deleting some questions, finally a 46-item questionnaire with an alpha coefficient of 0.889 was obtained, which is higher than the general rule of 0.7 for the reliability scale. Since Cronbach's alpha is usually a very good indicator for measuring the reliability of the measurement tool and internal coordination between its elements. The reliability of the questionnaire used in this study was assessed using Cronbach's alpha. Demographic questions include gender, age, length of service, and degree. The specialized questions are 46 questions for the variables of the supervisory structure and performance of the commission. So that the performance variable of the commission includes the dimensions of planning, approval, cooperation-consulting and implementation. Scoring in the questionnaire was in the form of a Likert scale between 1 and 5. Also research hypotheses are:

1. The performance of the supervisory dimension of the Program and Budget Commission of the Council has a significant effect on the planning dimension of the Program and Budget Commission of the Council.

2. The performance of the supervisory dimension of the Program and Budget Commission of the Council has a significant effect on the approval dimension of the Program and Budget Commission of the Council.
3. The performance of the supervisory dimension of the Program and Budget Commission of the Council has a significant effect on the executive dimension of the Program and Budget Commission of the Council
4. The performance of the supervisory dimension of the Program and Budget Commission of the Council has a significant effect on the cooperation-advisory dimension of the Program and Budget Commission of the Council.

RESEARCH FINDINGS

In this section, descriptive statistics, scores obtained from the responses of sample people, in the questionnaires for different dimensions of the performance of the Program and Budget Commission of the Islamic Councils of the city, including planning, monitoring, implementation, implementation, cooperation-consulting dimension are given separately. Table 1 shows the descriptive statistics of these variables:

Table 1: Descriptive statistics of dependent and independent variables

Dimensions	Average	Standard Deviation
X: Supervisory dimension	2.46	0.69
y_1: Planning dimension	3.21	0.66
y_2: Approval dimension	3.37	1.03
y_3: Executive dimension	2.77	0.71
y_4: Cooperation-consulting dimension	2.68	0.85

From the obtained information, it can be seen that the average score of the approval dimension of the performance of the commission is 3.37 more than the other variables. In other words, in the field of approval of laws, the program and budget commission has a better performance than other parts of the commission. Also, the average score of the supervisory dimension of the supervisory is equal to 2.46, its average is lower than other parts, in other words, and the supervisory part has a poorer performance than other parts. The distribution of approval scores is 1.03 more than other parts; In other words, in the passage of laws, the officials have less coordination with each other, and perhaps if they have more unity, the performance of the commission will be more productive for the citizens. Also, the dispersion of the scores of the planning part equal to 0.66 is less dispersed than other parts, in other words, the officials in the planning part of the Program and Budget Commission have more unity and coordination with each other. Spearman correlation coefficient significance test was used to test the main hypothesis. The information obtained from this statistical test can be seen in Table 2:

Table 2: Relationship between independent and dependent variables

Independent variable	The dependent variables	Correlation coefficient	Significance level	Coefficient of determination
X: Supervisory dimension	y_1: Planning Dim.	-0.05	0.593	0.0000107
	y_2: Approval Dim.	-0.083	0.371	0.012
	y_3: Executive Dim.	0.224	0.015	0.028
	y_4: Cooper. –con. Dim.	0.414	0.000	0.213
	Y: Commission performance	0.152	0.1	0.024

DISCUSSION OF RESEARCH RESULTS

Main Hypothesis: It was found that the supervisory dimension of the Program and Budget Commission of the Islamic Council of the city affects the performance of the commission. The correlation coefficient of the supervision dimension and other dimensions of the performance of the Program and Budget Commission is 0.152, which shows a slight relationship between the dimension

of supervision and the performance of the Program and Budget Commission. The level of significance is equal to 0.1, which shows the effect of the dimension of monitoring the performance of the Program and Budget Commission of the Islamic Council of the city. The coefficient of determination is 0.024. Normally, monitoring the performance of the Program and Budget Commission has a great impact, but by considering the adjusted and mediating variables, the type and size of relationships can be obtained in more detail.

Sub-hypothesis 1: It was found that the supervisory dimension of the Program and Budget Commission of the Islamic Council of the city affects the performance of the planning dimension of the commission. The correlation coefficient between the supervision dimension and the planning dimension of the Program and Budget Commission is -0.05, which shows a slight relationship between the supervision dimension and the planning dimension of the Program and Budget Commission. The level of significance is equal to 0.593, which indicates the lack of effect on the monitoring dimension of the planning dimension of the Program and Budget Commission of the Islamic Council of the city. The coefficient of determination is 0.0000107. Because planning in many cases depends on the resources and facilities available; therefore, monitoring the planning dimension of the performance of the Program and Budget Commission has no effect. To examine the monitoring dimension of the planning dimension, we must also consider the adjusted variable of the amount of available facilities and resources.

Sub-hypothesis 2: It was found that the supervisory dimension of the Program and Budget Commission of the Islamic Council of the city has an effect on the approval dimension of the commission. The correlation coefficient between the monitoring dimension and the approval dimension of the Program and Budget Commission is -0.083, which shows a slight relationship between the monitoring dimension and the approval dimension of the Program and Budget Commission. The significance level is equal to 0.371, which indicates the lack of effect on the monitoring dimension of the approval dimension of the Program and Budget Commission of the Islamic Council of the city. The coefficient of determination is 0.012. Because the adoption of laws in certain cases requires certain restrictions and capabilities, so the impact of monitoring the approval dimension of the performance of the Program and Budget Commission according to the existing laws and restrictions can be examined by considering the modified variable of laws and restrictions.

Sub-hypothesis 3: It was found that the supervisory dimension of the Program and Budget Commission of the Islamic Council of the city has an effect on the executive dimension of the commission. The correlation coefficient of the supervision dimension and the approval dimension of the Program and Budget Commission is 0.224, which shows a slight relationship between the supervision dimension and the executive dimension of the Program and Budget Commission. The level of significance is equal to 0.015, which shows the effect of monitoring the executive dimension of the Program and Budget Commission of the Islamic Council of the city. The coefficient of determination is 0.028. Monitoring performance and behavior always creates optimal order and performance. Therefore, the impact of the oversight dimension on the executive dimension of the commission is not unexpected. As a rule, the implementation of laws after planning and approval requires the optimal performance of the members of the Program and Budget Commission. Therefore, proper monitoring of implementation will definitely have a positive impact on the performance of commission members.

Sub-hypothesis 4: It was found that the supervisory dimension of the performance of the Program and Budget Commission of the Islamic Council of the city has an effect on the cooperation-consultative dimension of the commission. The correlation coefficient of the monitoring dimension and the cooperation-consulting dimension of the Program and Budget Commission is 0.414, which shows the average relationship between the monitoring dimension and the cooperation and consulting dimension of the Program and Budget Commission. The level of significance is equal to 0.000, which shows the effect of monitoring the cooperation and consulting dimension of the Program and Budget Commission of the Islamic Council of the city. The coefficient of determination is 0.024. Despite oversight, cooperation and consultation in the implementation of approvals and the performance of

duties is done better. For further investigation, the impact of the monitoring dimension on the components of the cooperation and consultation dimension can be investigated in more detail.

CONCLUSION

In explaining these findings, it can be said that because one of the most important pillars of this system is city councils, it is considered a completely popular institution and is an integral part of urban management and municipalities. Therefore, its impact on other roles of the council cannot be ignored. Given that the oversight dimension affects other dimensions of the commission; therefore, it is better to study the impact of other dimensions and components on the optimal performance through the opinions of citizens and employees separately and to strengthen or optimize the components affecting the performance of the commission to take practical and executive measures. This research has also been conducted in the municipalities of North Khorasan province. Similar research can be done in other provinces and other Islamic council commissions.

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WEATHER RISK AS AN ALARMING THREAT TO ELECTRICITY INFRASTRUCTURE

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ABSTRACT

Climate change is one of the most pressing environmental problems, resulting in an increase in the occurrence of natural emergencies. In the territory of the Slovak Republic, we mainly record an increased incidence of floods and extreme weather events (next EWE). EWE pose a major threat to electricity infrastructure. Recorded whirlwind will damage power lines and pylons. Damage to power lines has a significant impact on the lives of residents who find themselves without electricity. Within the research, attention was focused on the analysis of the issue of storms and their impacts on electricity infrastructure. A very important part of the research was the creation of a proposal for assessing the readiness to deal with crisis phenomena.

Keywords: Extreme weather events, Electricity infrastructure, Impact, Environmental problem, Protect.

INTRODUCTION

Climate change can be considered the biggest problem today, affecting the global population. Significant climate change is causing an increase in the emergence of natural threats that have a negative impact on the country's population and economic operation. The most common are floods, droughts, and storms. Earthquakes, tornadoes, and hurricanes occur in some countries. These natural threats can cause extensive damage and loss of life. The territory of the Slovak Republic is most often affected by floods and storms. The publication will focus on the emergence of EWEs, which are perceived as a significant threat to electricity infrastructure. Electricity infrastructure is essential for the functioning of society. All processes in the company are dependent on regular electricity supplies. The aim of the research will be to create a tool that would enable an effective assessment of the company's readiness for EWE solutions.

EXTREME WEATHER EVENTS

The existence of man at present is threatened by a significant change in global climatic conditions, which are leading to an increase in adverse events of a natural nature. Climate change can cause heat, floods, landslides, excessive rainfall, rising sea levels, and more frequent storms. All these natural phenomena can endanger the lives of the population and the processes of society. In terms of the focus of the publication, attention will be focused on the issue of the emergence of EWE and their impact on the functioning of electricity infrastructure. It is the strong wind that can cause damage to some parts of the electricity infrastructure, which leads to power outages. Power outages can jeopardize the processes taking place in society and the daily lives of citizens.

Wind can be characterized as the movement of air, which arises from the uneven heating of the earth's surface due to the effects of sunlight. The flow of wind is influenced by different temperatures during the day and night, they differ in different altitudes, above the forest or field, above land or sea. The different temperature of the air and its movement is also affected by the color of the earth's surface

(Origin and wind speed). In practice, the Beaufort scale is used to determine the wind force. The Beaufort scale was invented in 1805 by Irish Captain Francis Beaufort. Its goal was to measure the strength of the sea wind. It is actually a scale of wind force, which consists of 12 degrees. There is a Beaufort scale measuring wind speeds on land and at sea. Attention will be focused on the scale used on land, which is also shown in Table 1 for a closer look at the issue (Safety and Beaufort scale).

Table 1: Beaufort wind scale

Degree	Wind	Speed		Wind characteristics
		m/s	km/h	
0	Calm	0	<1	the smoke rises
1	Light air	0,3-1,5	1-5	weak movement of smoke
2	Light breeze	1,6-3,3	6-11	weak movement of the leaves, the wind can be felt emotionally
3	Gentle breeze	3,4-5,4	12-19	the rustle of the leaves, the wind can be felt on the face
4	Moderate breeze	5,5-7,9	20-28	it moves with branches without leaves
5	Fresh breeze	8-10,7	29-38	it roars in deciduous forests, audible on houses
6	Strong breeze	10,8-13,8	39-49	it moves large branches, makes movement uncomfortable
7	High wind, Moderate gale	13,9-17,1	50-61	the wind moves through the whole trees, walking against the wind is difficult
8	Gale, Fresh gale	17,2-20,7	62-74	the branches are breaking, walking against the wind is normally impossible
9	Strong gale	20,8-24,4	75-88	the wind causes less damage to buildings, tears down chimneys and tiles, thicker branches break off from the trees
10	Storm, Whole gale	24,5-28,4	89-102	it uproots whole trees, causing more damage to buildings
11	Violent storm	28,5-32,6	103-117	many trees are uprooted or broken, causing extensive material damage
12	Hurricane	32,7	>117	destructive effects

The prediction of wind force and the subsequent announcement of warnings in the territory of the Slovak Republic is performed by the Slovak Hydrometeorological Institute, which displays a map of Slovakia on its website, including warnings for each region, see Figure 1. The wind force is monitored using the Aladdin Model, which specifically displays temperature, clouds, wind strength, and rainfall.

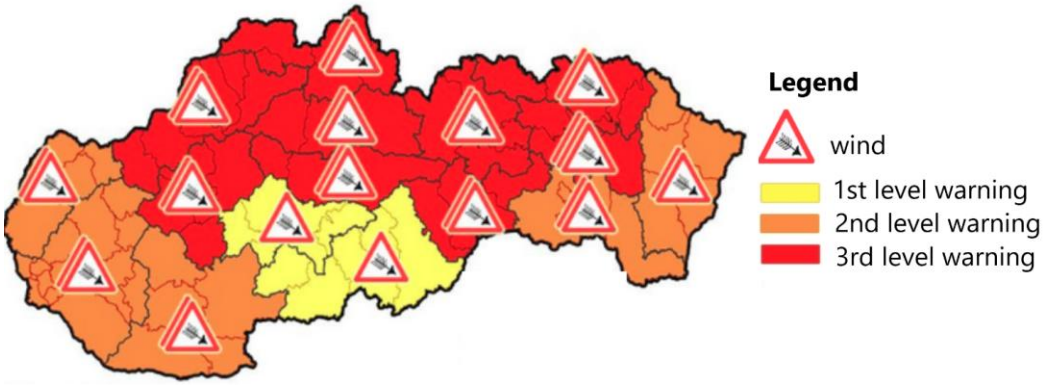

Figure 1: Wind warnings in Slovakia

The warnings shown in Figure. 1 are characterized as follows:

- **1st level warning** - dangerous phenomenon e.g. the wind can cause minor damage. This phenomenon poses a potential danger to human activities.
- **2nd level warning** - the intensity of the dangerous phenomenon is above average and the probability of causing damage is high. The phenomenon poses a great danger to human activities.
- **3rd level warning** - the intensity of the dangerous phenomenon is at a given time of year and the area requires high and additional efficiency, which will cause great damage and endanger human lives. This phenomenon poses a general threat to human activities (Warning).

Following the findings, it is necessary to draw attention to the real events when EWE caused damage to the electricity infrastructure and thus emphasize the importance of addressing this issue. In February 2020, central Slovakia was hit by an energy disaster caused by a night storm. More than 260 distribution transformer stations were out of operation. Central Slovak distribution recorded failures on 36 high voltage lines. Workers did not begin work to correct the problem until the morning, as extremely blue winds blew at night and trees fell in many places, which could endanger workers' safety. Strong winds were also recorded in eastern Slovakia, where 3383 specialist places found themselves without electricity. The cause of the outage was a very strong wind, which uprooted the trees that fell on the power lines. The result is torn wires, broken insulators, and damaged brackets. Strong wind and rain in the Žilina region threw trees on the roads and concrete columns fell. The road between the villages of Lutiše and Radôstka remained impassable, as four concrete pillars fell on a 100-meter section (Results of the night storm).

On July 29, 2020, the Czech Republic recorded a strong wind, which destroyed a solar power plant in the South Moravian Region. On September 30, 2019, meteorology on Mount Sněžka in the north of the Czech Republic recorded a wind speed of 157 kilometers per hour, which is the power of a hurricane. Strong winds have caused power outages and problems in rail transport. There have been power outages in the country, affecting more than 20,000 households (A wind storm). Real events point to the need for effective crisis management to ensure the protection of electrical infrastructure. The issue of natural threats in connection with the electricity infrastructure has been addressed in several publications, which will be presented in the following section.

LITERATURE REVIEW

Strong wind can currently be perceived as an active threat to electricity infrastructure, which in the event of damage, has a negative impact on society and the lives of citizens. The issue of natural threats has been addressed in several publications. The literature review section will focus on the literature addressing EWE and its impact on electricity infrastructure.

The publication "Impact of climate change on energy systems, experience with electrical insulation in Italy" describes the effects of climate change on the operation of energy systems. The publications deal with a real case from practice when in 2015 Italy was hit by a heavy snowstorm combined with strong winds. This phenomenon caused a power outage for several hours, endangering 200,000 customers. The publication also describes the event from 2013 when an extreme wind damaged sections of several tracks. The author talks about one extreme weather that raises the question of how to deal with and reduce the impact on the energy system. It focuses its attention on the need to increase the resistance of power lines and substations. It proposes approaches to increase the resilience of electricity infrastructure (Impact of climate change).

In the article "The effect of weather on grid systems and the reliability of electricity supply", the author pays attention to examining the reliability of public electricity supply. The electrical network is made up of several components that are exposed to weather conditions. Weather conditions can cause disturbances that can limit the supply of electricity. The author examines the effects of weather events on the electricity grid. Research has shown that the effects of weather events on high-voltage transmission networks are different from the effects on low-voltage distribution networks. According

to the research, the author then concludes that the most significant extreme weather is strong wind (Ward, 2013).

In the article "Modelling and evaluating the resilience of critical electrical power infrastructure to extreme weather events", the authors discuss a very current problem, which is climate change and its impact on the operation of electricity infrastructure. At present, energy systems are expected to be resistant to extreme weather events. The publication provides a conceptual framework for gaining knowledge on the resilience of energy systems, focusing on the effects of adverse weather conditions (Panteli, & Mancarella, 2017).

The publication "Hurricanes and electricity infrastructure hardening" deals with measures that are taken to prevent or mitigate power outages caused by adverse weather conditions. The author of the article stated that power lines and transformers, which are part of the electricity system used to supply electricity to end consumers, are particularly susceptible to damage by extreme weather events. The article proposes measures to mitigate power outages and thus contribute to increasing the resilience of electricity infrastructure (Campbell, 2017).

In the publications, the authors expressed different opinions on solving the problem of extreme weather events and their effects on the electricity infrastructure. Partial conclusion - based on the analysis of information sources, it can be argued that climate change is causing an increase in the number of EWE and requires an active approach to prevent damage or mitigate the impact on electricity infrastructure. The next part of the paper will be devoted to the design of a tool that would be able to evaluate the readiness to deal with crisis phenomena.

RESULTS OF RESEARCH IN THE FIELD EXTREMME WEATHER EVENTS AND ELECTRICITY INFRASTRUCTURE

Extreme weather events pose a serious problem for electricity infrastructure. Damage to the components of the electricity infrastructure can lead to a power outage, which negatively affects the lives of residents and ongoing processes in society. Society must therefore be prepared to deal with crises that may arise. Therefore, within this part, the result of the research will be presented - a comprehensive procedure for evaluating the readiness of the company in solving crisis phenomena, e.g. power outage due to a storm. The whole procedure is based on the crisis management model, which consists of 4 phases, which represent pillars in the whole process of assessment of readiness, part of which are proposed indicators allowing the evaluation of individual pillars (see Figure. 2). By quantitative evaluation of individual pillars, we can obtain an overview of deficiencies that may be reflected in the extent of system damage and the length of system recovery itself.

Each proposed pillar will set out specific indicators that can assess the area concerned. The indicator will then be assigned a value of 1 (excellent), 2 (good) or 3 (bad). A description of these values is given in Table 3. To ensure comprehensive coverage and informative value, it is necessary to design a minimum of 30 indicators in each area. The whole process of evaluation of individual indicators is shown in Table 2. As this is an example of a crisis assessment readiness assessment process, values have been entered on a discretionary basis. The final evaluation will be performed according to Table 4, which also includes the characteristics of individual stages.

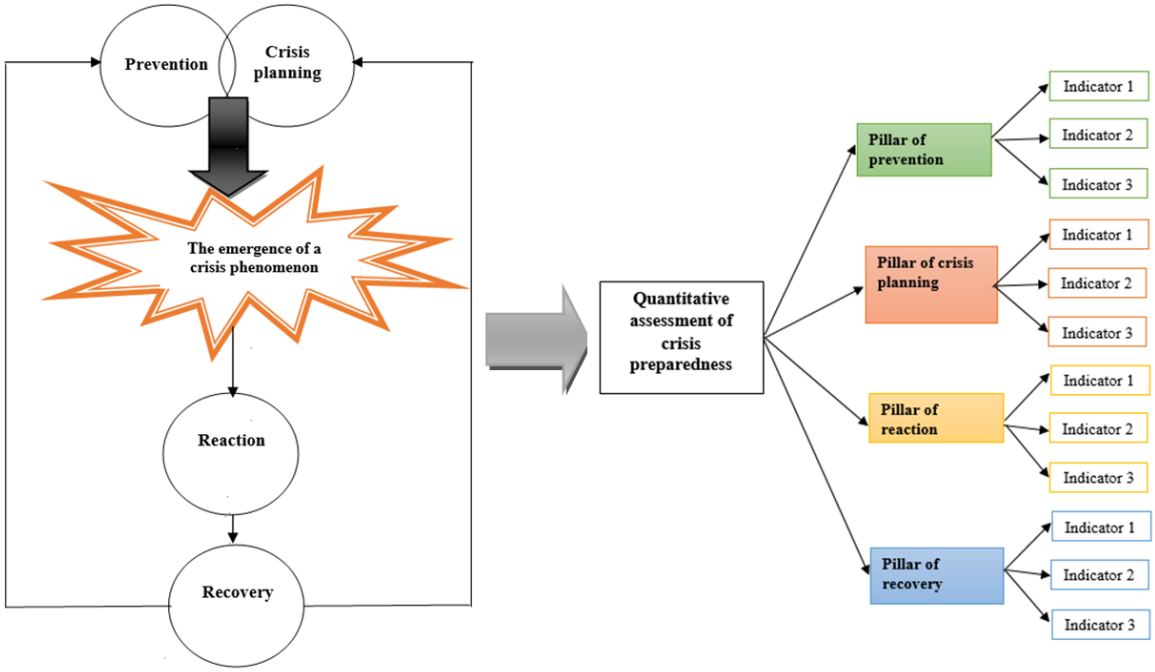

Figure 2: Quantitative assessment of crisis preparedness

Table 2: Overview of indicators for security pillars

Pillar name	**Indicator**	**Point value**		
		1	**2**	**3**
		Excellent	**Good**	**Bad**
Prevention	Application of risk management according to ISO 31 000	1		
	Periodicity of monitoring of risk factors	1		
	Inspection of devices enabling early warning and notification	1		
	Periodicity of control e.g. power lines	1		
Crisis planning	Elaboration of crisis plans			3
	Deployment of forces and resources in the defined area		2	
	Material requirements		2	
	Number of scenarios within the scenario library		2	
Reaction	Number of early warning and notification devices	1		
	Number of units carrying out liquidation work	1		
	Number of units performing field equipment repairs	1		
	Periodicity of simulation exercises	1		
Recovery	Implementation on the basis of the stages set out in the plan		2	
	Financial reserves for renewal		2	
	Number of workers involved in the recovery	1		
	Professional and practical knowledge of workers involved in the recovery	1		
Total points total		10	10	3
Evaluation of the level of preparedness for solving crisis phenomena		23 –characterized by a good level of readiness		

Table 3: Description of possible values of the indicator

Value	Description
1 (excellent)	A value of 1 (excellent) is assigned to an indicator that meets all identified requirements.
2 (good)	A value of 2 (good) is assigned to an indicator that has small deficiencies within the identified requirements.
3 (bad)	A value of 3 (bad) is assigned to an indicator that has extensive shortcomings and thus does not meet all requirements.

Table 4: Level of readiness for EWE

Point evaluation	Description of the overall evaluation	Degree of readiness to deal with crisis phenomena
12-19	The company is characterized by a high level of readiness to deal with crisis phenomena. In practice, it can provide comprehensive and effective prevention, crisis planning. All material and physical resources can respond immediately and effectively to a crisis, reducing damage and loss. The restoration is covered by the necessary resources and can restore the damaged parts to their original state.	High level of readiness
20-27	The company is characterized by a good level of readiness to deal with crisis phenomena. In practice, it can provide effective prevention, but not large enough, so more extensive crisis planning is carried out. All material and physical resources can respond effectively to the crisis, reducing damage and loss. Restoring damaged parts may take longer.	Good level of readiness
28-36	The company is characterized by a low level of readiness to deal with crisis phenomena. In practice, this means that not all of the proposed pillars are sufficiently covered by material and physical resources to be able to effectively manage the crisis phenomenon.	Low level of readiness

Through the proposed pillars, which are based on the crisis management model, it is possible to effectively assess the degree of readiness to deal with crisis phenomena. According to the evaluation of individual pillars, we can get an overview of the shortcomings that need to be eliminated in order for the company to be able to effectively manage crisis phenomena of various kinds.

DISCUSSION

Climate change results in an increase in the emergence of natural threats, in which force arises cannot be influenced. The company may take such a second threat proactively and officially with all necessary steps to reduce the effectiveness of the consequences of natural hazards. The most common occurrence of the EWE threat has been mentioned and characterized in the publications. It was the attention to the periodicity of the occurrence of extreme weather events that pointed out the need to address natural threats. The proposed procedure for assessing the readiness to deal with crisis events is based on the crisis management model and the primary form consists of pilot components in the proposed procedure, whose parallel indicators. The proposed procedure can be identified as a tool that allows to increase the evaluation of individual parts of crisis management and gain evaluators a different perspective on the researched problem. Throughout the process, there will be an assessment of strengths and weaknesses in dealing with crisis events. The evaluator is able to identify gaps that can cause difficulties in resolving crisis situations.

CONCLUSION

The increase in the occurrence of extreme weather conditions leads to the need for effective solutions to crisis phenomena. The publication shows the most common phenomenon in Slovakia and that is

EWE and their impact on electricity infrastructure, the protection of which is of primary interest. Increasing the efficiency of solving crisis phenomena of various kinds can be ensured by applying the proposed procedure. The proposed procedure is a general tool that can be applied in various areas.

ACKNOWLEDGEMENT

Publication of this paper was supported by project VEGA 1/0371/19 Assessing the vulnerability of a company due to the failure of important systems and services in the electricity sector.

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PARKING INFORMATION SYSTEMS FOR CENTRAL ZONES OF A CITY

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ABSTRACT

Finding a parking place for a car in a central zone of a city can be time consuming task which often results with driver's frustration, increased full consumption and additional negative impact on the environment. In this paper we present the results of a survey on drivers' opinions on the existing parking system in the central zone of the city of Novi Sad. A questionnaire-based survey was conducted in 2017. and 709 responses were collected. The obtained results from the survey indicate that an increase in the number of parking places in the central city zone would solve the current parking issues. In addition, the implementation of parking information system would add new services, such as parking reservation and on-line payment. Therefore, we also present a review of different parking information systems that can be considered as candidates for the implementation in the central zone of the city of Novi Sad.

Keywords: Parking information systems, parking reservation, central zone, the city of Novi Sad.

INTRODUCTION

Due to the constant increase in the degree of motorization and individual motor traffic, cities are exposed to growing problems in the field of stationary traffic. Finding a parking place for a car in a central zone of a city can be time consuming task which often results with driver's frustration, increased full consumption and additional negative impact on the environment. In general, drivers can park their cars on-street and off-street. On-street parking places in central zones are usually drivers' first choice due to their proximity to a city center (Polycarpou et al., 2013). However, they are rarely available and therefore drivers need to find alternative solution. Off-street parking places can accommodate tens or hundreds of cars at a same area. In order to share information regarding the availability of parking places in off-street parking lots parking information systems can be used.

In this paper, we analyze problems with finding a parking place for a car in a central zone of the city of Novi Sad. Two major issues are an increase in the number of non-resident car drivers in a central zone and an increase in the number of registered passenger vehicles in the city of Novi Sad. Non-resident car drivers are often unfamiliar with the network of one-way streets and streets where the traffic is prohibited. They are also unaware of the locations of parking lots in a city center and often circling the surrounding roads in search for parking place. The solution to the problem would be a parking information system for off-street parking lots. According to the National Bureau of Statistics of Serbia (2021), the number of registered passenger vehicles in the city of Novi Sad has a positive growth trend, and they range from 79,217 vehicles in 2008. to 108,938 vehicles in 2017. (Table 1). However, the number of parking places has not changed significantly.

Table 1: The number of registered passenger vehicles in the city of Novi Sad from 2008. to 2017.

2008.	**2009.**	**2010.**	**2011.**	**2012.**	**2013.**	**2014.**	**2015.**	**2016.**	**2017.**
79,217	87,007	87,484	88,486	92,674	95,797	98,024	100,524	104,074	108,938

Besides approximately 1,000 available on-street parking places in a central zone of the city of Novi Sad, there are two off-street parking lots. The first parking lot is a garage located near the Serbian National Theater with a capacity of 100 parking places. The second parking lot is a closed parking located near the Gallery Square with a capacity of 60 parking places. Information about the number of available parking places in two off-street parking lots in a central zone are disseminated only by variable message signs (VMS) installed at 3 locations near the city center. Other ways of informing, such as web or mobile applications, are not available. Also, possibilities to make parking reservation and to pay service on-line do not exist as well. Therefore, there is a possibility as well as a need to implement parking information system that can offer dissemination of all relevant information regarding parking lots, parking reservation, and on-line payment.

The rest of the paper is organized as follows. First, a driver survey is explained and the main results are exhibited. After that, a review of parking information systems is presented and different issues regarding smart parking contexts are discussed. The paper concludes with the implications for researchers and practitioners.

DRIVER SURVEY: THE CITY OF NOVI SAD

To obtain drivers' opinions on existing parking system in the central zone of the city of Novi Sad and to evaluate the need for the implementation of parking information system, a driver survey is conducted as part of the activities in the Smart City project (FTN & ADOMNE, 2019). The survey took place in the city of Novi Sad in the Republic of Serbia. The research was conducted between May 2017 and June 2017. The total number of completed questionnaires was 709. The questionnaire included a variety of questions related to on-street and off-street parking places in the central zone of the city of Novi Sad.

The first key question was the purpose of arrival in the city center (Figure 1). The obtained results exhibit that the dominant purposes of arrival are "business" and "personal obligations" with a share of 51.7% in the total structure of responses.

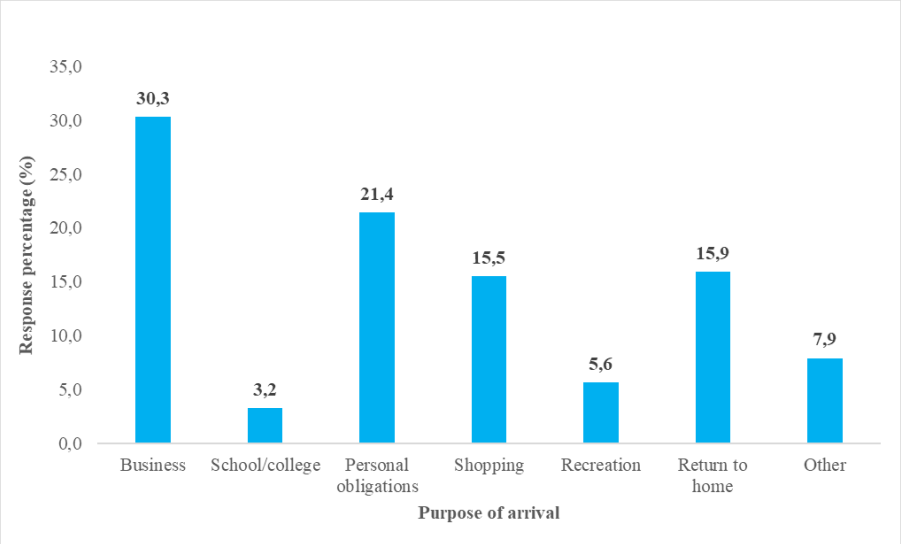

Figure 1: Purpose of arrival in the city center

In order to determine what users perceive as the most important parameters of the quality of service related to vehicle parking, the question was formed in the following way: "what is the most important to car drivers in terms of parking?". The obtained results (Figure 2) show that the most important parameter of service quality is to have a free parking place (45.3%). The second most frequent answer is the proximity to the destination (17.5%).

Figure 2: Service quality parameters in the city center

The third key question was about finding a parking place from the first attempt in the city center. The obtained results (Figure 3) show that almost a third of users had difficulties in finding a free parking place from the first attempt in the central zone of the city of Novi Sad.

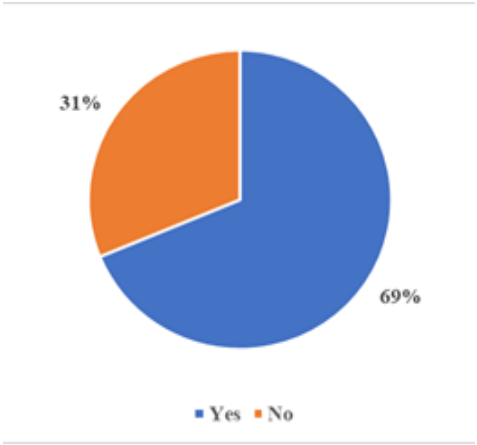

Figure 3: Finding a parking place from the first attempt in the city center

Respondents also stated that existing parking system lacks the possibility of reserving a parking place in advance, the option to make payment on-line and the availability of information on the number of free parking places through web or mobile applications. Therefore, in the next two sections we present a review of different parking information systems that can be implemented in the parking system in the city of Novi Sad and we discuss some issues regarding smart parking contexts.

A REVIEW OF PARKING INFORMATION SYSTEMS

There are various classifications of parking information systems. The most commonly accepted classification is on: (1) parking guidance and information system, (2) transit-based information system, (3) smart payment system, (4) e-parking, and (5) automated parking (Shaheen et al., 2005).

Parking guidance and information system (PGIS) encompasses two major categories. The PGIS can either include the entire city area or function only within the car park facility (Shaheen et al., 2005). The PGIS offers information occupancy status for different parking lots within the city as well as other relevant information. Also, PGIS supports drivers by recommending locations and routes with higher chance to find parking place (Di Martino et al., 2019). The PGIS is implemented in many cities in Europe, Asia, and USA. Transit-based information system (TBIS) is primarily focus on guiding drivers to park-and-ride systems. The TBIS provides real-time information regarding occupancy status for different park-and-ride systems and public transportation. The TBIS is implemented in many cities in Europe and USA. Smart payment system (SPS) aims to replace traditional payment concepts by integrating new technologies for payment to conventional parking information system. Recently, technologies such as a smartcard, a biometric, a 2D optical code, and a blockchain, have gained more sophistication with the ubiquitous usage of smartphones and, therefore, they are convenient for electronic payments (Morita et al., 2018). Generally, the SPS encompasses contact method, wireless method, and mobile device. The SPS is implemented in many cities in Europe and USA. E-parking is an information system that offers drivers the possibility to reserve a parking place within parking lots, to make on-line payment and to be informed with all relevant information about the specific parking lot. The system can usually be accessed through various web and mobile applications. In a recent paper, Jioudi et al. (2019) proposed an e-Parking information system which consists of multi-agent smart parking platform for dynamic pricing and reservation sharing service. Among the examples of companies involved in the development of e-parking system are companies Parking Carma, Click and Park, City and Suburban Parking etc. (Idris et al., 2019). Automated parking is a complex automated parking lot in which a car is shifted in the adequate parking place through the computer-controlled system. With the development of the artificial intelligence the use of robots and robot-based technologies in automated parking systems also increased (Wu et al., 2020). Automated parking ensures maximum utilization of parking place, rapid response to store and handle cars and increased car safety. These systems are in use mainly in Japan, Canada and USA.

SMART PARKING CONTEXTS: ISSUES AND SOLUTIONS

Smart parking contexts include several aspects of parking services that need to be carefully designed before they are offered to end users. In this paper, we analyze parking reservation context, dynamic pricing context and park-and-ride context.

Parking reservation

For car passengers outside the city center and from other cities the possibility to reserve a parking place in parking lots in advance can be decisive. Web and mobile applications need to be available for drivers to send a request and receive a response. In case that there is a free parking place driver receives a confirmation of a reservation from the PGIS. In opposite, driver needs to find another parking lot from the PGIS. After the reservation is successfully completed, the realization of the service follows. There are several issues that need to be resolved. First, the verification of the reservation needs to be addressed. Most parking lots have gates or similar barrier at the entrance. In order to allow driver to enter or leave the parking lot some automatic identification technology needs to be implemented. Radio frequency identification or bar code can be used for that purpose due to the possibility of reading identification code from a certain distance. Second, there is an uncertainty whether the car driver will arrive exactly at the reserved time or even cancel the reservation. And how to deal the situation if the driver is late for a certain period? Also, how much of a delay can be tolerated? This issue can be resolved by full payment in advance by mobile application. In that manner, the revenue protection of the parking lot is guaranteed. Third, in some cases drivers need to extend duration of their reservation. This can be triggered before the reservation starts or even during the reservation. Those situations need to be addressed systematically to avoid confusion and postponing off all subsequent reservations. Therefore, the PGIS needs to reject requests if the parking schedule is filled.

Recently, two parking reservation systems have been proposed. The first system is called an auction-based parking management platform (Shao et al., 2020). The auctioneer and the drivers represent bidders for the reservation of parking place. A winner may leave earlier or occupy the parking place longer than the time he has reserved. This phenomenon is known as parking reservation disturbances and it can occur only after the last auction terminates. Another system, called ParkBid, is a crowdsourcing-based parking service for cars where the information of available parking place is circulated among the interested users following a bidding process (Noor et al., 2017).

Dynamic pricing

The demand for off-street parking places varies with time and space perspective. Time perspective encompass daily demand (e.g., the peak hours), weakly demand (e.g., working days and weekend) and monthly demand (e.g., summer vacations). Space perspective directly corresponds to the vicinity of parking lots to the city center (e.g., daily business or other activities) or some other area of the city where certain events occur periodically (e.g., sports games or music festivals). In accordance with time and space perspective, pricing for parking places need to be synchronized. Therefore, pricing is always dynamic category and never static. This implies implementation of different parking tariffs. In general, parking will be more expensive during peak hours and less expensive otherwise to attract car drivers. It is also important to inform car drivers about every change in parking tariffs. This may be done through website or mobile applications. In a recent paper, Friesen & Mingardo (2020) discuss that dynamic pricing is almost absent in the private parking sector apart from some pilot tests in Germany, France, or Norway. Therefore, in order to reduce congestion in off-street parking lots, the authors propose the use of dynamic pricing strategy in the private parking sector at a larger scale.

Park-and-ride

Park-and-ride system can be adequate alternative solution to insufficient parking lots within city center. This system requires efficient and effective public transport which operates frequently (e.g., every 15 minutes) and which have stop stations in the vicinity of several city center locations. Car drivers need to be informed about park-and-ride system by VMS installed at key locations within the city, radio broadcasts as well as different web and mobile applications. Several case studies from the literature, such as a case study of Shunyi in Beijing (Shen et al., 2017), a case study of Cracow (Macioszek & Kurek, 2020) and a case study of Babol (Khakbaz et al., 2017) can be further investigated.

CONCLUSION

In parallel with the increase in the number of residents in the city of Novi Sad, the number of registered passenger vehicles is also increasing. Currently, the major problem is that the number of new parking places is not synchronized with the increased motorization. Therefore, the city's decision makers plan to build 8 additional parking lots in the central city zone, with a total capacity of about 2,000 parking places. The future capacity will exceed significantly the current capacity of 160 parking places in two off-street parking lots in the central zone of the city of Novi Sad.

According to the recommendations of the experts who participated in the Smart City project (FTN & ADOMNE, 2019), a new parking information system also need to be designed and implemented in order to improve existing parking system and to add new services, such as parking reservation and on-line payment. Future work can extend a review of existing parking information systems. Also, experiences of similar-sized cities that have implemented parking information systems should be investigated.

ACKNOWLEDGEMENT

This research has been supported by the project "Development and application of modern tools and research methods in the field of traffic and transport".

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BUSINESS FAILURE PREDICTION USING ALTMAN'S MODEL ANALYSIS

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ABSTRACT

Every year in the United States approximately 1% of all companies declare bankruptcy. As a result of an attempt to define the factors that lead to a company's bankruptcy, there have been a large number of scientific papers dealing with this problem over the last few decades. A number of techniques and models for business failure prediction have also been developed in order to implement preventive measures to avoid the negative consequences of failure at the level of companies and the economy as a whole. In this context, Altman's model is the most popular model in this area in the world. It has served as the inspiration and basis for a number of authors to develop their own models of analysis using the same statistical techniques. This paper presents the most popular model for the prediction of business failures of companies, the so-called Altman's model of analysis.

Keywords: Altman's model, Business failure, Bankruptcy, Ratio indicators, Multipliers.

INTRODUCTION

The research in the area of predicting business failure has constantly attracted attention of many theorists and empiricists for the past few decades. Consequently, a vast number of different techniques and models for business failure prediction of a company have been developed. However, the most famous of all is the Altman's Z-score model of analysis. Namely, Edward I. Altman, the professor of finance from the Stern School of Business at the New York University was the first to successfully apply one statistical model for predicting company bankruptcy. His so-called Z-score model represents the most world-famous model in this area. His methodology of determining bankruptcy probability for companies is the methodology which is highly applicable in practice today owing to its simplicity. Respectively, the initial assumption of Altman's model was that a limited number of economic categories predominantly affect the financial state of the company, so their analysis and putting into logical relationships using ratio numbers can lead to information on whether and to what extent a certain company is in financial problems. Since his model had a primary objective to determine risks of bankruptcy of companies, mostly those ratio numbers which show solvency, liquidity and rentability of business are taken into account.

In the model definition itself, Altman tested 22 ratio numbers using statistical techniques. Accordingly, the tests were performed on a sample of 66 companies, 33 of which were bankrupt and 33 of which were successful. The tests were repeated successively and the indicator which was least effective in predicting bankruptcy was omitted for every repetition. The application of such "multiple

discriminate" technique aimed at assigning proper weighting factors to ratio indicators which were most contributory in making distinction between successful companies and those companies which declared bankruptcy. Such Altman's testing helped define five relevant ratios (indicators) and calculate the index known as the Z-score which is used for predicting company's potential failure. In other words, from the initial 22 financial ratios, in the end Altman chose 5 ratios i.e. indicators.

Z-SCORE MODEL – THE FORM

In accordance with the aforementioned, it should be pointed out that the Z-score model of analysis is actually based on a weighted sum of multiple individual indicators. Namely, company's financial health is determined according to the weighted sum of multiple individual indicators, where a bigger sum means company's higher financial stability and vice versa- smaller sum represents a warning of possible financial problems. The results of the Z-score model of analysis are worthy of special attention since the information this model uses has a high efficiency and analytical value. This model is based on the definition of five indicators i.e. discriminant function variables. The original Altman's Z-score index can be calculated respectively by applying a function which has the following basic components:

$Z = 1{,}2 * X_1 + 1{,}4 * X_2 + 3{,}3 * X_3 + 0{,}6 * X_4 + 1{,}0 * X_5$ where:

X_1 = the ratio of working capital and total assets;
X_2 = the ratio of accumulated retained earnings and total assets;
X_3 = the ratio of earnings before interest and tax deduction and total assets;
X_4 = the ratio of market value of equity and total liabilities;
X_5 = the ratio of sales revenue and total assets.

EVALUATION OF INDICATORS IN THE Z-SCORE MODEL

According to evaluation of X_1 to X_5, it is worth considering the importance given to individual ratios in the Z-score model i.e. individual indicators. Table 1 provides an overview of the aforementioned indicators.

Table 1: Evaluation of indicators in the Z-score model

Ratio indicators	Weighting factor used to evaluate X	%
X_1 = Working capital / Total assets	1,2	16,00
X_2 = Retained earnings / Total assets	1,4	18,67
X_3 = Earnings before interests and taxes / Total essets	3,3	44,00
X_4 = Market value of equity / Total liabilities	0,6	8,00
X_5 = Sales revenue / Total assets	1,0	13,33
Total X_1 to X_5	7,5	100,00

(Source: Arranged and modified according to Vranković, 2009, p. 134)

According to the table, X_3 (44%) has the biggest importance in the model. This actually represents the gross return to total assets (capital). Therefore, this indicator is important for the rentability of the total capital. However, according to some authors, the information about the net return rate to own capital is much more important because it indicates the increase (compounding) of own capital. In addition, it should be taken into account that the rate of gross return to own capital may be high while the net return rate to own capital can be insignificant or even negative. This occurs when the gross return is insignificant or negative and the interest expenses are prominently high.

In the order of importance, the indicator X_2 (18.67%) comes second. However, the importance of this indicator can be very disputable for at least two important reasons. Firstly, if the company distributed the revenue to capital or converted it to dividend shares, the capital is also increased along with the creditor's protection. In these circumstances, the accumulated revenue can be extremely low, perhaps even equal to 0. Secondly, if the company has paid up the revenue to the owners, the X_2 indicator is plausible because it encourages the owners to refrain from distributing profit to shareholders (owners) for the better future of the company.

The third indicator in the order of importance is X_1 (16%). When the working capital is positive, this ratio provides no insight into the financial state i.e. company's financial stability whatsoever. In the course of evaluation of financial stability, working capital is compared to stock. In that case, it is important to determine whether the working capital is equal to, bigger or smaller than the stock. If the working capital is negative, the ratio of negative working capital and total assets also provides no information about company's financial stability because the financial stability in that case requires quantifying the lack of working capital, which is determined according to the following model:

1. Lasting and long-term capital
2. Long-term assets (the sum of permanent assets and stock)
3. Lacking capital (1-2) in the case that 2>1.

The fourth indicator in the order of importance is X_5 (13.33%). This ratio de facto represents the quotient of turnover of the total assets, so it analogously represents an extremely important efficiency indicator of using company's assets.

The last indicator in the order of importance is X_4 (8.00%). This ratio indicates the extent of debt service coverage by capital. The analytical interpretation of this indicator is that the higher the value of this ratio, the more protected the creditors. The reason for this lies in the fact that the capital of debtors represents the guarantee substance for the creditor because as long as the loss of a debtor is lower than his capital, the creditors are protected because they can charge their debts at some point, even from the bankruptcy estate. However, when the loss of a debtor is higher than his capital, the difference between the loss and capital is actually the loss of the creditors, so the creditors will be able to collect their debts at the amount which is lower by the amount of loss above the capital. According to this logic, it is very surprising that the ratio of market value of equity and the liabilities has a very low grade in the Z-score model of analysis.

APPLICATION OF THE Z-SCORE MODEL

The financial state of a given company is estimated according to the weighted sum of indicators which we explained previously. The bigger sum means higher financial stability of the company, while on the other hand the smaller sum warns about potential financial problems. According to empirical research i.e. results obtained in the original Z-score model, the companies are classified according to the following:

a) If $Z \geq 3.0$, the company's financial situation is stable and the company is not under risk of bankruptcy i.e. it has good credit performance.
b) If $Z \geq 1.8$, the company's financial situation is unstable and the company is under risk of bankruptcy.
c) If $1.8 \leq Z \leq 3.0$, or Z is between 1.8 and 3.0, the company is in the so-called "gray zone" (risk zone) and there are indicators that the financial situation is unfavorable i.e. it has minimal credit performance.

As it is evident, Altman considers the lower limit value to be 1.8 which means that companies whose Z-score index is below that value are to become bankrupt, while at the same time the upper limit value is 3.0 which means that companies which have the Z-score above that value will not become bankrupt. Therefore, it is worth mentioning that according to Altman's formula, the companies with strong asset base will have a high Z-score although business may be on the decline. Altman's Z-score represents a

multivariable model for predicting company's bankruptcy. From the aspect of capabilityto sustaincompany's competitiveness, as a model it can be used to identify company's financial health in relation to its profitability, productivity, market value and managerial capabilities. According to empirical estimation by analysts, the application of the Z-score model has proven to be accurate in predicting business failure in about 85% cases in the first year and about 70% cases in the second year prior to declaring bankruptcy. However, Z-score is most applicable in the first two years before company's bankruptcy when experienced financial analysts can clearly recognize companies dealing with significant difficulties and problems with declining business. Respectively, it should be pointed out that the accuracy of predicting using Altman's model decreases as the number of years increases. Consequently, when a company is being evaluated, it is necessary to apply this model for a period of at least three years because this will provide a more accurate picture of company's business performance tendency.

DISADVANTAGES OF THE Z-SCORE MODEL

Limitations of Altman's Z-score model arise from the initial assumptions of the linear discriminant analysis. Although the model has shown good results in predicting business failure, it still has certain key drawbacks which we will analyze in brief.

The first limitation for the implementation of the Z-score model is the difference in legislation between some countries and their definition of conditions whose fulfillment leads to initiating the bankruptcy procedure. Namely, legislation which was valid at the time of designing the Z-score model determined its structure to a large extent, and we may conclude that the bigger the difference between the conditions of that period and the conditions in which the model is being tested, the smaller its applicability. It should be pointed out that there is no universal legal code for bankruptcy. Every law on bankruptcy attempts to balance a number of objectives including protection of creditor's rights on the one hand and prevention of company's premature liquidity on the other. Most countries have changed laws on bankruptcy in accordance with balancing different political interests and structural transformations of the economy along with the overall historical development of the society.

The second limitation which questions the universality of the Z-score model reflects itself in the diversity of business activities and the fact that companies tested in the model belong to different branches, as well as the diversity of their ownership structure. Companies with different business activities have different characteristics in terms of financial sources and the asset structure, so any generalization in that aspect would be subject to risk. With that in mind, Altman also designed two subvarieties of the Z-score model which are applicable to private production and non-production companies unlike the basic model which is applicable to public (national) production companies. Accordingly, the structure of the discriminant formula is the same for both varieties, which means that the ratios used in the model are identical, but the multipliers are different as shown in table 2.

Table 2: Ratio indicators and multipliers in the Z-score model

Ratio indicators	Multipliers for Private Companies	Multipliers for Public Companies
X_1 = Working capital / Total assets	0,71	1,20
X_2 = Retained earnings / Total assets	0,84	1,40
X_3 = Earnings before interests and taxes / Total assets	3,10	3,30
X_4 = Market value of equity / Total liabilities	0,42	0,60
X_5 = Sales revenue / Total assets	1,00	1,00

Source: Arranged and modified according to Paunović, Zipovski, 2005; p. 253

The third limitation which also questions the implementation of the Z-score model is the complexity and unpredictability of factors which affect insolvency of companies. Although vast number of these

factors are included in the statistical optimization of the model, some factors still remain unregistered whether because of their absence from the tested sample which served for designing the Z-score model, or because of the potential dominant effect of special circumstances which are difficult to predict such as: political events, unexpected administrative measures as well as sudden short-term disturbances on the market. To illustrate, company's survival can be threatened even due to failure of a single business venture, especially if the company is newly-established, and the nature of the venture is risky in terms of realization.

The fourth limitation of the Z-score model is related to the fact that the model uses only bookkeeping information, except for the X_4 element which includes the market value of equity if available. Accordingly, it is known that the information given by the bookkeeping often does not match the real state, and since the model uses categories such as profit, business assets etc. there is no doubt that the applicability of the model highly depends on objectivity of these bookkeeping categories. It should be pointed out that these elements are often prone to subjective estimation of the human factor. Where there is no alternative to the methods of evaluation and recognition of bookkeeping entries, there is a possibility of exercising bookkeeping policy which itself questions the validity of its information. Neglect of deviation of cash and value flows as well as use of revenue and profit entries as results of value flows only de facto cause risk of unrealistic estimation of liquidity which is crucial for initiation of company's bankruptcy procedure. In conclusion, the model is rather focused on the capability to create value and it almost excludes the subject of cash flows.

CONCLUSION

Considering the fact that more than 30 years passed from the design of the Z-score model until its testing, the Z-score model of predicting company's bankruptcy can be considered to deserve special attention since it has confirmed a significant applicable and analytical value of bookkeeping information which it uses. It is worth mentioning that although the ratio analysis which this model uses is an already known method of analysis, the applied multidisciplinary approach to designing the Z-score model has proven to be very successful which de facto predicts wider possibilities of applying this kind of approach to many other areas of economic and financial analysis.

The Z-score model of predicting company's business failure analyses all important aspects of company's financial situation: liquidity, rentability, activity and financial structure. Respectively, it provides an estimation of company's current and future financial health. However, the Z-model also has certain disadvantages, above all, the fact that it is not immune to bookkeeping mistakes and that it does not include indicators from the cash flow. Furthermore, it is not the most appropriate method for the analysis of newly established companies since they usually do not have undistributed revenue. Consequently, the Z-score model of analysis for predicting business failure i.e. company's bankruptcy should not be taken as a substitute for detailed financial analysis. This model is best used for quick evaluation of company's financial state, so if the Z-test detects presence of potential difficulties in company's business activities, it would be advisable to perform a detailed financial analysis of the company. This practically means that the results of the Z-score model of analysis should be taken with caution, above all, bearing in mind the important limitations of the application of this model. In conclusion, the Z-score presents an excellent technique for the synthetic insight into company's financial health, but in modern conditions the Z-score still cannot be considered as a reliable instrument for predicting company's business failure. The model detects problems in company's business, but only in the indicative manner, so for the more reliable diagnosis of the company's financial health i.e. its financial position, it is necessary to perform a series of additional tests. Therefore, an accurate and reliable method for predicting company's business failure has not been found yet. The aim of finding a reliable model for predicting company's business failure is to take preventive and correctional actions.

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ORGANIZATIONAL CULTURE OF HEALTH INSTITUTIONS IN SERBIA

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ABSTRACT

Organizational cultures are one of the basic and most important characteristics of all health care institutions. They consist of a large number of elements, which define the manner of realization of all activities that are carried out in health care institutions. Organizational cultures contain all the most important elements related to the work of health care institutions, such as mission and vision, written and unwritten rules of conduct and procedures, values that institutions stand for, etc. Organizational culture must permeate all segments of the health institution's operations and it must have an adequate impact on all persons employed in it (Arnetz, 1999). The importance that organizational cultures have in health care institutions is a consequence of their influence on employee motivation and their work ethic (Cui & Hu, 2012). Quality and well-implemented organizational cultures can greatly positively affect all segments of healthcare operations. The content of organizational culture and the manner of its implementation differ greatly among health care institutions, which is why they must be fully adapted to all the specifics and the most important elements of their business (Felin & Powell, 2016). The positive effects of organizational culture can be realized only in situations in which the maximum possible attention is paid to it.

Key words: organizational culture, health care institutions, management.

INTRODUCTION

Organizational culture is a system of shared values, beliefs and assumptions, through which employees are pointed out to behaviors that are considered acceptable or unacceptable in the organization" (Alvesson & Sveningsson, 2008). The values defined in the organizational cultures of organizations have a direct impact on the behaviors that employees express during their work and on the business results of health care institutions. Organizational culture is a segment of management that is beginning to be applied to a significant extent during the last thirty years, and the very rapid development of the application of this concept is largely due to the positive effects it has brought to a large number of organizations and activities.

Most elements of the organizational cultures of health care institutions are almost completely invisible to the people employed in them (Vacile & Nicolescu, 2016). There is a very close connection between organizational cultures and organizational structures of health institutions. With the help of organizational cultures, a large number of decisions are created and implemented that have, directly or indirectly, an impact on the organizational structures of health care institutions. It is very important that the organizational cultures of health care institutions are harmonized with their organizational structures (Serpa, 2016). If organizational cultures are not adequately harmonized with organizational structures, significant problems in the work of health care institutions can occur. The alignment of organizational cultures with organizational structures can be an extremely powerful source of long-term sustainable competitive advantages of health care institutions (Yildiz, 2014).

Organizational cultures are extremely important in the business of modern health care institutions. If used adequately, organizational cultures can be the most valuable asset of health facilities. On the other hand, inadequate organizational cultures represent one of the biggest obstacles in the work of

health care institutions. Organizational cultures are also very important sources of competitive advantages of health care institutions, since, due to their uniqueness, they are very difficult to copy or imitate. A survey of Tomalin and Knicks, conducted among the top managers of Fortune 500 companies, concluded that most managers believe that organizational culture is one of the elements that most influence the success of companies (Tomalin & Nicks, 2007).

Within the organizational cultures of health care institutions, common values are defined, for the realization of which all employees must strive. A large number of studies indicate the existence of a positive correlation between organizational cultures and the results that organizations achieve during their business (Zak, 2018). The existence of a positive correlation was proven using indicators such as company revenue, market share, stock price and sales value. The level of harmonization of the organizational culture of a health institution and the way it works have a direct impact on the scope of positive influences on improving business results that can be achieved with the help of cultures (Alvesson & Sveningsson, 2008).

The specificity of the activity in which health care institutions operate sets the imperative of ensuring the compliance of their organizational cultures with the requirements of different interest groups from the environment in which they operate. Organizational cultures of health care institutions have proven in practice to be a very effective tool for controlling the behavior of employees and influencing their behavior (Serpa, 2016). The application of organizational cultures in health care institutions is a significantly more effective means of controlling the behavior of employees and managing them in relation to the use of rules and regulations.

LEVELS OF ORGANIZATIONAL CULTURES IN HEALTH CARE INSTITUTIONS

The organizational cultures of health care institutions are very complex and consist of a large number of different elements. A small part of these elements that make up the organizational cultures of health care institutions can be relatively clearly identified, while a larger part of the elements are difficult to identify. The invisible elements of the organizational cultures of health care institutions are below the level of consciousness of the members of the organizations (Alvarez-Maldonado et al., 2019). The levels of organizational cultures of health care institutions are (Vacile & Nicolescu, 2016):

- basic assumptions,
- values, and
- artifacts.

The basic assumptions represent the lowest levels of organizational cultures of health care institutions, which are below the consciousness of persons. These assumptions are accepted by people without analyzing their content and they are used to express the beliefs that people have about human nature and reality. Values represent the second level of organizational cultures of health care institutions and they are composed of goals, standards and principles that are shared within the organization. The highest, surface level of organizational cultures of health care institutions consists of artifacts, which include all those visible and tangible elements of organizational cultures.

There are connections between individual elements and levels of organizational cultures of health care institutions, which significantly influence their design and implementation (Cacciattolo, 2014). The organizational culture of a health institution, for example, can be based on the basic assumption that high levels of motivation are a basic prerequisite for the successful functioning of the organization. The health institution can turn this assumption into various values, such as establishing open and efficient communication among employees, creating a basis for adequate and fair remuneration of employees and the like. Artifacts of this organizational culture of the health institution can be a public announcement of the criteria according to which employees receive awards, organizing joint trips for all employees, etc.

The basic element of the analysis of the organizational culture of a health institution is its artifacts, such as the physical environment of the institution, the way in which communication with employees is performed, employee reward systems, as well as all other characteristics of cultures that are visible. Artifacts, such as the physical environment in which the institution operates, communication among employees, etc., are also very effective ways to initially identify the organizational cultures of health care institutions (Davies, Nutley & Mannion, 2000). Although they may initially indicate its organizational culture, artifacts cannot provide complete information about a health facility.

Most of the organizational cultures of health institutions are not visible and are located below the level of human consciousness (Mannion & Davies, 2018). When analyzing the organizational culture of a health institution, significant attention must be paid to its elements that are on a subconscious level. In this way, the values and assumptions on which the organizational culture of the health institution is based can be seen. An important source of information related to organizational cultures is the beliefs and perceptions of employees about which behaviors are considered positive and adequate (Felin & Powell, 2016).

MANAGEMENT OF ORGANIZATIONAL CULTURES IN HEALTH CARE INSTITUTIONS

Managing organizational culture is a very complex process, which health facility managers in many cases fail to implement properly (Ashburner, Ferlie, & Fitzgerald, 1996). A common mistake in managing the organizational cultures of health care institutions is reflected in the attitudes of managers that they represent simple phenomena, which is why they try to change only their visible aspects, such as artifacts or perspectives. Deeper and less visible elements and segments of organizational cultures in most cases represent those parts of them that enable improvements in the way health institutions function and achieve long-term sustainable competitive advantages.

Research conducted by the UK National Health Service has concluded that imposed organizational cultures in a small number of cases can completely displace existing ones, which offer them resistance (Ashburner, Ferlie, & Fitzgerald, 1996). In these situations, the most likely result will be the emergence of unforeseen hybrid cultures, which are a combination of new and existing. A common mistake made by health facility managers is reflected in the assumption that almost all of the problems faced by organizations are the result of inadequate organizational cultures. These managers make efforts to create strong cultures, which they believe will ensure the efficient operation of the organization. The mistake these managers make is reflected in placing a significant emphasis on employee training and interpersonal relationships, while completely ignoring the technological and structural aspects of change, which also represent important segments of organizational cultures.

Health facilities cannot be viewed as organizations with unique organizational cultures, in which only one approach to management and organizational change can be used. The complexity of health facilities requires the use of different approaches to managing them, which is why managers must use approaches that are tailored to different business segments of organizations and different categories of employees. The specifics of organizational cultures of health care institutions in a large number of cases result in difficult implementation of organizational changes in them.

If the subcultures of health care institutions are poorly interconnected and if they react in different ways to changes in the environment, the implementation of organizational changes will be very complex and difficult (Alvarez-Maldonado et al., 2019). When managing organizational cultures of health care institutions, it is very important to ensure efficient communication, so that cultures can be adequately spread throughout the organization. Poor communication in a large number of cases in practice leads to resistance to organizational cultures and the emergence of different subcultures, which can also pose a threat to the organizational culture of the health institution (Desveaux et al., 2017).

The organizational cultures of health care institutions are very complex, which is why all their segments must be taken into account when managing them. Often the emphasis is placed exclusively on the cognitive parts of organizational cultures, while completely ignoring values or morals, which also represent their important elements. The organizational cultures of health care institutions must be harmonized with the condition in which they are. If there are significant discrepancies between the organizational cultures of health care institutions and the conditions in which they find themselves, alternative cultures may emerge and develop, which may jeopardize the organizational culture of the health care institution (Walshe, 2017).

CONCLUSION

Every organization needs a system. The system of organization of health care institutions is an extremely complex system, which is being solved in the Republic of Serbia through the Law on Health Care and other laws. When parts of a system, all resources, activities and processes interact with each other, when they are connected into one whole, in order to achieve certain goals, then we say that there is a system. A health facility is a system that is part of a larger system but is also made up of smaller systems that operate together. The interest groups of a health institution are: customers or end users of services and products, shareholders, employees, suppliers, the state, etc. All interest groups have a desire for cooperation in which they are winners or are in a win-win solution. None of the previously listed interest groups is independent, but is again part of a larger system, and that is why everyone strives to be in the position where they are the winners. If a health facility (whether public or private) works so that its employees are not satisfied (working conditions, their status or role), if patients are not satisfied, suppliers or the environment, then this is not a good way for management to work and it will be further reflect on other systems. Users of health services (patients) do not see the processes in the organization because they do not have to know what is happening inside such an institution. They are only interested in leaving such an institution as healthy and satisfied with the service.

The system of organization of health care institutions is a big task for every country. In the Republic of Serbia, this task was tried to be solved through the Law on Health Care, with the help of which the proper organization of these institutions is established. The results of this way of working had their shortcomings, so with the appropriate legal regulations, prescribed by the Ministry of Health, there were changes that gave better results.

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ANALYSIS OF THE IMPACT OF BUSINESS QUALITY ASPECTS ON THE COMPETITIVENESS OF DOMESTIC ENTERPRISES IN CENTRAL BANAT

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ABSTRACT

The authors present the results of research on the application of aspects of business quality in domestic companies. The research was conducted on the territory of Central Banat. Respondents are company executives. The correlation of profitability and competitiveness variables was established by statistical analysis. The impact of the application of quality aspects on the variables: profitability, competitiveness and competitiveness of domestic companies outside national borders. This was established by comparing the impact of two groups of answers: YES and NO by analyzing central values. The results of the research indicate inadequate management in domestic companies. A small number of companies apply aspects of business quality, which shows that domestic companies are not competitive enough in the foreign market.

Keywords: aspects of quality, profitability, competitiveness, Central Banat.

INTRODUCTION

In his paper (2010), the author Župljanin defines competitive advantage as *"a function of either more efficiently providing similar value to customers than competitors (low price) or performing activities at a similar cost, but in unique ways that create greater value for customers than competitors , so they can set the highest price (differentiation)."* In terms of time, the newly industrialized countries, and the BRICS countries, successfully compete with the world's leading economies, the USA, Japan, and Germany. When talking about the global economy, Kotler says that it is characterized by the appearance of hypercompetition, which comes due to the rapid emergence of the latest technologies and offers, so that "standards and rules behave fluidly" which leads to unstoppable competitive prestige. Kotler adds intensities and rapid competitive shifts to hypercompetition, as well as the need to react quickly and build a rapid competitive advantage in order to surpass the rival's advantage (Kotler & Caslione, 2009). The state of hypercompetition in the global economy has been a matter of time. To these findings can be added the prevalence and use of Information and Communication Technologies (ICT) as well as the necessity of using the Internet in the XXI century. Achieving competitiveness today is much more difficult than 15-20 years ago. In support of this, experts find the reasons in several facts (Bešić & Đorđević, 2015): power is transferred from manufacturers to distributors, multinational corporations are becoming more powerful, new products last shorter, consumer goods do not last as long as before, digital technology is led to the development of more products, increased the number of registered trademarks and patents, increased the number of available products, hyperfragmented markets, increasingly saturated advertising space, consumers are picky. The authors Đorđević, Ćoćkalo, Bogetić & Bešić (2019) focus the essence of new technologies on increasing business productivity, which contributes to improving the competitiveness of companies. The application of each new technological solution increases the results of production processes through the reduction of human labor, which leads to a reduction in operating costs per unit of product. According to the report for 2019, by Tanasković, Ristić, from the Foundation for the

Development of Economic Science (FDES), which is a local partner of the World Economic Forum (WEF), the data show that Serbia ranked 72nd on the ranking list, which includes 141 countries with recorded Global Competitiveness Index (GCI) value of 60.9. The realized value of IGC in 2019 is unchanged compared to the previous one, but due to the progress made by certain economies: South Africa, Croatia, Vietnam, Azerbaijan, Armenia, Brazil and Jordan, the relative position of Serbia on the ranking list has worsened. The value of GCI was calculated in accordance with the new methodology of GCI 4.0, which was applied for the first time last year with a new interval, the value of the index now ranges from 0 to 100 (www.fren.org.rs).

Doing business on a global scale means increasing the competitiveness of the company, which is achieved through quality management. According to Ćoćkalo & Đorđević (2018), the essence of success on the global market is in achieving the optimal price-quality ratio, which is achieved by continuously improving business productivity. Achieving "world class", ie the goal of business excellence is the task of management, but also of all employees in the organization. Based on that, we talk about the quality of business, which implies three dimensions: market, business and social.

RESEARCH METHODOLOGY

In order to assess the business quality situation of economic entities in the Central Banat region, a survey was conducted from three aspects of business. The aim of the research is to identify all the factors that affect the application of modern management methods and techniques in the function of improving the competitiveness of domestic companies. Research questions were: RQ3. Are aspects of business quality applied in your organization ?, RQ11. Evaluate the profitability of your company according to the following criteria:, RQ12. Evaluate the competitiveness of your company according to the following criteria:, RQ13. Evaluate your competitiveness outside national borders according to the above criteria. The research instrument is an anonymous Survey, the basic instrument is a Questionnaire, a direct structured interview. The questionnaire consists of two groups of questions: the first group of questions refers to general information about the respondent and the organization, and the second group of questions are about the business and work of the company they manage.The survey was conducted on the territory of Central Banat from December 2019. to August 2020. and 80 managers of registered domestic companies participated in it. The processing of the obtained results will include the analysis of the participation of the answers in MS Excel.

RESEARCH RESULTS

80 respondents were surveyed, of which 25 (31%) are in companies with up to 10 employees, 18 (22%) up to 50 employees, 26 (33%) up to 250 employees and 11 (14%) over 250 employees. According to the type of ownership, 54 (67%) are in private, 22 (28%) in state and 4 (5%) organizations are in mixed ownership. Respondents in the field of services 20 (25%), followed by industry 16 (20%), health 12 (15%), trade 6 (7%), IT sector 5 (6%) and agriculture 5 with 6% participated the most in the research, education 3 (4%). Then, with a 3% share, followed by production, transport and telecommunications 3%, culture 3%, media 3%, crafts 2% and social protection 1%. Answers were most often given by business owners 21%, administration 16%, company directors 15%, department heads 10%, sector managers and engineers 8%, sector directors 5%, clerks 5%, department heads and managers 4%, associates 2% , Deputy Director and Assistant Director 1%. The largest number of respondents with VII/1 degree 30 (38%), IV 17 (21%), VII/2 12 (15%), VI 12 (15%), VIII 5 (6%), VI/2 2 (3%) and V degree 2 (2%).

Attitudes of Respondents

To research question number 3. Are aspects of business quality applied in your organization? of the 80 respondents, 6 did not respond, 74 responded. Out of 74, 56 (76%) answered in the affirmative and 18 (24%) in the negative. In research question number 11. Evaluate the profitability of your company

according to the above criteria: 79 respondents rated the profitability of the company in which they manage with a score of 1-5. Ratings and average rating of profitability of domestic enterprises are shown in *Table 1*.

Table 1: Evaluation of company profitability

very high 5	high 4	satisfactory 3	partially 2	very low 1	all	average rating
8	15	47	7	2	79	3,25
10%	19%	59%	9%	3%	100%	

Respondents are generally satisfied (grade 3) with 59%, which also affected the average profitability score of 3,25. Answers to question number 12. Evaluate the competitiveness of your company according to the following criteria: All respondents rated the competitiveness of the company with a score of 1-5. Grades and average score of competitiveness of domestic enterprises are shown in *Table 2*.

Table 2: Assessment of the competitiveness of the company

extremely competitive	5	16	20%
very competitive	4	26	32%
competitive	3	27	34%
partially competitive	2	8	10%
uncompetitive	1	3	4%
ALL:		**80**	**100%**
Average rating		**3,55**	

It can be seen from the table that the outcome of the average grade of 3,55 is influenced by 34% of the grade competitively 3, and **32%** of the grade very competitive 4. On RQ 13. Assess the competitiveness of your company outside the national borders according to the above criteria: 73 respondents answered and rated the competitiveness of the company outside the national borders with a score of 1-5. The results are shown in the table that follows.

Table 3: Assessment of the competitiveness of companies outside national borders

extremely competitive	5	2	3%
very competitive	4	15	21%
competitive	3	19	26%
partially competitive	2	12	16%
uncompetitive	1	25	34%
ALL:		**73**	**100%**
Average rating		**2,41**	

The average score of 2,41 was mostly influenced by the responses of managers on non-competitiveness outside national borders, which is 34%.

Influence of Quality Aspects on the Competitiveness of Central Banat Companies

In the conducted research, out of the initial 80 Surveys, by eliminating incomplete ones, 69 were taken into account for further consideration. For the purposes of statistical analysis, impact assessment and correlation of variables. An overview of the values of the observed correlations of research questions: 3, 11, 12 and 13 is presented in *Table 4*. RQ3. Are aspects of business quality applied in your organization? RQ11. Evaluate the profitability of your company according to the following criteria: RQ12. Evaluate the competitiveness of your company according to the following criteria: RQ13. Evaluate your competitiveness outside national borders according to the following criteria:

Table 4: Correlation coefficients of answers to research questions: 3, 11, 12 and 13

	IP 3.	**IP 11.**	**IP 12.**	**IP 13.**
IP 3.	1	-0.14	-0.24	-0.13
IP 11.	-0.14	1	**0.62**	0.24
IP 12.	-0.24	**0.62**	1	**0.37**
IP 13.	-0.13	0.24	**0.37**	1

Linear Regression of Significant Correlation Coefficients

Based on the results of the research, the influence of quality aspects on the competitiveness of the observed companies will be established. The correlation coefficient between the assessment of profitability and the assessment of the competitive ability of the company, according to the answers of the respondents, is positive and amounts to 0.62, which shows that there is a very significant correlation between the observed variables. Coefficient of determination r^2 is "*a relative measure of the representativeness of the regression line. It shows the share (percentage) of the explained variability in the total, ie how much the variations of the variable Y are explained by the variable X*"(Manasijević, 2011). *Figure 1* shows a linear regression. According to the set regression law, there is an Interpolation, a prediction of the value of the Competitiveness (Y) feature that corresponds to Profitability (X = x, for some x $\in(x_{min}, x_{max})$), but which is not in the realized sample. The regression rights of the dependence of competitive ability on profitability are written in the form *y= 0.699x+1.289* (Stojanov, 2019). Determination coefficient r^2=37.

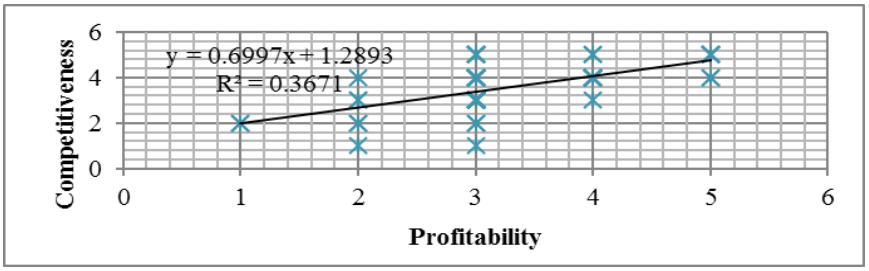

Figure 1: Correlation coefficient of profitability assessment and assessment of enterprise competitiveness

The correlation coefficient for assessing the competitiveness of companies and competitiveness outside national borders is 0.37, a significant correlation was observed. *Figure 2* shows a linear regression. The regression of the dependence of the feature Competitiveness outside national borders (Y) on Competitiveness (X) in this case, are written: *y=0.482x+0-749*. Determination coefficient r^2=15%. It can be interpreted that domestic companies do not have adequate competitiveness to enter the global market. For these reasons, they are not competitive enough in the global market. The reasons should be sought in the constant improvement of aspects of business quality

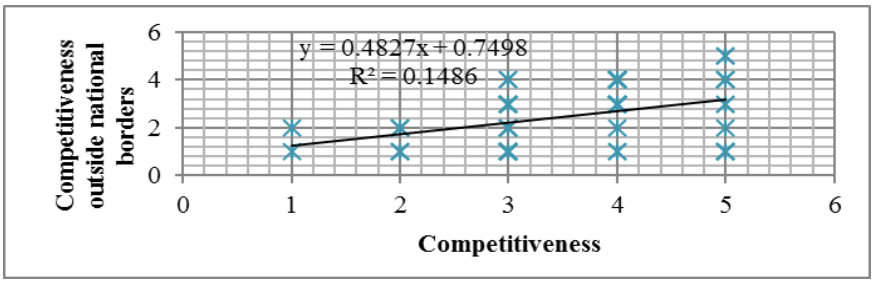

Figure 2: Correlation coefficient for assessing the competitiveness of enterprises and assessing competitiveness outside national borders

Impact of the Application of Aspects of Business Quality (RQ 3) on Profitability (RQ 11), Competitiveness of Enterprises (RQ 12) and Competitiveness OutsideNational Borders (RQ 13)

Correlation of RQ3 issues. Are aspects of business quality applied in your organization?, the application of quality aspects in the observed companies, with the parameters of the respondents: profitability, competitiveness of companies and competitiveness outside national borders is lessimportant, so for these reasons a statistical analysis of respondents divided into two groups. The first group of positive answers YES, quality aspects are applied is 51 answers and the second group NO where quality aspects are not

applied in companies is the participation of 18 answers. Descriptive statistics and parameter values are given in a table for each group separately, in the answers to all three previously mentioned questions.

Table 5: Overview of statistical analysis of results by groups "YES" and "NO"

YES		**NO**	
Profitability		**Profitability**	
Arithmetic mean	$X_n = 3.3$	Arithmetic mean	$X_n = 3$
Mode	$M_o = 3$	Mode	$M_o = 3$
Standard deviation	$S_n = 0.83$	Standard deviation	$S_n = 0.85$
Coefficient of variation	$V = 25\%$	Coefficient of variation	$V = 28\%$
Competitiveness		**Competitiveness**	
Arithmetic mean	$X_n = 3.7$	Arithmetic mean	$X_n = 3.2$
Mode	$M_o = 4$	Mode	$M_o = 3$
Standard deviation	$S_n = 1.02$	Standard deviation	$S_n = 0.76$
Coefficient of variation	$V = 28\%$	Coefficient of variation	$V = 24\%$
Competitiveness outside of national borders		**Competitiveness outside of national borders**	
Arithmetic mean	$X_n = 2.5$	Arithmetic mean	$X_n = 2.2$
Mode	$M_o = 1$	Mode	$M_o = 1 \; i \; 3$
Standard deviation	$S_n = 1.3$	Standard deviation	$S_n = 1.03$
Coefficient of variation	$V = 51\%$	Coefficient of variation	$V = 46\%$

Based on the tabular representations of the values of the parameters of descriptive statistics, observing the coefficient of variation "*which is the only relative measure of deviation*" (Stojanov, 2019), it is possible to compare the responses of the two groups. It is noticed that, the first group, YES has higher estimates of the arithmetic mean of the variables of profitability, competitiveness and competitiveness outside national borders in relation to the second group, NO. The mode is of equal value for profitability in both groups and is 3. The higher mode is observed in the competitiveness of the group YES, the value is 4. Although the mode of competitiveness outside national borders is 1 in the group YES and 1 and 3 in the group NO, it should be taken take into account that the group YES has sufficient answers with grades 3, 4 and 5 for the arithmetic mean of competitiveness outside the national borders which is 2.5, in 51 answers, as opposed to the group NO out of a total of 18 answers with arithmetic mean 2.2. It can be interpreted that the application of quality aspects affects the increase of profitability, competitiveness and competitiveness beyond national borders. It is assumed that some companies invest resources and efforts in technological equipment, knowledge and education of staff. Insufficient application of quality aspects is noticed, which is reflected in profit and competitiveness. Inadequate management is recognized in insufficient investment in technology and knowledge.

Measures of Central Tendency of Cumulative Results

The values of the measures of the central tendency of the cumulative results: assessment of profitability, competitiveness and competitiveness of domestic enterprises outside national borders, according to the answers of the respondents, are shown in *Table 6*.

Table 6: Display of values of central tendency measures of cumulative results

Measures of central tendency	**Profitability**	**Competitiveness**	**Competitiveness outside of national borders**
Arithmetic mean	$X_n = 3.3$	$X_n = 3.6$	$X_n = 2.4$
Mode	$M_o = 3$	$M_o = 3$	$M_o = 1$
Standard deviation	$S_n = 0.85$	$S_n = 1$	$S_n = 1.23$
Coefficient of variation	$V = 26\%$	$V = 28\%$	$V = 51\%$

Based on the results from the previous table, the value around which the profitability and competitiveness of the observed companies are reduced is 3. Competitiveness outside national borders has an arithmetic mean of 2.4, and mode 1. The results indicate that respondents are satisfied with their

business, but not competitive enough on the foreign market. According to the answers to the last question, twenty-five respondents are managers in companies that are exporters of domestic products. Products from Central Banat are mostly exported to the countries of the region, Bosnia and Herzegovina (13.48%), Macedonia (8.99%), followed by neighboring countries, Romania (8.99%), Hungary (5.62%) and European Union countries, Germany (7.87%), France (4.49%) and the Czech Republic (4.49%).

CONCLUSION

Considering the correlations of research questions 11, 12 and 13, in the observed companies, based on the answers of the respondents, a very significant correlation of profitability (RQ11) and competitiveness (RQ12) was observed, which is 0.62. This means that domestic companies, which invest in technology and knowledge, improve their competitiveness. We should continuously work on improving the quality of business in order to have more successful results. A significant correlation, 0.37 is recognized between the competitiveness (RQ12) and the achievement of competitiveness outside national borders (RQ13). In order to establish the impact of the application of quality aspects (RQ3) on: profitability (RQ11), competitiveness (RQ12) and competitiveness outside national borders (RQ13), the results of respondents' responses were considered by groups YES and NO. In comparison of the influence of the two groups, on the variables: profitability (RQ11), competitiveness (RQ12) and competitiveness outside national borders (RQ13), the central values were analyzed. Group YES shows higher central values. The results indicate that domestic companies that apply quality aspects in business practice achieve better market placement. More attention should be paid to the implementation of international quality standards and the use of ICT in modern business. Based on the results of the research, it could be concluded that the quality of business is observed from three aspects, the analyzed companies are unsatisfactory or insufficiently adequate. According to the respondents, the export of domestic products takes place in a very small number of European Union countries and in the surrounding countries and the region. Domestic companies are not competitive enough outside national borders, which means that they do not have enough knowledge to do business in the global market. Quality Management System, Integrated Management Systems, Knowledge Management, Marketing Management 4.0, as well as other modern management methods and techniques are not sufficiently implemented in domestic practice.

For the needs of economic development in the Central Banat region, it is necessary to increase the competitiveness of domestic companies by applying aspects of business quality including: market participation, customer satisfaction, cost reduction, increased productivity, increased business efficiency and certain aspects of Corporate Social Responsibility (CSR)

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RISK MANAGEMENT PRACTICE AND ORDERS FULFILLMENT IN SERBIAN COMPANIES

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ABSTRACT

Many organizations globally do not incorporate sustainability initiatives within their corporate. Also, there are limited studies conducted risk management implementation and analyzed how it could influence organizations' performance. Accordingly, the main aim of this paper is to empirically analyze influence of risk management practice in Serbian companies on order fulfillment as important performance indicator. The empirical survey intended to survey the influence of risk management practice on order fulfillment is very important dimension of operational performance. The survey containing a cover letter and a questionnaire has been sent via email to 200 Serbian companies certified to few management standards and 30 companies have responded. After data collection, regression modeling has been done to explore relationship between risk management practice and its influence on order fulfillment. According to obtained results, it is recommended to domestic companies which are aimed to deliver their products on time and in sufficient quality to include in their practice risk treatment plans, implement corrective and preventive actions, implement internal and external audit program, compare magnitude of risk, processes and procedures necessary to address risk, plan resources to address risks, legal and use legislation commitment in manner to have risk based policies and policies/objectives that are based on risk.

Keywords: Risk management, Standard, Performance, Order fulfillment.

INTRODUCTION

Risks are managed in organizations by everyone through daily activities and some of them are consciously aware and fully understood while others are not. Many business systems globally do not incorporate sustainability initiatives within their corporate strategy, whereas they should be critical input for strategic management and corporate planning (Shad et al., 2019). Thus, risk management in contemporary organizations should include identifying all risks that have an impact on their objectives with understanding them fully and then establishing and implementing an effective plan to prevent these risks and thereby reduce financial losses or impacts (Zio, 2018). There are many risks explicit in health and safety, environment, quality, information security etc. which can affect the performance of the organization. Therefore, it's necessary to implement several standards such as ISO 45001, ISO 14001, ISO 9001, and ISO 27001 which are built on a risk management framework (Jones, & Preston, 2011). The portfolio of business risk may involve events that have potential impacts on different activities in the organization, assets, health and safety of the employees, legal obligations etc. and therefore the range of risks in the industry is large which may arise from different sources depending on the type and size of the activities it may exercise as in Bowden et al. (2001). However, there are limited studies conducted risk management implementation and analyzed how it could influence organizations' performance (Shad et al., 2019). Accordingly, business risk influences the companies'

performance is rarely surveyed and the main aim of this paper is to empirically analyze influence of risk management practice in Serbian companies on order fulfillment as important performance indicator.

PREVIOUS RESEARCH

Today exist numerous risk management standards and they are guidelines for establishing and improving the organization's risk management processes, as in Table 1. They do not oblige the organizations to implement, but as they usually carry best practice and long-term verification by a number of organizations as given by Ciociou et al. (2010).

A long time ago, many different organizations practiced integrated risk management with regard to identifying risks, prioritizing them and then treating these risks in multiple ways, such as transferring risks to other companies, mitigate or accepting them, as well as planning for the contingency (Taleb et al., 2009). At the beginning of the year 2000, the era of risk management began to deal with various risks in a comprehensive and holistic manner and then assign the responsibility of managing these risks to the organization's top management. Although there are no standardized practices for integrated risk management in different industrial organizations and sectors, the driver's forces of this management can be categorized as follows (Ciociou et al., 2010):

- Nowadays obviously that there is a large awareness in industrial organizations that they face an increase in risks, their different types, and the interactions between them. Hence the financial risks emerged with the growth of globalization, while the risks of the organization's reputation increased with the increase in electronic commerce and the risks of information due to the progress in the use of technology, Moreover, increasing the awareness of operational and strategic risks that recently appeared. All this contributed to increasing the organization's risk management role.
- Another driving force of integrated risk management is the increasing trend towards identifying risks through practical experience and advances in technology that made it easy even in identifying and knowing the infrequent risks to occur. Hence, organizations began to share the experience, information acquired competence and common tools to manage risks with those who are not competitors.
- The latter driving forces of risk management are the organization's attitude towards risks and understanding the correct way to exploit the opportunities that result from risks and create value for them. Despite the legitimacy of the strategies for dealing with risks, which are avoiding or mitigating the risks, some organizations share the risks and preserve them due to their own ability to exploit them.

A company can manage risks in one of two fundamentally different ways: (1) one risk at a time, on a largely compartmentalized and decentralized basis; or (2) all risks viewed together within a coordinated and strategic framework in aim company to strengthen its ability to carry out its strategic plan which is expected to result in better performance indicators (Nocco, & Stulz, 2006). Business performance is a set of management and analytical processes, which enable the management of a certain organization to achieve the set business goals (Spasojevic Brkic et al., 2013). In literature there are different divisions of business performance. So for example, according to Spasojevic Brkic (2013) and Tomic et al. (2017) business performance of a company can be roughly divided into: 1. financial performance, 2. operational performance, 3. employee performance (motivational performance) and 4. development performance of the company. Order fulfillment is very important dimension of operational performance, as confirmed by Ojha et al. (2019) and Lawson and Holweg (2018).

Table 1: Relevant national and international standards for the risk management

Created by...	Standard	Field
ISO/IEC	ISO 31000:2018 Risk management-Principles and guidelines	This standard provides the organization with the principles and guidelines of risk management and can be used by private or governmental organization without certification creation.
	ISO/IEC Guide 73:2009 Risk Management -Vocabulary	The main purpose of this standard is help ISO and IEC members understand the different meaning of risk management terms as a review of it when issued ISO 31000.
	ISO/IEC Guide 51:2014 Safety aspects - Guidelines for their inclusion in standards	This standard concerning with the safety of employees or machines and environment in order to give complete analysis of risk during the life cycle of the product or service.
History IRM/AIRIMIC/ ALARM, London, UK	Risk Management Standard: 2002	Risk management standard is not for a certification standard. It is organized by team work from UK based on different views and opinions of professional people in risk management to suggest risk management process.
AS/NZS	AS/NZS 4360:2004 Risk management	AS/NZS 4360 is a generic guidance in the risk management can be implemented in all type of organizations which identify the main elements of risk management process that keep organizations safe with continual improvement.
JSA	JIS Q 2001:2001 Guidelines for development and implementation of risk management system	This standard is issued by Japanese industry to specify the main elements and principles that needed to conduct the risk management system. It is appropriate to be used in every organization and not designed for accreditation of certification.
CAN/CSA	CSA Q850:2002 Risk Management Guidelines for Decision Makers	This type of standards is valuable and efficient in helping people dealing with decision making in treating several types of risks such as injury or damage to health, property, and the environment.
BSI	PD 6668:2000, Managing Risk For Corporate Governance	It is a standard developed by committee of British standard in order to control the organization through implementation of an efficient risk management system.
	BS 31100:2011 Code of practice for risk management	It is a code of practice issued by British standard to present useful and special instructions on how to perform the main elements powerful risk management as defined in ISO 31000.
	BS 6079-3 Project Management - Part3: Guide to the management of business related project risk	BS 31100:2011 is a standard provides the necessary guidelines to identify and control the different types of risks that face the projects during their implementations and can be applicable to a wide range of industrial, commercial and government or private organizations. It also can be used by the managers who have responsibilities for one or more projects through the implementation of its guidelines and principles.
ÖN	ON Rule series on "Risk management for organizations and systems"	The series of ON rule in managing the risk describe a group of guidance aimed at different goals which relate to several terms and fundamentals such as ONR 49000 risk management, ONR 49001 guidelines for embedding in the management system ONR 49002-1 methodologies for risk assessment, ONR 49002-2 crisis and business continuity management...etc. The existing ON rule is actually compatible with ISO 31000:2018

(Source: Aven, 2011; Ciociou et al.,2010)

METHODOLOGY

The empirical survey intended to survey the influence of risk management practice as proposed as in model in Algheriani et al. (2019) on order fulfillment is very important dimension of operational performance. The survey containing a cover letter and a questionnaire has been sent via email to 200 Serbian companies certified to few management standards. The questionnaire contained four parts - the first part included information about the surveyed companies, and the second included information on the standards of management systems involved, while the third included the integration of management systems such as methods used in the integration and levels of integration in addition to the benefits and difficulties in implementation, whereas the fourth part included integration based on risk and its influence on companies' performance. After 3 months, and two reminders, 30 companies which have 276 employees in average and which are belonging to ten different industrial sectors have answered. After data collection, regression modeling has been done to explore relationship between risk management practice and its influence on order fulfillment.

RESULTS

The empirical survey's results on regression analysis which describe the influence of risk management practice on order fulfillment are given in Table 2, while goodness of fit parameters is given in Table 3.

Table 2: Regression model parameters

Source	Value	Stand. error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	1,810	0,483	3,744	**0,002**	0,773	2,847
goals - risk based policies/objectives	0,000	0,000				
purpose and context - risk based policies/objectives	0,114	0,084	1,363	0,194	-0,066	0,295
continual improvement commitment - risk based policies	-0,155	0,075	-2,082	0,056	-0,316	0,005
legal and legislation commitment - risk based policies	-0,433	0,091	-4,739	**0,000**	-0,629	-0,237
policies/objectives that are based on risk	-0,408	0,119	-3,412	**0,004**	-0,664	-0,151
participation commitment	0,000	0,000				
reward employees	-0,096	0,084	-1,136	0,275	-0,277	0,085
processes and procedures necessary to address risk	0,249	0,085	2,949	**0,011**	0,068	0,431
plan resources to address risks	0,263	0,060	4,402	**0,001**	0,135	0,391
plan to determine the risk management processes	0,173	0,082	2,104	0,054	-0,003	0,349
organizational structure, roles, powers and responsibilities for risk management	0,000	0,000				
provide regularly training	0,000	0,000				
stakeholders at all stages of the risk management	0,000	0,000				
identification of risks with their likelihoods and consequences	0,000	0,000				
document the results of the monitoring and review of the risk	0,000	0,000				
compare the magnitude of risk	0,355	0,082	4,331	**0,001**	0,179	0,530
the priorities of risks that need to be treated	0,000	0,000				
implement corrective and preventive actions	0,301	0,087	3,467	**0,004**	0,115	0,487
implement internal and external audit program	-0,179	0,062	-2,885	**0,012**	-0,312	-0,046
implement a management review	-0,193	0,097	-1,977	0,068	-0,402	0,016
implement risk treatment for all risks	0,000	0,000				
should select the options for risk treatment	-0,054	0,079	-0,687	0,503	-0,224	0,115
prepare and implement risk treatment plans	-0,227	0,091	-2,494	**0,026**	-0,421	-0,032

Table 3: Goodness of fit statistics

Statistic	Training set	Validation set
Observations	29	1
Sum of weights	29	1
DF	14	-14
R^2	0,822	
Adjusted R^2	0,643	
MSE	0,034	
RMSE	0,185	
MAPE	10,612	0,000
DW	1,707	
Cp	6,781	
AIC	-89,073	
SBC	-68,564	
PC	0,561	

CONCLUSION

This paper was aimed to explore relationship between risk management practice and order fulfillment in Serbian companies. Empirical survey has been done on the sample of 30 companies and results show that order fulfillment depends statistically significantly on risk treatment plans, implementing of corrective and preventive actions, implementing internal and external audit program, comparing magnitude of risk, processes and procedures necessary to address risk, planning resources to address risks, legal and legislation commitment - risk based policies and policies/objectives that are based on risk.

So, it is recommended to domestic companies which are aimed to deliver their products on time and in sufficient quality to include in their practice risk treatment plans, implement corrective and preventive actions, implement internal and external audit program, compare magnitude of risk, processes and procedures necessary to address risk, plan resources to address risks, legal and use legislation commitment in manner to have risk based policies and policies/objectives that are based on risk.

Limitation of this research for sure is the sample size, so its extension is recommended. Further recommendation for future research is also a more detailed analysis on collected data done by using more sophisticated statistical analysis tools based on larger sample size.

ACKNOWLEDGEMENT

The paper is supported by grants from the Ministry of Education, Science and Technological Development, grants from project E!13300 and contract 451-03-68/2020-14/200105 (subproject TR 35017).

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INTEGRATION MANAGEMENT SYSTEMS: STATE OF THE ART FROM RISK MANAGEMENT PERSPECTIVE

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ABSTRACT

Businesses nowadays operate in an environment of very prominent producer competition and developed distribution channels, where there is a significantly higher volume of products and services that the environment is capable of absorbing. In order for the organization to survive in such conditions, it is not sufficient to be average, and therefore it strives towards sustainable development in order to achieve business excellence. A certain number of studies and papers have been contemplated and investigated to distinguish the most significant shortcomings in the advancement in the development of risk management integrated models in standardized management systems to construct the suitable model. It was discovered that the majority of the investigations demonstrated that the combination was to the principles the board framework to be coordinated with one another in various manners by and large, and there is an away from without risk models for the incorporated administration frameworks. This issue began to be fascinating and significant from a scholastic perspective and furthermore for the executives practice.

Keywords: Integrated management system, risk management, standard.

INTRODUCTION

Businesses nowadays operate in an environment of very prominent producer competition and developed distribution channels as Mathusamy et al. (2018), Spasojevic Brkic et al. (2013) and Gadenne et al. (2009) have reported, where there is a significantly higher volume of products and services that the environment is capable of absorbing. In order for the organization to survive in such conditions, it is not sufficient to be average, and therefore it strives towards sustainable development in order to achieve business excellence (Thomas, 2003). Consequently, most of the organizations in the world currently seek to create a balance between these elements in the highly competitive market, not only to overcome economic and environmental crises however to gain many other benefits such as improving organizational performance, increasing productive capacity flexibility, high operational efficiency, improved health and safety aspects and market expansion (Sweeney et al., 1999). Also, there is a huge increment of vulnerability that carries noteworthy dangers, namely risks with it, so business substances are basic to overseeing inner and outside dangers. Likewise, the points of interest of the setting of every one of the organizations require explicit arrangements (Algheriani, 2017).

INTEGRATED MANAGEMENT SYSTEMS HISTORY

According to Domingues et al. (2015), it is known that the management system (IMS) of the organization is as a set of interconnected processes that usually aim to achieve predetermined objectives using adequate resources and their operations by representatives but sometimes they lead to some bureaucratic criticism as a result of incorrect implementation. Consequently, according to the literature review, many industrial companies in the world are increasingly implementing different standards for management systems based on the request of stakeholders so that quality, environment and occupational health and safety were among the most researched standards for their role in maintaining human health, environment, and quality which has become part of an integral part of our daily life to compete with others and achieve their goals and thus enable them to contribute to sustainable development. On the other hand, implementing these standards in a

way independent from each other often causing multiple burdens the organization's business processes as well as affects equally the internal and external contexts of the organization. That is to meet the certification requirements for each standard, organizations need numerous documents, written procedures, forms of auditing and control in addition to other paperwork, and therefore the implementation of these standards in the organization independently of each other leads to multiple weaknesses such as duplication of tasks and processes in all management systems, an increase in the cost of certification issuance and maintenance of standards. Moreover there is the incremental consumption in the organization resources. Accordingly, the integration of these standards under a single roof has become the focus of the attention of several industrial organizations today.

The concept of an integrated management system according to Benyettou and Abdellatif (2018) began to appear to industrial organizations within the past fifteen years, i.e. with the publication of the environmental management standard in the management of the organization as a first step and then one of the main requirements for the organization's survival in the production, ensuring cost-effectiveness and additionally to achieving the framework of the organization's policy and strategic decisions. Thus, integrating these standards with each other to implement the integrated management system (IMS) is gaining momentum in a rational and logical manner in order to achieve multiple advantages such as the reduction of risks and improvement of internal and external efficiency, reducing the cost of production, reduction in documentation, increasing operational efficiency, and motivating employees to increase production through the optimal use of resources and reducing duplication of tasks, which in turn are considered one of the most important factors in achieving sustainable development. On the other hand, there are various obstacles in the implementation of the integrated management system (IMS) that companies should take into accounts such as insufficient resources, lack of motivation for employees, the participation of top management and their commitment, insufficient training, the inadequacy of guidance for integration, attitudes that lead to negative results and lack of skilled auditors and consultants.

Moreover, authors in Laal et al. (2018) clarify that the integrated management system IMS is used in many organizations today with the aim of leaving traditional management routines and replacing them with advanced management schemes. So in 2012, a research study was conducted in Iran concerning event analysis and verification of the impact of integrated management systems on health and safety performance indicators for workers in power plants. The study was conducted by analyzing the data and knowing the percentage of victims' accidents before and after applying the international monitoring system and forecasting the future to show these results to us the extent to which the use of integrated management systems greatly contributed to reducing accident indicators and thus improving safety in this industry during the test period and therefore recommended that this be applied an approach in other industries.

Although previous literature in the field of management systems integration indicates that there are many strategies, processes, models, and frameworks that provide insight into the integration of management standards and implementation of the integrated management system (IMS), there exists an inadequate in finding a methodology to design and implement risk models in these various standards in which risk management is considered one of the most integrated aspects of management systems, especially since it is important to many industrial organizations today. This made the development of an integrated model for risk management in these standards systems to seem reasonable and rational. Therefore the main purpose of this chapter is to develop a risk management integrated model in standardized management systems which include ISO 9001:2015 for a quality management system, ISO 14001: 2015 for an environmental management system, ISO/IEC 27001: 2013 for information security management system, ISO45001:2018 for occupational and safety management system, and ISO 22000:2018 for food safety management system. This development model of risk management assists the organization in managing its various risks by identifying and treating risk factors and covering the entire organization by choosing its scope and thus assisting top management in obtaining a clear narration of the entire risk profile and then the actual contribution to the strategic and operational decision-making processes of the organization which in turn will provide protection and security operations of the organization's operations.

A certain number of studies and papers have been contemplated and investigated to distinguish the most significant shortcomings in the advancement in the development of risk management integrated models in SMS to construct the suitable model. It was discovered that the majority of the investigations demonstrated that the combination was to the principles the board framework to be coordinated with one another in

various manners by and large, and there is an away from without hazard models for the incorporated administration frameworks. This issue began to be fascinating and significant from a scholastic perspective and furthermore for the executives practice. Thus, the explanation set up the beginning stage for this exploration.

The authors Bernardo (2014) and Bernardo et al. (2017) revealed that in the last decade, the culture of change has emerged in most industrial organizations to survive in the world of competition in terms of meeting process requirements/product quality, employee safety, and environmental protection with working to improve productivity. In this regard, companies became imperative to implement both standards of quality, environment and occupational safety to integrate them as a tool to control risks and reduce costs and environmental impacts, in addition to adopting a continuous improvement approach for the purpose of customer satisfaction (Moumen & El Aoufir, 2017). The integration of management systems is considered the best management practice when an organization has multiple management systems in place. It has been explained by various authors in this field, among which was the importance that was described (IMS) as a set of interrelated processes that share the use of both human and informational resources, materials, infrastructure, and financial resources to achieve the organization's goals related to stakeholder satisfaction. According to the previous studies and literature review of the integrated management system, there are main aspects must be taken into consideration when studying the process of integration which including the following categories: definitions and philosophies of IMS; factors affecting IMS; strategies for implementing IMS; levels of integration; methodologies and models of IMS; and Auditing systems' integration.

PHILOSOPHIES OF IMS AND FACTORS AFFECTING IMS

Businesses nowadays usually work in hard circumstances as in Kania and Spilka (2016), Basaran et al (2018) and Nunhes (2019) knowledge and are distinguished by extreme competitiveness, continuous technological development, fresh market demands, and limited natural resources which makes traditional approaches to management inadequate. Therefore the idea of change has become a strategic plan for getting organizations to compete in the market. Hence, organizations recently started implementing an integrated management system for quality, environment, and occupational health safety systems as a basis to be able to provide customers with high quality of the final product at the same time taking advantage of the best utilization of resources. Consequently, the integrated management system can be described as clearly defined and documented with a consistent system together in order to allow organizations and companies to obtain the effectiveness and concurrent management in many aspects by setting and implementing a unified policy and defined goals for these aspects.

As in Mathusamy et al. (2018) and Nunhes et al. (2019) many organizations are highly working in achieving sustainable development to keep their competitive position with other companies in the global market through a process of organizational change management in order to obtain multiple benefits represented in improving performance, increasing production capacity, flexibility and high operational efficiency in addition to improving environmental performance moreover enhancing health aspects with safety for workers. Thus, the adoption of quality management standards, environment, and occupational health has become a widespread phenomenon among organizations to create a competitive advantage and contribute to sustainable development. However, setting these standards and managing them in the organization independently of each other leads to creating difficulties in the continuity of work, so it is useful to integrate these standards with each other under one roof known as the Integrated Management System (IMS).

The last years of this century have testified the incorporation of many standards of management systems and the creation of a new system known as the integrated management system in organizations, and thus the integration of systems has become a broad field of research towards the possibility of implementing this system which described as a system of systems that contains a set of interrelated processes work in a coordinated manner and participate in the use of human, financial, material, information and infrastructure until achieving the desired goals of stakeholders. Accordingly, integration begins with a comprehensive understanding and common use of management systems. It was determined through the complete compatibility between each of the organization's strategy and operations, which means that all different

areas and levels are set to simulate the same language. whereas the institute of British standard defined the IMS as "integration of processes, procedures and working practices in the organization to implement its policy, which may be more effective in achieving the goals of the policy than approach by separate systems (Mathusamy et al., 2018).

The authors such as Mathusamy et al. (2018) clarify the scientific research and studies have proven that the factors that significantly affect the success of the integration of management systems are classified into internal and external factors. Internal factors include organizational resources, adequate knowledge, and competence, culture, and organization structure while external factors are represented in economic, social, and political issues as well as the surrounding cultural and organizational environment. Although there are various incentives that drive organizations to implement the IMS system, which in turn creates many benefits and profits, on the other hand, it makes companies face some problems and difficulties as follows:

- *Motivations to promote IMS implementation.* The investigators in Domingues et al. (2015) and Moumen and Aoufir (2017) have classified the motivations that contribute to making organizations tend to integrate their management systems into intrinsic and extrinsic drivers. The former included operational and financial programs where the external ones included organizational and marketing programs in addition to social, while other researchers went to classify the reasons for integrating management systems within internal and external reasons. Given internal reasons and related benefits the internal categorized as following; productivity increase, enhance internal communication system, improved processes performance, similarity and compatibility between standards, cost reduction, redundancies elimination, synergies maximization, and increased organizational flexibility. While external reasons and related benefits can be classified as the following; marketing, enhanced customer satisfaction, and stakeholders, promotional issues, market share increase, better communication system with management cost reduction, increase the competence of employees and fulfillment of legal requirements.
- *Reasons and constraints for non-implementing IMS.* According to Moumen and Aoufir (2017) as author's point of view, there are a number of obstacles that cause management systems not to be integrated, among which are the most common are the difference in the educational level and consequently the incorrect expectations of the management systems manager, the traditional organizational structure that focuses on the departmentalization in addition to expecting duplication of efforts and increasing bureaucracy within the organization. Additionally, several authors and researchers summarized the main barriers for non-integration into the following: the flexibility of integrated systems will be restrained, the resistance of employees to the new system, the lack of auditing procedures, extended bureaucracy, lack of international standard in systems integration with non-understanding of the IMS concepts, inadequacy in the budget and financial resources, the worry of not employing tasks for their owners, challenges in change culture according to the new system and lack in the know-how of IMS.
- *Barriers and obstacles during IMS implementation.* Although there are various incentives and benefits due to the application of integrating management systems. Domingues et al. (2015) and Benyettou & Abdellatif (2018) said on the other hand, that organizations face some of the obstacles and difficulties classified by researchers internally and externally as follows. Internal barriers could include the following; human resources restrictions, financial restrictions, implementation cost, fuzzy information concerning the new system to be implemented, lack of commitment or involvement from key workers, lack of information concerning the new roles to be ascribed, lack of motivation during the implementation process, Perception that the existing MSs are sufficient, doubts concerning the added value provided by the new system, middle management skepticism, bad past experiences, bureaucracy increase, unfavorable company culture, the disappearance of a single identity, and an obstacle to innovation. Whereas the external barriers represented in the following; lack of experts covering all the standards, lack of pressure from customers or competitors, lack of support by the certification entities, and finally lack of a guideline.
- *Expected benefits from IMS implementation.* The benefits that organizations can expect from the integration of management systems according to the authors in Bernardo et al. (2015) and Gupta (2006) have been summarized according to various researchers and authors into internal and external benefits as well. Internal benefits highlighted the reduction in the systemic of bureaucracy; reduction in costs of production; common management policy, goals, and processes; resources alignment; reduced downtime in production processes; synergy between management systems and conflict removal that have improved resources; improved efficiency and effectiveness; eliminated the

duplication in operations and paperwork; improve the image and the reputation of the company in the market; moreover create a new culture through the participation of all employees in the organization to be continuous improvement. On the other hand, external benefits could be expected in competitive advantage, improvement of promotional features, the fulfillment of legal and regulatory requirements, external audits integration, and the orientation towards accepting responsibility within the organization that leads to progress into the sustainability.

Risk management analysis and their significance for industrial organizations in the treatment of potential risks during production operations is very important. There are several success factors identified for implementing risk management such as attention to the formal risk management process - flexibility and formation of the risk management process according to the size and type of the company. Risk management must be comprehensive and multifunctional to give more elevated effectiveness. Adopting the principle of transparency as well as educating the employee with risk management and the vital role it plays in growing the efficiency of the company and its employees.

STRATEGIES FOR IMPLEMENTING IMS

The strategy of integrating management systems as Domingues et al. (2015) initially refers to the scope and implementation order and defined as the process of progressively adding all the independent components of multiple systems and transforming them into coherent and interdependent entities. The systems integration strategy is one of the most important factors in the process of improving organizational performance and facilitating continuous alignment within the organization and therefore it is used to confront the consequences of changes that can occur in the future at different levels. Several researchers in the field of IMS worked on finding the appropriate strategy for the integrated management system. Some of them exposed two models for the integration strategy. The first included the systemic approach and used to improve the arrangement of the integrated management system while the second was the strategy that focuses on technology and enhances benefits at the operational level. Then the same authors proposed a triple approach as the most appropriate through the primary role of the EMS and the concept of product-based life-cycle integration.

According to the point of view of researchers such as Samani et al. (2006) and Rebelo et al. (2016) the concept of integration strategy in management systems usually referred to the discussion of choosing the sub-systems and the way to follow them in implementation. Therefore two concepts of integration strategy are shown the former one includes the kind of management systems that need to implement according to the goals of the organization and stakeholders' requirements whereas the second includes any sequence these systems must be implemented. In this regard and after reviewing the literature for published researches in this field. The scientists such as Mathusamy et al. (2018) and Bernardo et al. (2017) reveal IMS strategies can be summarized but not limited to as follows: There are two concepts of integration labeled as alignment and integration (Savino & Batbaatar, 2015). The first is describing by using its similarities in the standards to structure the systems in order to reduce management and audit costs, provided that the procedures for each organization are reviewed separately in the same manual which knows as partial integration. While the second knows as full integration into all relevant procedures and instructions, i.e. a complete quality management approach in addition to attention to the requirements of employees and clients and continuous improvement. With regard to sequencing-based integration strategies in quality and environment standards, three options were adopted by a researcher to integrate these systems. The first option starts by establishing a quality management system first followed by the environmental management system, while the second was to establish the environmental management system before the quality, and the third was suggested to establish both of them together in one system simultaneously. Labodova et al. (2004) represent another strategy of integrated management systems which can be performed whether by adopting the management systems individually then integrate them together or via starting the integration of management systems from the initiation.

CONCLUSION

The aim of this paper was to give an overview of integrated management systems and their role in helping organizations increase productivity and contribute to sustainable development with special attention to

challenges of risk management. As seen, the organization's management system is defined as a set of interconnected processes with each other for the purpose of achieving predetermined goals using adequate resources and processes by employees, but sometimes these systems fail to achieve the potential and thus lead to some criticism. Consequently, many different management systems standards in organizations are increasingly implemented according to stakeholder options to coordinate the organization's operations and raise their performance in order to compete with others and contribute to sustainable development.

The use of these standards individually improves the performance of the organization's management systems leads to many problems, which are the inconsistency in the performance of activities, duplication of operations, additional paperwork, insufficient resources, and wasting time. These problems and other difficulties have led researchers and academics to focus on finding an ideal solution to integrate these standards into a unified system called IMS. The emergence of this system began about fifteen years ago, and it was defined as a set of interrelated processes that share the use of human resources, information, materials, infrastructure, and money to achieve the organization's goals related to the satisfaction of its stakeholders and customers.

In this paper, issues related to the integrated management system such as IMS definitions and philosophies are discussed, Factors affecting IMS and strategies for implementing IMS were discussed. As a result of the differing opinions of researchers on the process of implementing management systems integration in organizations and the absence of international standards issued by the International Organization for Standardization to cover this topic, the most diverse systems and issues have been listed. The ISO 31000 risk management standard important clauses are in principles and guidelines, which must be learned well in addition to the clause risk management framework, than the main clause in this standard is the risk management process that applies in most standards of management systems. In this sense, the recent edition of the risk management standard ISO 31000: 2018 should be analyzed and compared to the previous edition to come at the most important updates, the most important of which is the issuance of the new version according to the high-level structure that leads to the integration with other standards. The focus should be on studying the risks and the possibility of dealing with them in the most important standards of management systems that make up the risk model in this thesis namely ISO 9001, ISO 14001, ISO 45001, ISO 27001, and ISO 22000. These standards should be studied according to their influence in the working area so that quality represents the backbone of organizations in customer satisfaction, and the environment system is considered as a measure of the extent of organizations' compliance with environmental laws and regulations.

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OHS MANAGEMENT: DEVELOPMENT PERSPECTIVES DEFINED BY ISO 45000 SERIES OF STANDARDS

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ABSTRACT

Occupational Health and Safety (OHS) management system is important organizational management system that influences the provision of optimal working conditions preventing the occurrence of occupational diseases, injuries and deaths related to work activities. The efficiency and effectiveness of this system is described by a number of performance indicators which describe not only the outcomes, but also organizational activities. Standardization is one way to further improve the OHS management system. This paper presents the ISO 45000 series of standards and potential impact on further development of organizational safety management systems.

Keywords: OHS management, safety performance, ISO 45000 series, standardization.

INTRODUCTION

Modern risks are complex, difficult to predict in terms of intensity of action and consequences they cause and, often, have clearly defined global dimension. Therefore, it is necessary to permanently develop and improve methods and techniques for risk assessment, as well as measures and procedures for the prevention of risk events and remediation of consequences.

Taking measures aimed to eliminate the causes and/or minimize the effects of risky events, as well as measures to reduce losses and eliminate the consequences in case of realization of risky events, is the basis of risk management. Risk control is, therefore, a measure (process, policy, device, practice or other) that modifies risk (ISO Guide 73: 2009). A risk modification measure will only be efficient if it is based on the results of risk assessment. Therefore, risk control is part of a broader concept of risk consideration, or overall concept of risk management.

Occupational health and safety management systems have the goal to contribute to the reduction of risks that lead to occupational diseases and deaths related to work. Therefore, their constant improvement is needed. Despite constant improvement of safety systems, as well as the application of innovative measures and methods for reducing risks in work environment, the number of injuries and deaths has not significantly decreased. Human, organizational and technical factors affect the performance of an OHS system, as well as changing environment. During previous period, due to financial crisis and pandemic, economic activities recorded significant changes, but the number of injuries, deaths and occupational diseases related to work based on relevant statistics, obtained according to ESAW methodology (Eurostat 2013), is still very high. Some representative data concerning the EU countries can be found in (Eurostat, 2020), and for Serbia in (Uprava za bezbednost i zdravlje na radu, 2021). Across the EU-27, there were 1.77 fatal injuries per 100,000 employees in 2018. In Serbia, a total of 1,237 injuries at work (11 fatal and 1,226 serious injuries at work) were reported in 2020 (Uprava za bezbednost i zdravlje na radu, 2021).

RISK MANAGEMENT AND OHS

When considering OHS management, it is necessary to take into account organizational differences. Therefore, a number of indicators are used to assess OHS system performance. The concept of safety performance includes a set of indicators that quantitatively or qualitatively describe certain effects, contributions or results that are achieved in the safety system (Janaćković, et al., 2011). Indicators "measure" changes in the level of protection over time, as a result of actions taken to reduce corresponding risks.

The quality of protection is assessed on the basis of the value of safety performance and organizational performance, and "measured" by corresponding indicators. The quality of safety system has positive impact on performance and competitiveness of an organization. During the analysis the following must be taken into consideration: working conditions (Janaćković et al., 2013), specifics of work activities (Grozdanović et al., 2016), as well as different organizational aspects (Janaćković et al., 2020), such as safety leadership (Fernandez-Muniz et al., 2017), management commitment, appropriate risk management approach and strategy selection. In modern approach to safety, activity indicators (i.e. leading indicators) are increasingly emphasized as important for assessment of OHS systems.

Risk management approaches

Different definitions of risk management are present in literature. In essence, risk management involves coordinated activities of running and managing an organization with risk in mind (ISO Guide 73: 2009). It is an organized process in which risk is assessed and activities are initiated that allow it to be completely eliminated, or, more often, reduced to an acceptable level. The main task is to prevent the occurrence of adverse events, i.e. their consequences which negatively affect organizational performance (Sage, 1995; Savić et al., 2021).

There are different approaches to risk management. It is clear that risk management should be approached from the point of view of planned risk management. An interactive approach has its value, but it cannot anticipate and prevent all risks. In exceptional circumstances, risky situations would arise, although both planned and interactive approaches have been applied. This shows that there is a need for retroactive management, but it must be supported by planned and interactive approach. A retroactive approach involves managing losses, i.e. damage of any kind. There is no argument to justify the risk-taking approach, no matter how high risk may be.

Risk management strategies

According to (Aven, 2016), there are three basic risk management strategies. A risk-based strategy indicates that risk is handled based on a risk assessment. Adequate risk assessment allows choosing the appropriate way to deal with risk. Dealing with risk means avoiding, reducing, transferring and/or retaining risk, depending on whether it is possible to eliminate potential causes or prevent the consequences on protected values from manifesting themselves.

A strategy based on warnings/precautions is also called a strategy of robustness and resilience. It emphasizes the ability to adequately identify signals and preconditions for the occurrence of adverse events. This is extremely important for an adequate response, so risk regulations are based on the application of these principles to identify uncertainties, risks and potential for adverse events to occur.

The third risk management strategy is a discursive strategy. It involves the application of measures to achieve trust and reliability, by reducing uncertainty and ambiguity, clarifying facts, involving those affected and considering accountability. In real situations, in order to achieve best possible results, appropriate strategy is a combination of these three previously mentioned strategies.

Standardization

Standardization in the field of occupational safety has become especially important after introducing the OHSAS 18000 series of standards (OHSAS, 2007). These standards were contributed to the establishment of successful OHS management systems. The ISO 45000 series of standards was created with the idea of further improving the management of OHS systems by including additional management elements in the context of applied process approach (Campailla et al., 2019; ISO, 2018). The structure of this series of standards is shown in Figure 1.

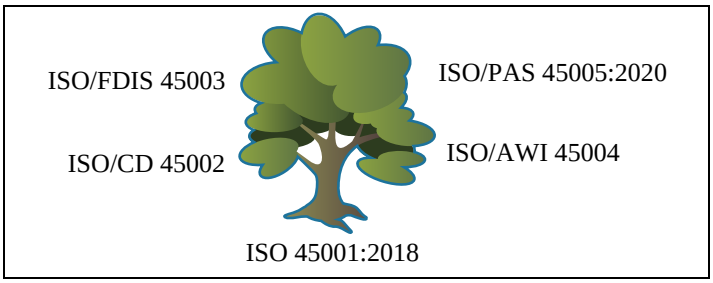

Figure 1: ISO 45000 series of standards presented in form of a tree

The current state of development of the ISO 45000 series standard is shown in Table 1. The table contains information about the name of the standard and its current status.

Table 1: Current development status of the ISO 45000 series of standards

Name	Description	Current status
ISO 45001:2018	Occupational health and safety management systems - Requirements with guidance for use	60.60 (Published)
ISO/CD 45002	Occupational health and safety management - General guidelines for the implementation of ISO 45001:2018	30.60 (Committee)
ISO/FDIS 45003	Occupational health and safety management - Psychological health and safety at work - Guidelines for managing psychosocial risks	50.20 (Approval)
ISO/AWI 45004	Occupational health and safety management - Guidelines on performance evaluation	20.00 (Preparatory)
ISO/PAS 45005:2020	Occupational health and safety management - General guidelines for safe working during the COVID-19 pandemic	60.60 (Published)

As can be seen from previous table, only ISO 45001 and ISO/PAS 45005 (in form of publicly available specification) standards are officially published. Other standards from this series of standards are in various stages of development, from preparatory to approval stage.

DISCUSSION

Continuous improvement of existing OHS management system is the basis for the functioning of a successful organization. This is defined as the basis of the organization's OHS policy (ISO, 2018). The standardization of an OHS system makes it easier to monitor organizational activities and compare them with reference or desired values.

The ISO 45001:2018 standard presents basic requirements for OHS management systems and guidance for use, having in mind addressing risks and opportunities for improvement, identification and elimination of hazards, assessment of OHS risks and their reduction, as well as change management, all in the context of determining legal and other requirements, OHS objectives and continuous improvement, as well as commitment to organizational goals (ISO, 2018). Special attention is paid to leadership, but also to employee participation, performance evaluation and monitoring, measurement and analysis to be able to improve existing processes and measures.

Table 2 presents the structure of the ISO 45001:2018 standard. It defines context, leadership, planning, support, operations, evaluation, and improvement as critical in implementation of an OHS management system.

Table 2: The ISO 45001:2018 standard structure presented by clauses (requirements)

Clauses	Description
Context	Describes unique external and internal organizational context, needs and expectations of workers, scope and purpose of the OHS system.
Leadership	Providing leadership by defining for OHS policy, assigning organizational roles, and responsibilities, and consulting with workers (participation).
Planning	Formulation of actions (hazard identification, identification and assessment of risks and opportunities), OHS objectives formulation.
Support	Providing the necessary resources, competence, duty awareness, communication control, documented information management.
Operations	Establishing processes for OHS requirements fulfilment (managing OHS and hazards, changes, stakeholders, controlling risks and impacts, emergency response).
Evaluation	Establishing processes to monitor OHS performance, requirements, organize audits, review OHS system effectiveness and efficiency.
Improvement	Identifying OHS improvement opportunities and take actions, respond to incidents, enhance OHS system effectiveness and efficiency.

Figure 2 shows the OHS management system according to ISO 45001 standard. The model is based on plan-do-check-act cycle. It takes into consideration organizational context, stakeholders' needs and expectations, as well as different internal and external issues.

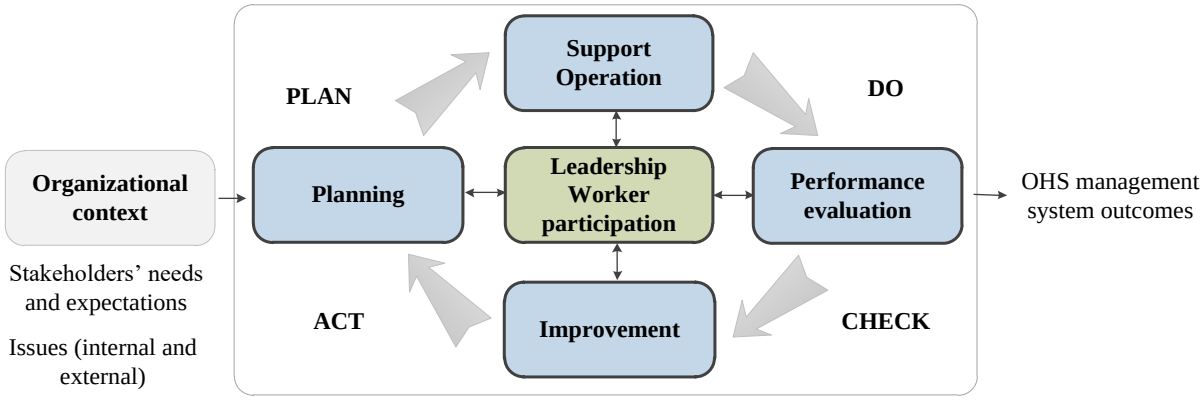

Figure 2: Management system model according to ISO 45001

Table 3 presents three types of processes concerning ISO 45001:2018 standard: support processes, management processes, and realization processes. Successful application of this standard implies activities not only during the implementation, but also in the process of management and support, without which it is not possible to get desired results in the field of safety system improvement. Preventive activities and continuous improvement become the basis for successful OHS system.

Table 3: Different types of processes concerning developing the OHS management system according to the ISO 45001:2018 standard

Process type	Representative processes
Support processes	Documentation control; staff management; inspection management; infrastructure maintenance; legal watch; providing education and training
Management processes	Strategy/policy development; OH&S management system planning; process ownership; management review; communication; risk/opportunity evaluation
Realization processes	Operational risks management; change management; incident investigation; applying measures; hazard elimination; risk reduction; inspection/maintenance

General guidelines for application of ISO 45001:2018 standard are the basis of ISO 45002 standard, similar to the OHSAS 18002 standard. They will be defined in the ISO 45002 standard. The BS

45002:2018 standard is based on the PDCA cycle (leadership and employee participation, planning, support, operation, evaluation performance and continuous improvement), and it is used as a model for creation of corresponding ISO standard. The goal of the ISO 45002 standard is to provide guidance to end users on the application of the requirements of the basic standard, but the delay in publication leads to the fact that a large number of organizations will be obliged to implement the ISO 45001:2018 standard within the prescribed time before the ISO 45002 standard will be published.

The ISO/PAS 45005:2020 specification was adopted under an accelerated procedure due to the outbreak of the COVID-19 pandemic, with the aim of defining basic practical recommendations for managing all risks caused by a pandemic, with possibility of application to all types of organizations. The aim is to form the standard based on this specification that can be applied in similar situations, bearing in mind the risks and challenges of working during a pandemic, from home or in other people's homes, at physical workplaces, or in multiple locations or mobile workplaces. Special attention in this standard is paid to operations, first return to workplace, entry and exit from the workplace, as well as movement around the work area and work zones. General areas are identified as particularly critical places, as well as meetings, relations with the public and business trips (ISO 45005, 2020). An organization should apply a systematic approach to monitoring and evaluating implemented measures and safety outcomes.

ISO 45001 promotes the viewpoint that an organization is responsible for OHS of its employees and all others affected by its activities, whether it is physical health or mental health. Logical consequence of this is the development of the ISO/FDIS 45003 standard referring to psychological health and safety of employees, which is achieved by adequate management of psychological risks and application of appropriate measures for their management. The problem with psychological risks is their possible connection with other risks, which cause worsened psychological or mental health of employees. In addition to poor health (diabetes, cardiovascular diseases, neurological disorders, musculoskeletal disorders), inappropriate health behaviors (unhealthy nutrition, substance abuse), job dissatisfaction, lack of commitment to work activities and reduced productivity are also mentioned as negative consequences (ISO/FDIS, 2021; WHO, 2020). ISO/FDIS 45003 introduces integrative concept of worker well-being describing quality of life defined by employee's health and corresponding work-related factors (organizational, environmental, and psychological) and positive perception of employees about conditions at work and in life enabling them to achieve their full potential at work.

The evaluation of management system performance is also very important. This can be performed by applying different methods. The success of an OHS management system is monitored using various performance indicators. Their selection and adequate interpretation are crucial for the improvement of existing system (Savić et al., 2021). For the purpose of the OHS management system, performance evaluation is defined by the ISO/AWI 45004 standard, which is in initial phase of development.

CONCLUSION

An occupational health and safety system is an open system that interacts with its environment. Its complex structure and a large number of influencing factors and stakeholders must be well considered to enable the system to be efficient and effective. The standardization process of this system increases its operational performance, reduces costs and process errors, and simplifies communication and employee participation. In addition to considering the state of the work environment and the characteristics of the work process, the ISO 45000 series of standards also introduces employee well-being, and encourages organizations to identify (using a systemic approach) all that prevents an employee from giving his or her maximum during the work.

ACKNOWLEDGEMENT

The paper presents the results of research supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Agreement No. 451-03-9/2021-14/200148).

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CBM CONCEPT IN THE ROLE OF DESIGNING A NEW MODEL OF A HYDRAULIC PRESS

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ABSTRACT

Sometimes well-designed systems and solutions at one point require certain corrections and refinements in the way they function. In this paper, the authors dealt with implementing a new solution for a hydraulic press, i.e., the installation of a hydraulic accumulator to avoid the occurrence of a pressure peak, which was observed on the press. The paper presents the results before and after the implementation of the appropriate solution.

Keywords: CBM concept, hydraulic press, hydraulic accumulator, pressure peak.

INTRODUCTION

With the advent of the 21st century, there has been a significant expansion of modern information technologies and devices based on the principle of operation of an information system. Such expansion has led to a process in the industry called automation. All aspects of industrial systems, both in the branch of production, construction, maintenance, tend towards a certain level of automation. The concept of automation is characterized as a process that facilitates all aspects of the industry, from the initial phase of product creation, components, to the final stages of exploitation and maintenance. According to (Rivera, et al. 2018), the expansion of digitalization and the advent of the Industry 4.0 concept tends to optimize industrial production, a fundamental approach to collecting essential data. In a recent survey conducted in the real industry, 68% of surveyed firms confirmed that they have a strategy implemented in relation to the appropriate databases that deal with collecting data from measuring points in their company, while 30% stated that their strategy is evolving and that they strive to follow the modern concepts required by Industry 4.0. Besides, 60% of respondents think that it collects the necessary data well or even excellently, while only 32% think that it generates and processes the collected data well (Lueth, et al. 2016). Predictive maintenance has been identified as a leading segment of the popular analytics industry. The ratio of the potential of the predictive way of maintenance and its actual application is at a deficient level, great potentials and a small degree of utilization of this type of technology are one of the brakes on the development of industrial analytics. Conditional monitoring represents a revolution in system maintenance, as well as a methodology that within your system uses modern equipment for diagnostics. In this way, the system leads to constant monitoring, which allows to increase the productivity and efficiency of production (Novaković, et al., 2020).

Organizations that resort to condition-based maintenance methods have large amounts of data to handle within the system. When it comes to such approaches, there is no doubt that it is necessary to

set specific limits when measuring the appropriate parameters so that a comparative analysis of the obtained data and the required work function can be performed. As one of the most common types of collection, they use modern devices connected to Conditional Monitoring, that is, modern turbines with a can device for reading the actual situation.

HYDRAULIC SYSTEMS AND APPLICATION OF CBM CONCEPT IN HYDRAULIC SYSTEMS

Maintenance of hydraulic systems

One of the most important contributions that hydraulic systems make is undoubtedly their ability to increase the power and productivity of equipment without increasing its complexity or dimensions. Of course, such a contribution cannot be achieved without a proportional increase in operating pressure, and consequently, an increase in operating temperature and the occurrence of failures of individual elements of the system. Suppose the assumption is adopted that the system is adequately designed, made by appropriate assembly procedures of appropriate components, that handling is in accordance with the designed 12 possibilities. In that case, it follows that the causes of failure can be, and most often are, gradual degradation processes due to wear, fatigue or contamination and consumption of working fluid in operation. In many scientific and professional papers and publications, contamination of the working fluid stands out as the main "enemy" of the maintainer of hydraulic systems (Schwandt, et al., 1993; Fitch & Hong, 2004; König-Birk, 2011). In Parker's publication (BoschRexroth, 2011), it is stated that about 80% of failures were due to working fluid problems. The main reason why this is so is that the working fluid circulates through the entire hydraulic system and that in relation to other elements of the system, it is a component that has several functions. So, apart from the primary role, i.e. energy transfer, the working fluid has the task to:

- lubricate,
- absorbs and emits heat when needed
- protects against corrosion,
- provide sealing,
- separates air and prevents foaming,
- forms stable or unstable emulsions (depending on the application) and separates oil and water, etc.

Therefore, oil analysis based on a properly defined program is a very effective method of monitoring the condition of technical systems that provides early warning signs of potential problems, leading to failure and downtime of technical systems (Perić, 2010).

The service (exploitation) life of technical systems can be interpreted by the “bathtub” diagram obtained by superimposing three functions that describe: early failures (childhood diseases), accidental failures (normal operation), and late failures (obsolescence/wear) (see Figure 1).

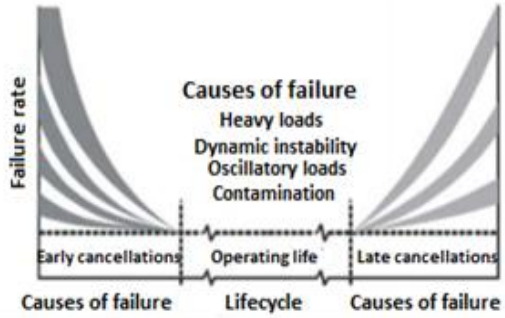

Figure 1: Review of the “bathtub” of failures (Karanović, 2015)

The diagram shown is the basis for demonstrating the failure rate in a system. Each of these failures represents a potential danger to the System's operation, so it is necessary to respond to failures in a timely and accurate manner.

Design of a new solution of the hydraulic system – press

The problem of the old solution of the press occurs in the domain of the appearance of pressure peaks, which disrupt the normal functioning of the press. In order to avoid such an effect, it is necessary to resort to the implementation of a newly designed solution with a hydro-accumulator with a bellows (see Figure 2).

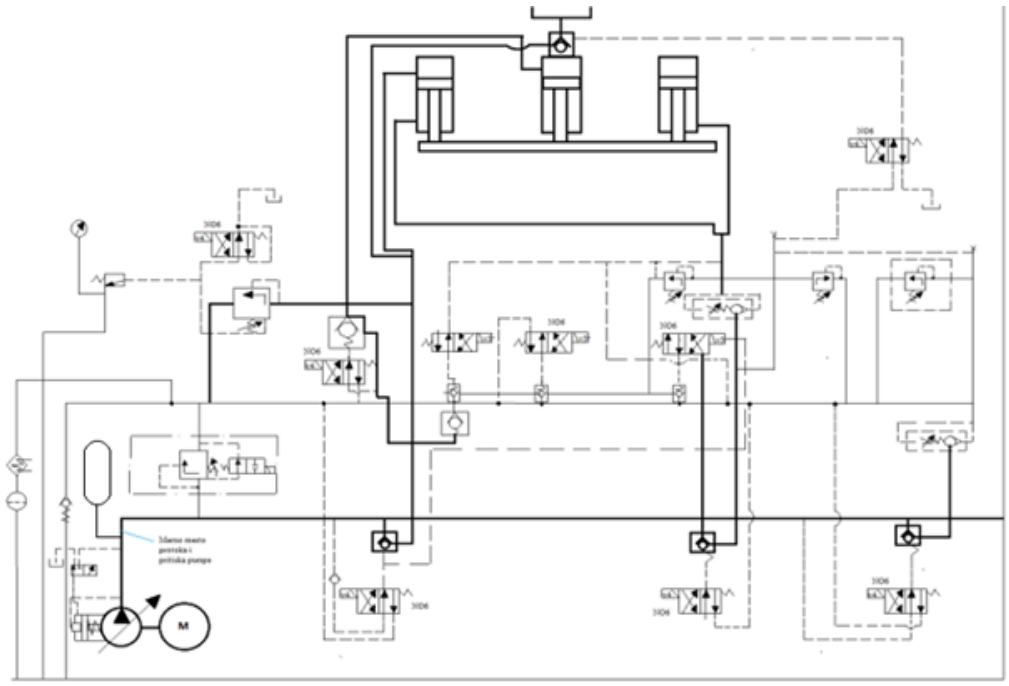

Figure 2: Scheme of a hydraulic system with a built-in accumulator

When designing a new solution, it was concluded that by applying the CBM concept and appropriate diagnostic methods of the press system, it is necessary to install a hydraulic accumulator to reduce the pressure peak that occurs on this system. The installation of a hydraulic accumulator avoids possible hydraulic shocks due to the increased pressure peak and thus avoids damage to system components.

The pressure peak occurs in 1 second, so it is considered necessary to install a hydraulic accumulator with a bellows, with an adiabatic thermodynamic change, shown in the Figure 2. Also, in addition to installing the pressure peak, it is necessary to replace the safety valve in the system.

Figure 3 shows the adiabatic thermodynamic change within the hydraulic accumulator.

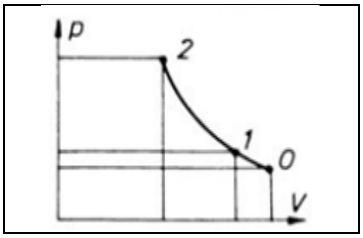

Figure 3: Adiabatic thermodynamic change

The volume of the hydraulic accumulator is calculated based on the following formula:

$$V_0 = \frac{\Delta V}{(\frac{p_o}{p_1})^{\frac{1}{n}} - (\frac{p_o}{p_2})^{\frac{1}{n}}} \quad (1)$$

For an adiabatic thermodynamic change, the duration of the process is (no heat exchange with the environment), where the factor n = 1.4 (1/n = 0.714) is a general value. According to the data on maximum and minimum pressures in the systems, the required accumulator volume can be determined.

The maximum operating pressure in the system is 180 bar, while the minimum is 130 bar, so based on this, it can be calculated:

$$p_o = 0{,}8 * p_1 = 0{,}8 * 130 = 104\ bar \quad (2)$$

Based on the calculated values, a accumulator with a capacity of 330 dm^3 is adopted for a given system. Implementing such a solution leads to the mitigation of hydraulic shocks, i.e., vibrations in the system itself.

Figure 4 shows a technical drawing of a accumulator with a bellows.

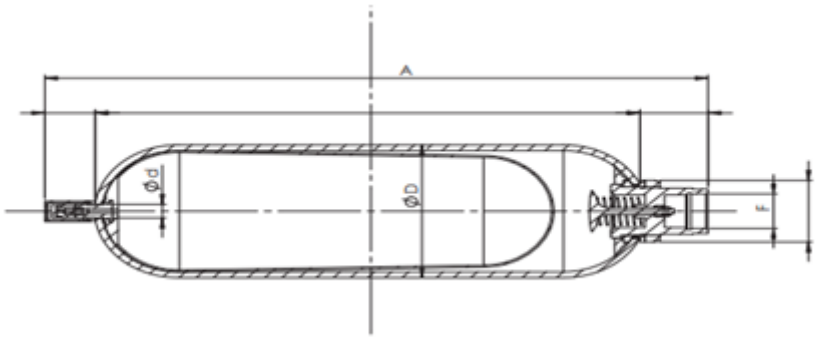

Figure 4: Technical solution of accumulator with bellows

Measurement of the hydraulic system of the press before the implementation of the hydraulic accumulator

As already mentioned in the paper, the pump represents the heart of the hydraulic press system. Its failure or potentially lower degree of efficiency is very easily felt on the entire system. Today's pumps are related to the quality of hydraulic fluid, and they are extremely sensitive to poor quality oils and contaminants. The basic characteristics of pumps are pressure and flow, and these two characteristics are interdependent. The pressure peak as a phenomenon should indicate the creation of a clear picture of what can happen in the pressure system and predict possible side effects of the peak on the components of hydraulic systems. Pressure peaks are caused by the occurrence of hydraulic shocks in the system, leading to the problem of the appearance of so-called hydraulic cushions. Pumps suffer the greatest loads due to the occurrence of hydraulic shock, and in addition, degradation of the working fluid within the system can occur. The hydraulic press on which measurements and research were performed in its initial form had a problem with hydraulic shocks and vibrations within the system. With the implementation of modern turbine devices with can software, it was determined that the effect of the pressure peak at 634.7 bar occurs in the system. The appearance of a pressure peak in the system occurs in a time interval of a full second. The onset of the critical pressure peak starts in the interval from 28.34 seconds up to 29.48 seconds

Figure 5 shows a diagram with a pressure-flow dependence curve.

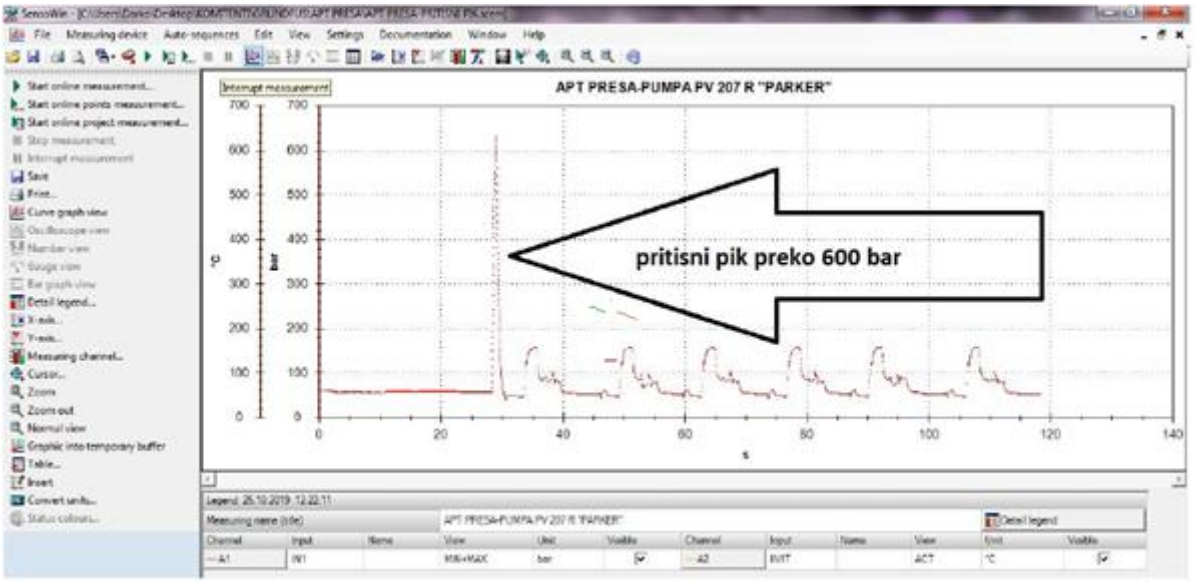

Figure 5: Pressure peak by the piston-axial pump

Figure 6 shows the time period of the occurrence of the pressure peak from the initial phase to the end.

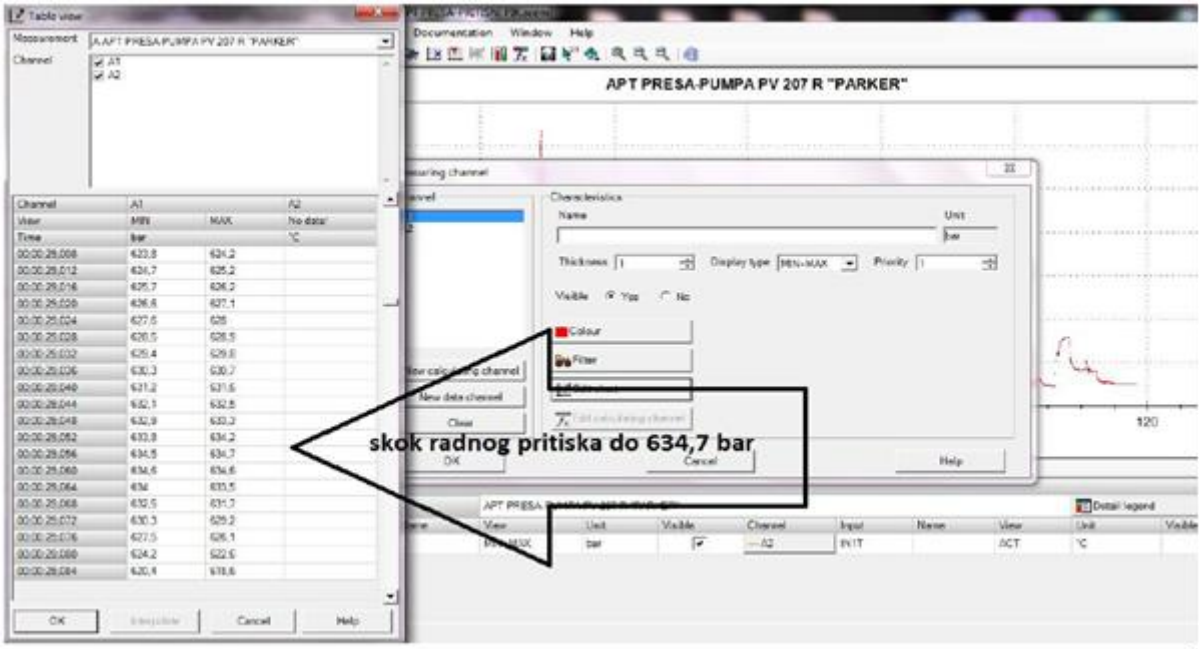

Figure 6: Pressure peak in time

Measurement results of the newly designed hydraulic press system

After the mentioned solutions and implementation of the hydraulic accumulator and the change of the safety valve, the re-examination of the hydraulic press operation in two modes, automatic and manual, was started, and the test results are shown in Figure 7.

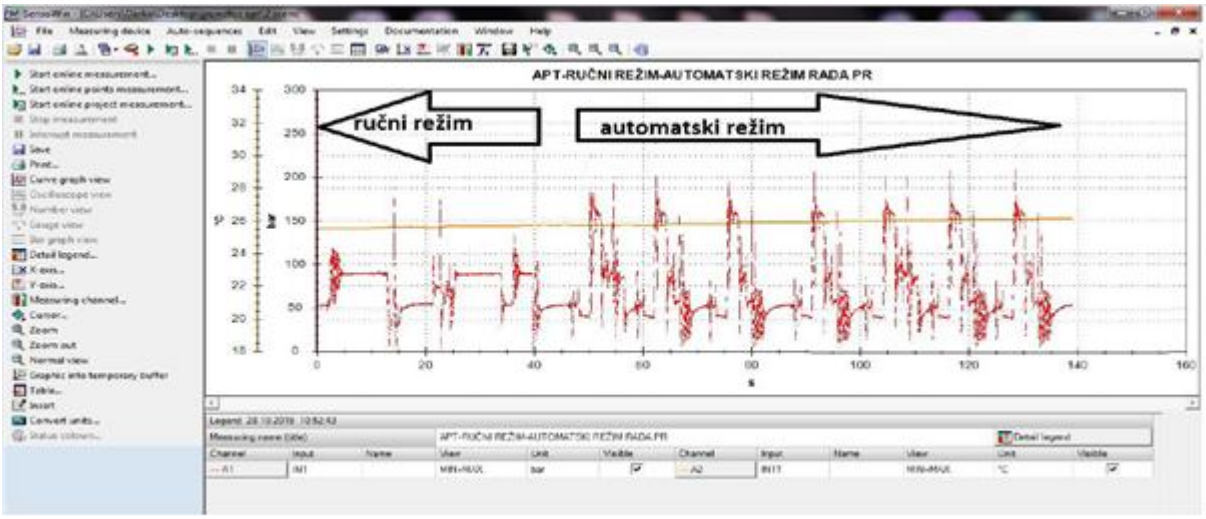

Figure 7: Checking the pressure peak after the implementation of the hydraulic accumulator

From Figure 7, it can be concluded that in both modes of operation, there is no significant increase in the pressure peak, and the system components are in safe mode, shocks and vibrations that occurred before the implementation of the accumulator and replacement of all supporting elements in the system recommendations are given.

CONCLUSION

It can be concluded that the CBM maintenance concept must be approached thoroughly and in detail and that the concept should focus on a few basic steps and modules, i.e., on diagnostics and decision support. Designing a new solution in the hydraulic press system has contributed to a more stable operation of the press, thus eliminating all potential problems that may arise due to unwanted shocks in the systems that occurred before the solution to the new press mode. Also, there are other ways to solve the problems of pressure peaks, vibrations, and variations in the system's operation, and this method refers to the absolute tightness in the systems, so the implementation of the battery can be replaced in some way by these procedures.

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PANDEMIC MANAGEMENT IN OIL AND GAS INDUSTRY

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ABSTRACT

This paper presents the global impact of the COVID -19 Pandemic in a very challenging time for the role of management in the oil and gas industry. We are witnessing the extent of the pandemic to each segment of our lives on an individual level and as a society we are experiencing sudden changes both in health and economic systems. It's needless to say that the Oil and Gas Industry as a part of the global economy faced enormous challenges. Those challenges are reflected in contribution, business organisation, stable economy, preserve vacancies and safe lives at the same time, and isolate its staff in the most effective way.

Keywords: Pandemic, Covid 19, management, Oil and Gas, Industry, business, profitability, safety.

INTRODUCTION

A crisis such as Covid 19 does not just cause the state of emergency in the health sector but also economic turbulences with a direct impact to the market, offer (manufacture and services), demand (spending and investments) and work environment. However, when speaking about the oil and gas industry, the concept of a crisis is well known. Instabilities in this market are overlapping from time to time thus the question that has arisen - what actions to take in order to alleviate the consequences. What we have seen in 2020, might represent the greatest challenge to the global economy in the last decades. The crisis induced by Covid 19, is the genuine test for the world that we are familiar with and jeopardises our lifestyle. By the middle of April 2020, almost 60% of the world economy was partially or completely under lockdown, which certainly led to large losses, both in production and business.

The impact of a pandemic on companies is unique, primarily due to its scale (pandemics can last for months or even years) and certainly economic consequences. At the same time, there was an abrupt decline in oil prices and a large drop in demand. In just one day during March, oil lost 30 percent of its value. Therefore, a company's plans must consider continuous risk assessment, as well as roles and responsibilities in business continuity plans, both globally and nationally.

BUSINESS ORGANIZATION AT THE TIME OF THE PANDEMIC

The fact that most of business continuity plans are in corelation with the health or safety of employees in the oil and gas industry, should be taken into consideration, and will usually be scaled to address local or national risk, which has a potential global impact on the organization.

The pandemic poses a global risk with local impacts on health and safety, different national responses and deadlines, and global economic impacts. Therefore, the following should be considered

- Available medical / health expertise
- Consistency of global / national data sources and analysis for decision making.

- Effective communication channels
- Clarity of global versus national decision-making hierarchies
- Economic impact on the company (Producers, 2021.)

THE IMPACT OF THE PANDEMIC ON THE OIL AND GAS MARKET

According to the Organization for Economic Co-operation and Development (OECD) estimates, the demand for primary energy has fallen by about 6% over the past year, roughly seven times the volume of the 2008-09 financial crisis years. (IEA, 2020.)

The oil and gas sector has undoubtedly experienced the largest decline in investment in any energy sector, because of reduced revenues that reflect lower demand and lower prices. It is estimated that the decline in investment in this sector is about a third smaller than it was in 2019. (Nacionalni naftni komitet Srbije - Svetskog naftnog saveta, 2021.).

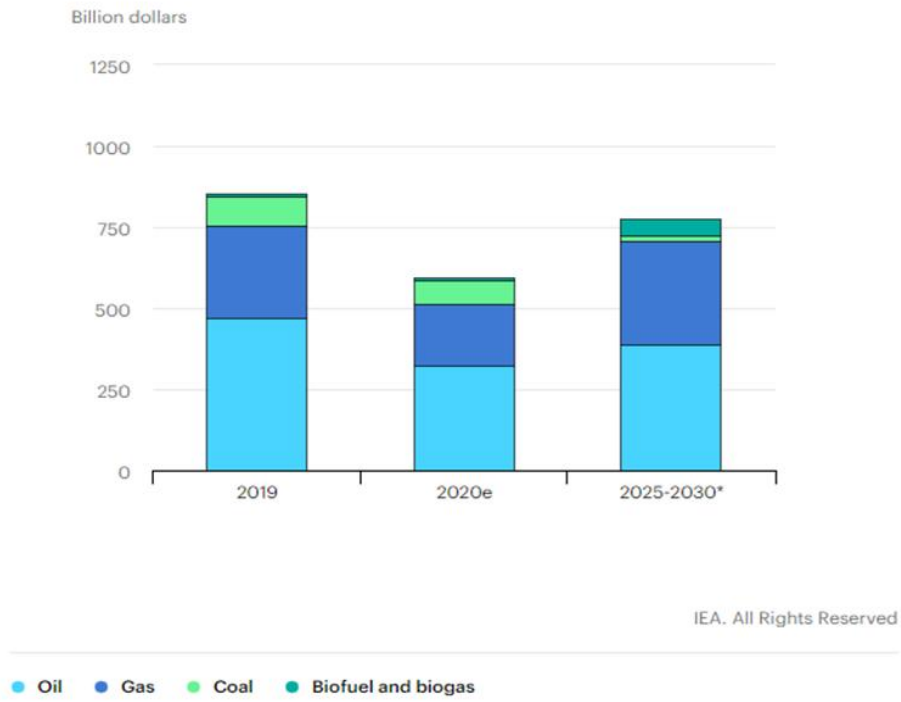

Figure 1: Fuel supply sector investment in 2019 and 2020e, and annual average investment in the Sustainable Development Scenario (IEA, 2020.)

The latest data show that global oil demand from January to July 2020 was lower by 10.5 million barrels per day compared to 2019. When the restrictive measures due to Covid 19 were loosened, there was a rapid recovery in the demand for oil derivatives (primarily gasoline), but soon the demand began to fall, due to the repeated increase of coronavirus patients. (Nacionalni naftni komitet Srbije - Svetskog naftnog saveta, 2020.)

The extent to which COVID-19 has affected the oil and gas market can be seen in Figure 2. showing the relationship between production and consumption, where a sharp decline in consumption is clearly seen at a time when the whole world was under lockdown.

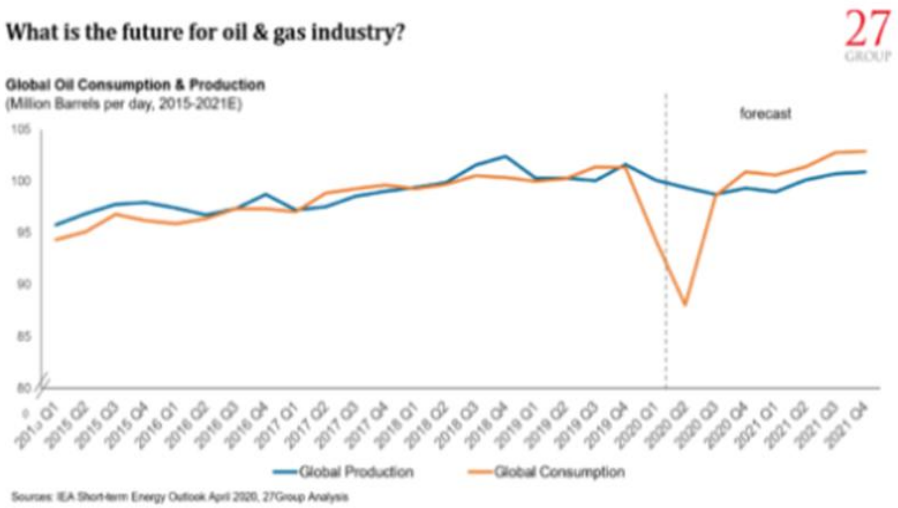

Figure 2: Impact of the pandemic on the oil and gas market (27 GROUP, 2020.)

As far as the oil price on the market is concerned, a sharp decline can be clearly seen in Figures 3. and 4. The diagram shows see that the price per barrel of oil before the lockdown was relatively variable, which changes sharply due to the influence of coronavirus and other geopolitical influences.

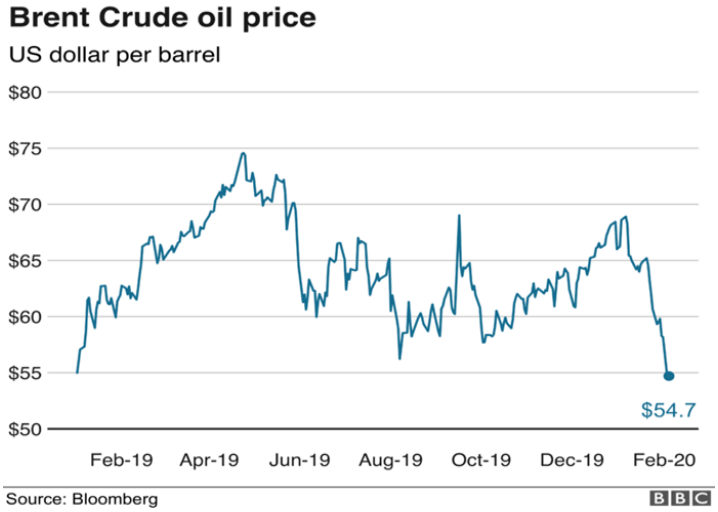

Figure 3: The impact of coronavirus on oil price (Vijay, 2020.)

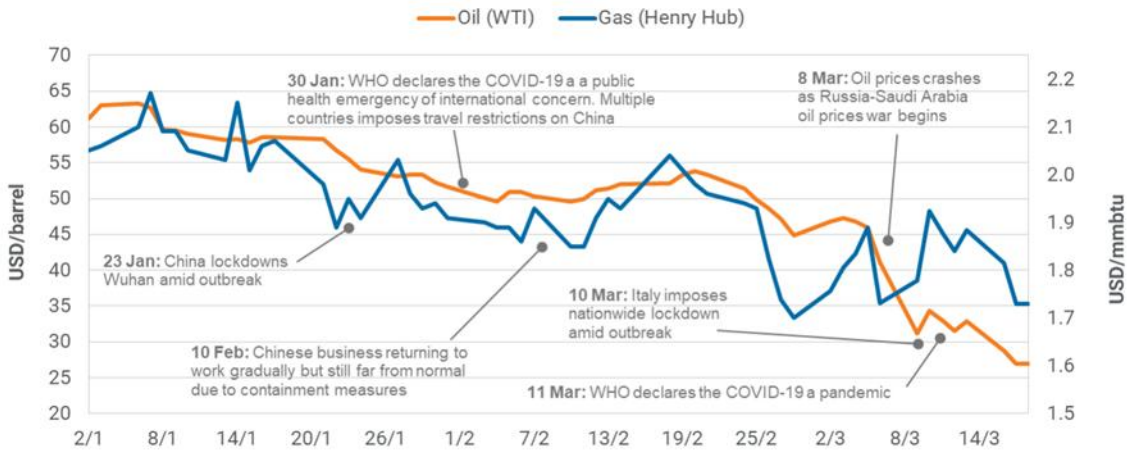

Figure 4: Change in oil prices in 2020 (Maplecroft, 2020.)

THE IMPACT OF THE PANDEMIC ON THE WORK OF OIL COMPANIES IN SERBIA

NIS Company

NIS is a large company, with more than 11,000 employees. NIS also operates in neighbouring countries: Bosnia and Herzegovina, Bulgaria, and Romania. When the pandemic was declared, NIS was among the first to form a crisis team, in order to ensure the safety of employees and consumers on the one hand, as well as to maintain energy stability in the Republic.

Teams were formed in all organizational units of NIS, as well as in companies in the region. All teams worked extremely efficiently, adopted, and coordinated preventive measures, procured the necessary quantities of protective equipment. The head of the HSE sector, Mr Jovica Bojinović, especially emphasized that the production of NISOTEC ANTISEPSOL disinfectant, used for the needs of the company, became a joint venture with the experts from the Lubricants Department of the "Promet" Block. (Nacionalni naftni komitet Stbije - Svetskog naftnog saveta, 2020.)

Also, employees are very well informed about how the infection is transmitted, how they should stay safe, what to do in case they suspect that they are infected or that they have been in contact with a infected person. Immediately after the declaration of the state of emergency, employees in the NIS administration were enabled to work remotely from home, and special measures were introduced on oil wells, in the Pancevo Oil Refinery, as well as at gas stations. All business trips were postponed until further notice, and meetings were organized via video link. At the locations of NIS, regular disinfection was carried out, and plexiglass fences were installed, in order to reduce the intensity of contacts. An obligation has been introduced for all employees to monitor contacts with colleagues on a daily basis. All this resulted in preserving the health of employees and that production and sales at NIS locations did not stop at any time. (Nacionalni naftni komitet Stbije - Svetskog naftnog saveta, 2020.)

Figure 5: NIS company

LUKOIL Company

In order to preserve the health of employees in the LUKOIL SERBIA Headquarters, serological testing of employees for COVID-19 infection was conducted with an IgG and IgM antibody detection test. In August and September, over 80 employees passed this test. Due to confirmed cases of asymptomatic virus carriers during this pandemic, it was decided to test in the first round the employees who perform their work in the Company office building and oil depots in Ostružnica and Doljevac. For employees who work from home, individual testing is also organized. A recommendation was issued to all employees to be regularly informed about all events and measures in the Company related to COVID-19. (Nacionalni naftni komitet Srbije - Svetskog naftnog saveta, 2020.).

Figure 6: LUKOIL refinery

Recovery and stability of the market in the future

Globally, oil refining must adapt to major changes. It is estimated that demand has not disappeared but has been postponed, and the price of oil is certainly unpredictable in the forthcoming period. According to estimates, the increasing number of travel arrangements, the abolition of measures, the continuation of recovery and the return of people to everyday life, will result in a big increase when the demand for oil is in question in the next six months. In early April, the investment bank announced an estimate that the surplus of global oil stocks would normalize by the fall of 2021. (Nacionalni naftni komitet Srbije - Svetskog naftnog saveta, 2020).

CONCLUSION

We are witnessing that ongoing corona virus crisis, has left, and is still leaving deep impact on human health and the economy. The oil and gas market has been in a very big ups and downs in the past period, which is very difficult to predict. However, it might give us hope that the market recovery can soar globally. From the attached, we can see that the oil and gas market is very closely connected with other branches of the economy, and that it largely depends on the functioning of the entire system. Even the smallest change will very much affect this market, which is subject to sudden changes. The pandemic has definitely brought new obstacles and challenges, how long the recovery will take place and how long it will take is very difficult to conclude for now.

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APPLICATION OF BENCHMARKING TECHNIQUE IN PUBLIC UTILITY SYSTEM

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ABSTRACT

In the modern world, the public utility system is the basis of social welfare, but also a prerequisite for effective environmental protection. In an average developed society, the public utility system employs a significant number of people and makes up a significant item in a country's overall GDP. Therefore, it is very important to periodically check the performance of the public utility system, primarily to assess its functioning, but also to define the norms of efficient business. In this context, the aim of this paper is to present the benchmarking technique and the possibilities of its application in the public utility system. The basic conclusion is that the benchmarking technique has a significant potential for improving the basic, auxiliary and management processes in the public utility system.

Keywords: Public utility system, performance, benchmarking.

INTRODUCTION

Provision, forms and responsibilities for public utility services in Republic of Serbia are regulated by several laws and by-laws. However, their significance for the local community far exceeded restrictions and definitions provided by legal regulations, so the work of public utility companies is valorized through their activity, results and quality of service they put on disposal of citizens. According to the Law on Public Activities, public activities are "activities of production and delivery of utility products and provision of utility services that are an irreplaceable condition of life and work of citizens and other subjects, in a certain way area" (Law on Public Activities, 2018). Problems of providing public services in Republic of Serbia today are caused by: inadequate communal infrastructure and equipment, problems in depressed utility prices and, despite this, poor collection, lack of strategic plans, continuity and shortcomings in the implementation of existing medium-term plans and unresolved status of PUC assets. The comparative advantage of public services in Republic of Serbia is their operational staff: this enabled the maintenance of communal functions throughout year of crisis, often on the principles of improvisation. Now, at the beginning of the 21st century, when communal systems go towards their organization and setting up work according to by European standards, this propensity for improvisation may become a factor preventing the achievement of the standard (quality of service) that is expected and which, in addition to the upcoming planned investment, had to be achieved and maintained. Therefore, each work, which aspires to deal with the advancement and improvement of the organization provision of public services in Republic of Serbia, must result in such outputs that can be applied in practice (Beato & Laffont, 2002).

Public utilities are a part of the economy that differs greatly from the classical market system. The fact that the provision of these services is usually not exposed to competition (often not even possible), classifies utilities into a group of monopolistic or quasi-monopolistic business activities. It relays on monopoly controls by means of enterprise status (controls business activities by founder) and direct

control of the price of services. Of course, the social community represented through local self-government could not, nor dared to completely leave communal issues to market principles. Namely, the practice from the surrounding countries that are in completeness managed to integrate into the EU shows that it is possible to introduce the principle of funding utilities at which the price of utilities covers all costs. This implies the analysis seeks to identify the necessary legal and institutional changes to achieve this goal, often throughout benchmarking process (Strategy for Restructuring the Public Utility Companies in Serbia, 2011; Vasović, 2018).

PUBLIC UTILITIES AND BENCHMARKING

"Benchmarking" is the process of finding the best existing product, the production one process or service in the market, and its implementation as a standard for improving the products, processes and services of a particular company (Babović, 2012; Bendall, 1993; Cook, 1995). Some reports that have discussed the issue of transformation in Republic of Serbia, amounts the following conclusions regarding benchmarking:

- "Benchmarking" can play a major role in setting up and monitoring development and project progress,
- By sectors, elaboration of methods and systems can be very differently and as such must be further elaborated,
- Support is needed from sectoral organizations and consultants who can be involved in the development of "benchmarking" strategies, as well as in the design, development and implementation of related benchmarking systems and databases.

The main technique of "benchmarking", when the above definition is taken into account, is measurement. In order to perform the measurement, the meter must have the indicators that belong to it the same group of indicators that is to be corrected after measurement (Janaćković, 2020). The following groups of indicators are most commonly used: performance indicators, process indicators, and product characteristics indicators (Janaćković, 2013).

Although it is not intended to be a perfect tool for measuring "benchmarking", it is in conditions lack of comparable indicators, however necessary. When its implementation begins, participants in the process of expressing monitoring indicators, will, depending on the activity, have to have some general indicators by sector, and be on that basis instructed to reach the branch average. If they are found to be natural or demographic conditions that do not allow more efficient business, then will on the basis of accepted indicators for example be clearly documented to some utilities must be subsidized or can be funded exclusively from donations. On the other hand, with artificially created business conditions such as inadequate administratively controlled prices or excessive numbers workers within the system, "benchmarking" is a tool that reliably indicates the consequences phenomena whose cause has been determined and therefore provides opportunities for correction in efficiency business (Ivančić et al., 2021).

DISCUSSION

In the case of the activities presented in this material, "benchmarking" indicators can be:

For water supply and sewerage

- Performance indicators income statement from core business, number connections, calculated /charged ratio, customer satisfaction, network length, number of employees per connection, etc.
- Process indicators: water losses, annual duration constant water supply, procedures in case of failures, regular processes annual maintenance expressed in time and monetary units, network expansion speed, implemented IT processes.
- Product characteristics indicators water availability, purity, price, etc. (Alegre, 2006; Murungi, 2016; Berg, 2010)

For solid waste management

- Performance indicators: income statement from the core business, number households served, covered area, quantity collected waste, number of households per employee, etc.
- Process indicators: number of kilometers covered in shifts, level collection automation, etc.
- Product performance indicators: precision in layout garbage removal, amount of residues after removal, usability landfills after closure, etc. (Abdulredha, 2018; Wilson, 2012; Wilson, 2015)

For district heating

- Performance indicators: income statement from the core business, number connections, calculated / charged ratio, customer satisfaction, network length, number of employees per connection, etc.
- Process indicators: heat losses, failure procedures, processes of regular annual maintenance expressed through time and monetary units, network expansion speed, implemented IT processes, etc.
- Product characteristics indicators: availability of hot water during year, the purity of hot water, the possibility of regulating the temperature inside heated buildings, etc. (Ziemele, 2014; Sarma, 2017; Fortum, 2011)

At the beginning of the implementation of "benchmarking", the most complicated task is collecting information on indicators taken as relevant to comparison. If such or similar action were to be carried out, it would have to be done to form a body that would follow the action. Observing the above, it can be concluded that public utility activities are difficult for "benchmarking". The reasons for this are mostly specific characteristics of the utility market such as: affordability water source, population size, majority solid waste content, condition infrastructure, etc. (IBNET, 2021; EBC, 2021). At the other hand, there are positive experiences in benchmarking technique application in public utility sector, like the Water Supply and Sewerage sector monitoring and benchmarking initiative developed throughout Danube Water Program - DWP, as shown in Figure 1 and 2.

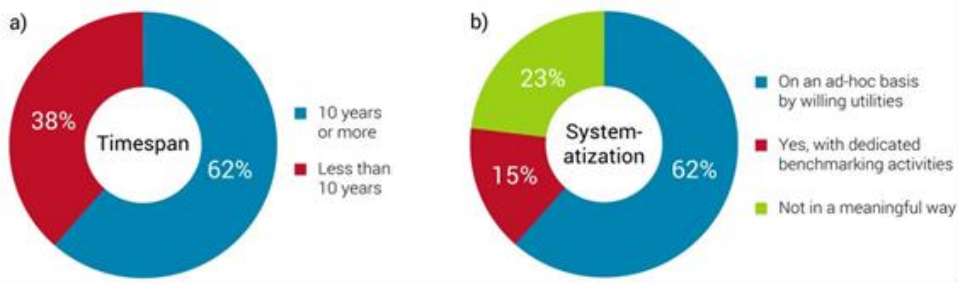

Figure 1: Timespan of benchmarking information for WSS in Danube region (DWP, 2019)

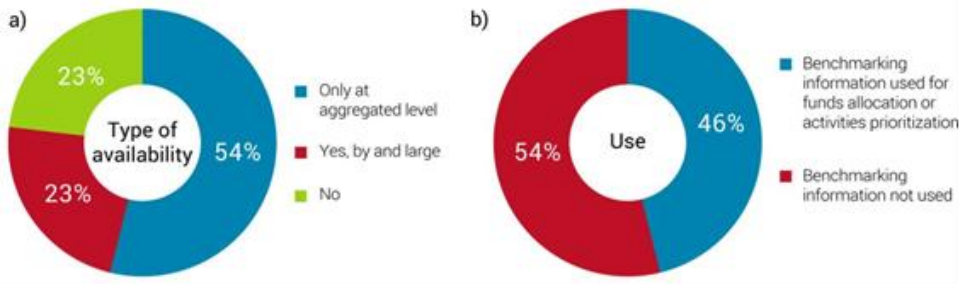

Figure 2: Type of availability and use of benchmarking information for WSS in Danube region (DWP, 2019)

CONCLUSION

Republic of Serbia does not have an adequate legal framework that would enable efficient transformation and reform of public utilities and address some of the deep-rooted problems in this sector: poor quality of services, lack of responsibility of PUCs for investment planning, fees at the level of "social" services, weak financial and technical performance, redundancy, subsidizing some activities through revenues generated in other sectors, activities and activities, obsolete pricing policy and unresolved property issues. The basis for the transformation and improvement of utility activities should be sought in the best possible experiences of those operators who provide a particular utility product or service, where the benchmarking technique has an irreplaceable role.

ACKNOWLEDGEMENT

The paper presents the results of research supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Agreement No. 451-03-9/2021-14/200148).

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MODERN TECHNOLOGIES IN IT PROJECT MANAGEMENT

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ABSTRACT

The intensive advancement of technology after the beginning of the 21st century has caused revolutionary changes, known as Industry 4.0. In the new industrial revolution, technology is a key tool for achieving change. The Industry 4.0 depends on its technologies and they are the key drivers. Some of them, which are discussed in this paper, are: cloud computing, Internet of Things (IoT) and artificial intelligence. Changes in technology have a great impact on both project organizations and the project management area itself. Although there is a great interest in Industry 4.0 issues, only a small number of studies can be found in the literature that address the issue of its impact on project management. That issue is discussed in this paper.

Keywords: Industry 4.0, IT project management, IoT, cloud computing, artificial intelligence

INTRODUCTION

The intensive advancement of technologies after the beginning of the 21st century has caused revolutionary changes, and the reflection of this progress is called The Industrial Internet, the Era of Digital Transformation, or most often Industry 4.0 (Bolat & Temur, 2019). In the new industrial revolution, technology is a key tool for achieving change. The technologies on which this industry depends are called key drivers, and include (Lou, et al., 2011) (Li, et al., 2017) (Sanchez, 2018) (Win & Saing, 2018): big data, cloud computing, data analysis, the Internet of Things (IoT), augmented reality (AR) technology, and Artificial Intelligence. In addition, improvements in sensor technology, information and communication technologies, robotics, three-dimensional printing, biotechnology, and other technologies are also considered as components that enable Industry 4.0 (Pajares, et al., 2017).

Changes in technology have a great impact on both project organizations and the project management area itself. Although there is a great interest in Industry 4.0 issues, only a small number of studies can be found in the literature that addresses the issue of its impact on project management (Bolat & Temur, 2019). Bolat and Temur (2019) indicate that two directions of research of the connection between modern technologies and the field of project management may be find in the literature: (1) the field of project management in Industry 4.0 (originally called Project Management in Industry 4.0); and (2) Industry 4.0 Project Management (originally called Management of Industry 4.0 Projects). The difference between these two directions of research is that the first explores how to carry out all project management activities in an era of new technologies and uncertain conditions, while the second direction examines how to make Industry 4.0 projects successful using different project management approaches.

Considering these approaches, this paper deals with IoT, cloud computing and artificial intelligence, as technologies that influence on IT project management.

RELATED WORK

The project management evolution may be observed through three generations, according to Maylor (2010). The question is: what is the current situation that practitioners and academic researchers facing today, as well as about future trends in this area. A few years after Maylor's research, this issue was addressed by Simon, et al. (2018), which describe the last step in the evolution of this discipline. First of all, the authors do not observe the project management development in the same way as Maylor, they relate it to the first, second, and third industrial revolutions. The first phase of the development of the discipline is considered an empirical phase, the second phase is mostly related to the appearance of Gantt charts, while the third phase is related to the appearance of other methods and techniques, such as CPM, PERT, GERT, EVM and the like. According to them, the appearance of standards and methodology additionally characterizes the third phase of development. The fourth phase i.e. the last phase, is characterized by digitalization, virtualization, the transition from traditional to agile methodologies and focuses on customers and relationships in the organization. The changes that Industry 4.0 are bringing are considered to be changes that are profound and have a great impact on the field of project management. For this reason, the authors propose to define the concept of Project Management 4.0. It can be defined in two directions similar to the previously presented directions of academic research in this field. Thus, two definitions can be distinguished: (1) Project Management 4.0 as a practical activity represents the whole process of planning, organizing, coordinating and controlling projects using mainly technology specific to the fourth industrial revolution; and (2) Project Management 4.0 is management specifically focused on Industry 4.0 projects. Simon, et al. (2018) considered that the concept of project management 4.0 could also be seen as the fourth phase of the evolution of project management as a scientific discipline.

In Industry 4.0, project managers must provide a new perspective on project management (Roblek, et al., 2016) (Thiry, 2013). The assumptions of common project management approaches are difficult to apply given that the linear structure of traditional management methodologies is not sufficient to cope with the changing conditions of today's business. For this reason, these transformations often force project managers to turn to agile management methodologies, as suggested by many critics of the traditional approach to project management (Pajares, et al., 2017) (Whitney & Daniels, 2013) (Lasi, et al., 2014). Although the agile approach is mostly used in IT project management, other industries are starting to show interest in this approach.

This paper focuses on researches examining project management in the Age of Industry 4.0, as the aim of this paper is to show how the technologies underlying Industry 4.0 can be applied to project management and contribute to project success. In practice and in the literature, a whole range of Industry 4.0 technologies may be found, however, this work is focused on selected technologies: Cloud Computing, Internet of Things (IoT) and artificial intelligence.

Cloud Computing

According to the white paper of the National Institute for Standardization and Technology (Mell & Grance, 2011), cloud computing is a model that provides a constantly present network access that is realized on demand, with the aim of accessing a set of configured information resources (such as network, servers, storage, applications, etc.) that can be provided quickly with minimal effort by the service provider. Another definition is given by Chou (2015), who points out that cloud computing is a recently developed technology that makes the most of resource virtualization to provide users with various services on demand, using internet technology. By studying numerous definitions of this area, Marston, et al. (2011) state that the cloud can be defined based on the concepts that describe it: (1) resource utilization; (2) virtualization of physical resources; (3) abstraction of architecture; (4) dynamic scalability of resources; (5) flexible and automated self-provision of resources; (6) ubiquity, regardless of location and device; and (7) the operating cost regime.

Cloud computing is made up of multiple technologies, however, the three basic technologies are virtualization, multitenancy, and web services (British Informatics Society Limited, 2012) (Marston, et al., 2011). Visualization is a technology that hides the physical characteristics of the infrastructure from the user, and enables the launch and operation of multiple virtual machines on a single physical machine. Multitenancy refers to the fact that the cloud allows one instance of the application to serve multiple users,

thus allowing better use of resources. Web services enable the standardization of interfaces between applications, making it easier for clients to access applications on the server.

It is most important for users to see which services this technology provides, so that they can be used. The very essence of the cloud is to provide all the functionalities of existing information technology services, as well as functionalities that have not been feasible so far. Cloud currently has four service models (Mell & Grance, 2011) (Wang, et al., 2010):

- Hardver as a Service – HaaS. HaaS represents the first step towards cloud computing. It allows users to purchase or rent hardware or data center from an independent company.
- Software as a Serivce – SaaS. Customers can run service provider applications via the cloud.
- Platform as a Service – PaaS. PaaS is one of the latest cloud models that allow users to program their own applications or customize available ones.
- Infrastrucure as a Service – PaaS. The user has access to almost everything. For example, a user can manage a data warehouse, an application, and a network.

The application of these technologies is wide, however, it can be categorized according to four models (Mell & Grance, 2011) (British Informatics Society Limited, 2012):

- Private model. The most secure form where data privacy is the main topic. One customer uses the entire system, which is why he pays for installation and maintenance costs. This form offers better control of the cloud infrastructure and is most suitable for larger installations.
- Public model. Probably the most popular form, which is also the most insecure. Allows access to services offered by a third party via the Internet.
- Hybrid model. This solution is most suitable for clients with a mixed type of data. More valuable data is stored on a local server, while less sensitive materials are stored on the cloud.
- Partially private model. This solution is typical for communities, where a group of customers with similar requirements share the same infrastructure provided by one vendor. Costs are shared between users. This model is more secure because shared data is only available to community members.

Cloud computing provides a number of benefits for service users (Anantatnula, 2008) (Marston, et al., 2011) (British Informatics Society Limited, 2012) (Bolat & Temur, 2019). The most obvious advantages of using cloud computing can be seen from its basic feature – access to resources. Cloud enables access and use of powerful computing resources and large data warehouses, which provides greater computing capabilities and speed. In addition, the cloud enables mobility of users through access to services from any point with an Internet connection. Service providers often offer ongoing support, updates, backups, etc. which are benefits that can be grouped together as transferring responsibility for support and decision making on service providers. From a business perspective, the cloud offers several benefits. First of all, this technology enables cost reduction and faster product lounch. It enables companies to access the necessary hardware and computer-intensive applications that were previously only available to large companies without major capital investments. In addition, the cloud is important for business as it enables and facilitates innovation, through the development and delivery of services that were not previously available.

Appart from many advantages, there are also disadvantages of cloud technologies (British Informatics Society Limited, 2012) (Nanavati, et al., 2014) (Rao & Selvamani, 2015). There are tree the most significant aspects in the literature that stand out as the cloud disadvantages: the reliability of the Internet, dependence on suppliers, and the issue of data security. Since these services are delivered via the Internet, a fast and stable connection is necessary for work. In addition, dependence on service providers is a major risk that includes not only maintenance and support, but also availability of services on daily basis. However, the biggest problem with the cloud can be related to data security. While the advantage is that users don't have to understand and deal with the hardware, there is a big risk because remote servers can be in insecure locations. Regulations that affect service providers vary from country to country, and it can be difficult for customers to learn and understand the laws that affect the service they receive. For this reason, there may be unintentional or forced by law disclosure of information about the activities and data of clients that are in most cases confidential. Another issue that arises is the issue of data confidentiality to the supplier given that the service provider has access to all confidential customer data.

The use of cloud computing is also possible in project management, with the same benefits and problems provided by the application of these technologies in any other context and environment. Examples of

applying the cloud in project management are numerous (Khan, et al., 2011) (Francke & Weideman, 2012) (Asava & Mzee, 2010) (Mlitwa & Pekane, 2015) (Sloniec, 2015). The application of the cloud comes down primarily to the use of a server that is specifically dedicated to project management and enables the storage of project-related data, as well as the implementation of large and complex projects. In this way, the cloud enables the sharing of documentation, video content, presentations, photos, calendars and other resources needed for the project management process. In addition, project managers and project team members may use the most up-to-date versions of project support applications. However, in the literature and practice, the implementation of the cloud is most often discussed for the purpose of achieving collaboration within the team and with stakeholders. This refers to the ability of the project manager to organize meetings through web conferences and generate space for joint work on the project. Virtual technology allows employees to work from home, which further allows them to choose work that is suitable to their life needs. Using the cloud, cooperation takes place in real time and from any location with the Internet access, which is very important especially if the team, customers and suppliers are not on the same location. Cloud technologies enable the implementation of agile methodologies in project management. Considering the observed literature, it was concluded that the application of the cloud in project management is shown through the use of various software tools based on cloud technologies. According to the purpose of these technologies, the application of the cloud can be observed through the application of:

- Cloud software solutions for any project management activities;
- Cloud document systems;
- Cloud storage systems;
- Cloud software tools for communication and collaboration during project realization;
- Online shared calendars.

Regardless of all the benefits and problems of using the cloud, Dihal, et al. (2013) point out that the biggest obstacle to the acceptance of these technologies is not the complexity of the technology itself but the issue of attitude and perception. Although organizations are increasingly discovering the importance of investing in this technology, its potential is often not sufficiently exploited (Marston, et al., 2011). Although there is a growing interest in cloud-based project management, several studies on this issue (Aminzadeh, et al., 2015) (Bayaga, 2015) (Hashim, et al., 2015) indicate that in the literature only a small number of researches from the perspective of users can be found. It is very important for users to understand business issues related to cloud computing (Marston, et al., 2011). Hashim, et al. (2015) address the issue of user experience when encountering cloud technologies and with the aim of identifying key parameters that affect the satisfaction and intention of users to use this technology. It is generally believed that most users do not know how to assess the impact of the transition to the cloud; however, the number of cloud users is certainly increasing

Project tools based on cloud technologies have significantly changed the project management process in the last few years. Numerous researchers point out the ways of applying this technology in project management, as well as the numerous influences that this technology has on the field of project management.

Internet of Things

The standard definition for the Internet of Things (IoT) does not yet exist, and many researchers and experts provide various descriptions of this technology emphasizing numerous features. One possible definition represents IoT as an open and comprehensive network of intelligent objects that have the ability to automatically organize, share information, data and resources, react and act in situations and changes in the environment (Madakam, et al., 2015). The European Commission describes IoT as network-enabled devices that are encrypted to acquire certain features that enable them to be effective and efficient in operations in a smart environment (Botterman, 2009). Another definition is given by Stankovic (2014), who emphasizes that the IoT network has been developed on a large scale with the intention of enabling joint communication in which several smart devices located around the world are connected in one network.

The future of IoT is based on the idea of smart objects or things. According to Miorandi, et al. (2012) smart objects are presented as physical things that are identified by certain physical characteristics. They can also accept responses to incoming signals that are identified by name and address, while at the same time they can identify physical phenomena such as light, heat and others. Based on that, they encourage some action that

affects the physical environment. Thus, observing a *thing* can be viewed as a smart device that can be used to communicate between the IoT network and the real environment in which it is located (Stankovic, 2014).

The IoT also serves as a consumer or provider of information related to the physical world. Communication within the IoT network can be done in two ways (Andrei, et al., 2018). The first way is when the smart device receives data from the real environment and puts it into the IoT network. The smart device then acts as a sensor, transducer, or device for informally capturing information. Another form of communication is when a smart device takes orders from the network and translates them into actions that affect the environment in which it is located. In this case, the smart device acts as a driver or executive element in the network. Data in the IoT network is usually exchanged by complex algorithms, which has led to smart devices being designed to choose the best solution to the resulting environmental problem.

IoT has application in many areas such as medicine and healthcare, manufacturing industry, environment, agriculture, logistics, household and many other fields (Ayaz, et al., 2017). Considering current devices that are often connected to the IoT network, it can be seen that the focus is on the development of devices which create smart homes, smart offices and smart buildings, and the latest concept is smart cities (Moser, et al., 2014).

From the aspect of project management, the implementation of IoT is often viewed in two ways. One way considers IoT as technologies that can help manage projects from the aspect of the environment in which the project takes place (Ayaz, et al., 2017) (Benkhelifa, et al., 2014). In this way, IoT is most often applied with the intention of collecting data on outdoor projects, such as construction projects, disaster management projects such as earthquakes, floods, landslides, fires and others. Another way of observing the application of IoT is an approach in which researchers in studying this issue do not attach much importance to monitoring the environment in which the project takes place. This approach focuses more on exploring the importance of IoT in terms of the assistance that IoT can provide to managers and the project team in various project management activities. Therefore, researchers look at this issue with the aim of examining how IoT can contribute to cooperation, communication, coordination and other aspects (Lou, et al., 2011) (Andrei, et al., 2018). From the aspect of this paper, another approach to the study of this issue is more interesting.

Advances in information technology and IoT provide new solutions with the intention of supporting project managers in an ever-changing environment. Traditionally, project management was based on managing one project at a time, from one location. The application of devices, such as smart phones, smart boards, smart watches, smart video cameras and others, enables IoT to become part of project management practices (Lou, et al., 2011) (Hu, et al., 2009). Connecting devices to one network enables the interconnection of a group of people to exchange relevant data at a given time. Their connectivity can be monitored using tools to manage and monitor connected smart devices. From the aspect of project management, the value issues that these technologies can provide are very important.

Artificial Intelligence

Artificial intelligence (AI) is recognized as one of the emerging technologies to which there is great interest in both literature and practice. The development of this technology has progressed for various reasons, primarily with the intention of achieving global goals such as managing cyber security problems, diagnosing various medical conditions, monitoring wildlife and many others. As a result of development, artificial intelligence finds application in everyday and repetitive tasks, and it is predicted that this technology will take over majority of time consuming tasks (Munir, 2019).

A few decades earlier, the term artificial intelligence was synonymous for robots however, after more than 60 years of development it is believed that this technology has achieved revolutionary growth. In its simplest form artificial intelligence is described as the ability of a machine to imitate human behavior (Chheda, 2019). Artificial intelligence enables machines to learn from experience, adapt to new inputs and perform tasks similar to human tasks (Pireto, 2019). The application of this technology can be described as the design and construction of intelligent agents who receive perceptions from the environment and take action with the intention of increasing the chances of more successful achievement of goals (Russell & Norvig, 2010).

The development of artificial intelligence is enabled by the development of high-performance hardware and the collection of massive amounts of data via the Internet. Big Data and artificial intelligence are interrelated concepts and it is believed that one area cannot benefit without another since they are mutually instructive. Data is generated at an exponential rate, and the analysis of these large sets of structured and unstructured data requires pattern recognition using concepts such as deep learning, machine learning, and neural networks (Pireto, 2019). Artificial intelligence encompasses a wide range of basic technologies, and some of which are (Pireto, 2019) (Wang, 2019) (Bhavsar, et al., 2019):

- Machine Learning – ML. It represents the application of mathematical algorithms to achieve data-based learning. ML algorithms build probability models that are used for making assumptions and predictions about similar data sets.
- Deep learning – DL. It is a form of machine learning that uses the model of human neural networks to make predictions about data sets.
- Natural language processing – NLP. It enables the understanding of human language as it is spoken and written. It allows creating voice and writing in a way that is similar to human.
- Computer vision – CV. It allows identification of objects images that can be seen. The application of this technology can also refer to the identification of patterns in data that people cannot easily identify, such as seismographic reading.
- Machine reasoning. This technology tries to simulate human thinking processes using a model of language with the intention of acquiring knowledge and making a decision based on it. Instead of traditional programming, expert systems are designed to build their own understanding of the world, using models and based on the relationship between words and concepts.
- Strong AI, also known as Artificial Generalized Intelligence – AGI. This technology tries to simulate general human thinking processes using a concept model with the intention of organizing knowledge and then acting in accordance with it.

In short, some of the processes of applying artificial technology can take place in the following way. The computer user provides a large amount of data and selects the appropriate models and algorithms. The program uses the data to adjust parameters and refine the model. This model becomes a black box that predicts the corresponding result based on the input. Complex algorithms allow automatic detection of implicit information in data, which people can easily overlook. By using visual methods, artificial intelligence can help detect slow changes in data trends. By processing natural language, the computer can perform repetitive tasks such as sorting mail, recognizing time points and the like. Roughly speaking, artificial intelligence can be seen through two types of technologies presented as follows (Wirth, 2018):

- Narrow AI. This type of artificial intelligence is well trained to solve a certain task and can be more powerful than humans in its domain. However, this type does not have enough flexibility to deal with tasks of different types, since it is not their primary purpose.
- Artificial General Intelligence – Strong AI. This type can be as flexible as people. It is based on combining various advantages of computers. The point is to apply huge amounts of data to get more reliable answers and reduce risks.

Although the application of artificial intelligence has great advantages, the acceptance of this technology in practice encounters certain obstacles, threats and risks (Pireto, 2019) (Wang, 2019). Obstacles to the adoption of this technology are lack of understanding of the application, difficulties in following the rapid pace of change, lack of resources and, above all, lack of will to change and acceptance of new technologies. On the other hand, the acceptance of this technology is followed by certain threats and risks. As algorithms are created to mimic what people do, they can develop human biases. Another threat and risk is reflected in the fact that artificial intelligence works with statistical truths and not with literal truths. This makes difficult or impossible to prove that the system works with certainty in all cases. This is a very big problem when it comes to the application of these technologies in critical situations, such as the management of nuclear power plants, since it is not known how the system will react to situations for which it has not been tested. Another major risk of applying these technologies is the fact that these systems make a number of errors, and their identification and correction of problems can be difficult. The solutions that the system offers can be far from optimal if the conditions for realization change.

Today, artificial intelligence is applied in various fields, and one of the applications is in the field of project management. Its application becomes interesting for companies dealing with project management, given that the potential that this technology has is recognized. Artificial intelligence-based project management is a

system that can administer multiple projects with fewer resources and without the need for human input (Pireto, 2019) (Wang, 2019). The application of this technology in practice creates a growing interest in its future application. In his work, Pireto (2019) points out that the rate of adoption of this technology is increasing over time, assuming that in 2020 the market for artificial intelligence will reach 36 billion dollars, and that by 2025 it will increase to 127 billion dollars. AI is predicted to be one of the biggest drivers of technology spending in the next 5 to 10 years, although Big Data monetization is just beginning.

The issue of how to apply this technology in project management was addressed by the authors (Chou & Lin, 2015) (Wang, 2019) (Pireto, 2019). Pireto (2019) points out that the application mainly comes down to: selection of project managers and project team members, project data analysis, modeling, migration and project risk management, project detection and modeling, real-time predictive analysis and automation of tasks and reports. On the other hand, Wang (2019) believes that for each type of project management, artificial intelligence can be applied at several levels:

- Integration and automation. It is a form of narrow artificial intelligence, which includes many specific factors. Some companies use computer vision to automatically check product quality. Another example is natural language processing, which is used to extract keywords from e-mail. By 2030, it is predicted that as much as 80% of routine work could be eliminated, by which this technology allows project managers to perform more complex tasks.
- Chatbot Assistants. This possibility of artificial intelligence enables organizing regular meetings, answering simple questions and performing similar activities. In this way, artificial intelligence enables interactions between people and computers.
- Machine learning based on project management. This form of application of artificial intelligence has a great influence on decision making. It is used to analyze projects based on a large amount of data that can form the so-called artificial intelligence experience. Artificial intelligence can be applied to predict the cost of a project, the time required, the trend of progress, the probability of realization, and many other key components of project management. It can be used to identify potential problems and risks. It provides feasible solutions based on results analysis.
- Project management automation. This form represents the level of strong artificial intelligence. In this form, artificial intelligence can reactively obtain the information it needs for analysis and management. Artificial intelligence makes decisions and takes measures to create value for stakeholders. This form of technology has not yet been fully implemented, but scientists believe that it will be soon.

Based on the literature review it is concluded that the application of artificial intelligence in project management can be realized by applying various tools such as:

- Tools for selecting a project for implementation or a project in a portfolio;
- Tools for project monitoring and risk assessment;
- Tools for assessing the feasibility of the project based on realized projects and tools for simulating different project scenarios;
- Intelligent software agents;
- Team member selection tools;
- Project realization support tools such as reminders, alarms, warnings and others;
- Tools for automatically generating reports or documentation;
- Tools that perform frequently recurring tasks independently, such as scheduling appointments, sending files, automatically updating activities, and others;
- Assisting tools in project planning, especially in cost forecasting activities, time forecasting, activity proposing, prioritizing activities, determining the best case scenario and others;
- Decision support tools based on previous projects.

According to the current state of development of this technology and future predictions, the question of the role and importance of this technology for project management is considered.

CONCLUSION AND FURTHER WORK

This paper discussed about cloud computing, Internet of Things (IoT) and artificial intelligence, as technologies of Industry 4.0 and in the context of application of these technologies in IT project

management. Numerous studies dealing with the importance of these technologies for IT project management are presented.

Further work may indicate the importance of the application of these technologies in the management of IT projects in order to achieve a higher degree of success in their realization. For many years, the failures of IT projects have received great attention. Although no industry is immune to project failure, the information technology industry has proven to be quite vulnerable to risk and failure. Implementation of cloud computing, IoT and artificial intelligence in the IT project management may represent a difference, which is to some extent shown in this paper. Future work may indicate in particular the contribution of these technologies to the project success.

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Session B: HUMAN RESOURCE MANAGEMENT

Papers (pp. 135-154):

EMOTIONAL INTELLIGENCE IN CONSTRUCTION MANAGEMENT

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ABSTRACT

Recent research recognizes the importance of Emotional Intelligence (EI) in the Construction industry. Research on EI in Construction are predominantly quantitative to measure the relationship between EI and work-related factors. EI has suggested as underpinning a number of behaviors considered important for project management however, few studies have conducted to date examining whether training can improve EI. Insufficient empirical and theoretical attention has given to the influence of EI in determining performance and the mechanisms underlying this relationship among project team members in construction projects. This paper provides a better understanding of emotional intelligence and shows how it is related with the performance of construction project management. Literature on emotional intelligence is studied deeply and organized in such a way that it becomes easy for construction management authorities to understand emotional intelligence and its importance in the construction industry or construction management programs. This paper concludes with a discussion of the research and practical implications of the study's findings.

Key words: Construction Management, Emotional Intelligence, Project Management.

INTRODUCTION

In last two decades huge amount of researches have been done which have largely increased the knowledge about Emotional Intelligence (EI).These researches have shown that EI plays an important role in professional success and performance related to workplace. Several of organizations of various industries are accepting the importance of EI and training their employees to become more emotionally intelligent. It results in increasing performance and productivity. In Construction projects various professionals like clients, architect, contractors, subcontractors, suppliers, engineers etc. have to work together to achieve the organizational goals. Due to this complexity it becomes a challenging environment to organize the people in a better way so that the goals of the organization can be achieved. It requires a good interaction between the participants of the project by which the construction activities can be managed successfully. This clearly means that high level of emotional intelligence (EI) is necessary in participants of project. Many organizations are realizing that their employees should also have non-technical or soft skills like team work, leadership, communication and management. These all skills are the part of emotional intelligence (EI) and it has been found in various researches that high level of these skills results in better performance, management and success in various professions (Saini & Soni, 2016).

The increasingly complex environment of construction projects has led to an urgent need for project managers to improve their ability to lead teams and adapt to complexity and uncertainty (L. Zhang et al., 2018). The personal attribute ability of the project manager has more influence on the employees than the technical ability (Khosravi et al., 2020). Specifically, emotional intelligence (EI) reflects an ability to guide thinking and action and is a key factor in daily managerial success (Rezvani et al., 2016). Stephens and Carmeli (2016) believed that individuals with a high level of EI expand their

knowledge and skills base to improve their ability to communicate and cooperate effectively. Managers with high EI stimulate good attitudes and work behaviour by meeting the emotional needs of employees. Over the past two decades the ‘‘human side” of project management has increasingly been identified as a critical component of the project manager’s role associated with project management success (Cowie, 2003).

Researchers have found that challenges in construction projects are largely associated with human skill and competencies, rather than technical issues. Human skill and competency is a critical part of managing large scale projects, influencing on successful delivery of projects. Researchers such as Mazur et al. (2014), Müller and Turner (2010) and Rezvani et al. (2016) have revealed that behavioural skills and competencies, more specifically emotional intelligence (EI), defined by Mayer et al. (2008) as the ability to be aware of, to manage, and to understand emotions in self and others, can affect the outcomes of major projects. Rezvani et al. (2016) and Mazur et al. (2014), for instance, found that managers with high levels of EI are more motivated to become involved in effective communications and are more creative regarding complex tasks, resulting in increased chances of project success in major projects. Past research (Clarke, 2010; Mazur et al., 2014; Rezvani et al., 2016) has shown the importance of EI to the achievement of successful outcomes, the project management literature is replete with unsubstantiated generalizations, with much of the existing evidence bearing on the role of EI for project managers. Therefore, our first goal is to extend research in the field of EI (Rezvani et al., 2016; Troth et al., 2012) to research in construction projects. Our focus in this research lies in construction project environments due to their major influence on our society by supporting its foundation. In addition, prior research has indicated the relevance of EI to construction projects and project performance (Mazur et al., 2014; R. Müller & R. Turner, 2010; Rezvani et al., 2016).

EI IN CONSTRUCTION MANAGEMENT

In recent years, a number of researchers have studied the dimensions of emotional intelligence associated to behaviours at work. Some of these studies show a significant association between emotional intelligence and behaviours related to construction project management. The level of emotional intelligence of the project manager directly related to the success of construction projects. The success of the project, however, is not something easy to define. Behavioural skills, including interpersonal competencies, is one of the three pillars of project management capable of enabling the project manager, a clearer picture of the situation to be treated. Research has demonstrated the importance and relevance of soft skills such as EI for the successful of construction projects (Wu et al., 2017), which appears to be a particularly appropriate setting in which to examine issues related to relationships involving EI.

Existing research (Clarke, 2010; Maqbool et al., 2017; Mazur et al., 2014; Rezvani et al., 2016) has highlighted the significance of EI in achieving successful outcomes. More recently, the number of studies about interpersonal competencies to project management has grown significantly, mostly out of the works relating positively the interpersonal competencies with the success of projects (F. Zhang et al., 2013), suggesting a direct relationship between these two factors. Allied to this, Turner and Müller (2005) and Sunindijo et al. (2007a) indicate emotional intelligence as an important component to influence the leadership style of construction project managers, contributing positively to interpersonal skills. In other words, there would be also a direct relationship between emotional intelligence and skills of the manager.

Goleman (1998) has proposed that individuals who possess a high degree of EI can positively influence both team and organizational performance. Some preliminary research within construction has revealed this to be the case (R. Y. Sunindijo et al., 2007b). Often, EI is considered to be mistakably synonymous with simply having good social skills (R. Sunindijo & Hadikusumo, 2005) such as good interpersonal and communication skills. As noted above, such skills have identified as being fundamental for construction managers, as they deal with an array of people at various levels such as clients, consultants, subcontractors and suppliers on a daily basis. EI, however, extends beyond simply possessing social skills. Being emotionally intelligent involves being actively able to

identify, understand, process and influence one's own emotions and those of others to guide feeling, thinking and action. Individuals who possess a high degree of EI are able to make informed decisions, better cope with environmental demands and pressures, handle conflict in an effective manner, communicate in interesting and assertive ways and make others feel better in their work environment. For construction project managers' who constantly confronted with solving disputes and general problems during pre and post construction, an ability to formulate satisfactory solutions is essential. Construction managers who have a positive mood toward problem solving will invariably evaluate things more positively than those who have a negative mood. Negotiations, for example, between a contractor and a client's representative with respect to a claim can be highly emotional charged situations for both parties, especially when substantial financial investments are at stake. The negotiation process is fraught with emotion, and emotional relationships and contingent interactions can all affect upon the outcome. Thus, when entering negotiations or solving problems on-site with team members or subcontractors it is important that construction project managers are cognizant that their emotional standing can influence their mood and those around them (Love et al., 2011).

Among the first to work with the concept of emotional intelligence linked to the project environment, Turner and Müller (2005) present in their work a discussion of the project manager's leadership style including emotional intelligence, as one of the success factors of the project itself. They indicate emotional intelligence as an important component to influence the leadership style of project managers. Butler and Chinowsky (2006) have found a significant relationship between EI and transformational leadership behaviour among construction executives. Mount (2006) assessed the skills related to the success of project managers in 74 international petroleum corporations, and found that, of all the skills that contributed to project managers' success, 69% were the emotional competencies. Barry and Plessis (2007), emotional intelligence is portrayed as a critical element for project managers, an issue validated through research in which the managers themselves recognise this importance. Sunindijo et al. (2007a) conducted a survey with the project managers of the construction sector and found that emotional intelligence contributes positively to the considered key competences in the project management activities, such as communication and conflict management. Pant and Baroudi (2008) asserted that the tacit knowledge, such as subjective, cognitive, and experiential learning, was closely linked to emotional intelligence. Turner and Lloyd-Walker (2008) reported that emotional intelligence capabilities greatly contribute to project success. Another study by Geoghegan and Dulewicz (2008) was carried out to identify whether a significant relationship existed among emotional quotient dimensions (self-awareness, sensitivity, influencing, and motivation) and project success. Having analysed the data gathered from 52 project managers in the United Kingdom, the researchers found a significant relationship between EQ dimensions and project success. Davis (2011) relates the communication skills, conflict management, motivation ability, and problem solving to emotional intelligence.

Clarke (2010) also points out a strong relationship between emotional intelligence and a project manager's interpersonal skills. Yang et al. (2011) found that teamwork exhibited significant influence on project performance, whereas teamwork is an emotional intelligence competency included in the emotional intelligence competency model. Mazur et al. (2014) examined the relationship between EI and project success from the perspective of project managers. The researchers argue that emotionally intelligent project managers are more likely to communicate effectively and participate in problem-solving activities with stakeholders. Zhang et al. (2013) found that Chinese construction project managers considered eight emotional intelligence competencies to be important for the successful management of their projects. These included empathy, inspirational leadership, teamwork and collaboration, conflict management, influence, change catalyst, service orientation, and organizational awareness. Sunindijo and Hadikusumo (2014) in their study of project manager's emotional intelligence and its effect on conflict resolution discovered that project managers with high levels of emotional intelligence verses project managers with lower levels, were able to more readily adjust their conflict resolution style when conflict was present in order to appropriately diffuse potentially damaging situations. This field study of emotional intelligence as a moderator of conflict in construction is a good example of the benefits of emotional intelligence for mitigating the effects of relationship conflict. Trejo (2014) works with the relationship between emotional intelligence and

results of term, cost, and project scope finding positive contributions of emotional intelligence in these components. Sunindijo (2015) reported that emotional intelligence has a significant influence on project cost performance and project quality performance. Stephens and Carmeli (2016) argue that individuals with high levels of EI expand their knowledge and skill bases to improve their ability to communicate and cooperate effectively for successful project outcomes. Rezvani et al. (2016) conducted their study on the Australian defence industry and reported the significant relationship between project managers' emotional intelligence and project success with the mediation role of job satisfaction and trust.

EI AND LEADERSHIP IN CONSTRUCTION MANAGEMENT

Leaders and their ability to provide effective leadership are vital and critical to the sustainability of a global society. Northouse (2018) expressed leadership as a process whereby an individual influences a group of individuals to achieve a common goal with the ability to understand emotions and apply this understanding to life's tasks. He suggests that in order for effective leadership to manifest, leaders will need to exhibit a more personal sensitive approach when interacting with team members. The need for leadership in the construction industry is mainly because the success or failure of construction projects is highly dependent on who is leading and coordinating them. However, 80% of project failures are due to poor leadership, including inadequate leadership skills, lack of teamwork, inefficiency in problem-solving, and weaknesses in communication (Zulkiffli & Latiffi, 2019).

Most of the leadership challenges, particularly in the construction industry, relate to its workforce, including shortage of good-quality workers, an aging workforce, teamwork, communication, training, and education(Ogunlana, 2008). In addition, some failures in the construction industry have become the subject of continuous criticism especially its fragmentation and poor record on quality, waste, financial claims, safety, and efficiency (Pryke & Smyth, 2006). For all of these failures, one of the causes is ineffective leadership. Undoubtedly, the construction industry is large and technically complex and involves a combination of specific skills. The leadership will shared through teamwork, and the position of the leader in teams will rotate. Thus, the construction teams are not only large but also involve various disciplines and this makes leadership significant in the construction industry.

The need for leadership in the construction industry is mainly because the success or failure of construction projects is highly dependent on who is leading and coordinating them (Toor & Ogunlana, 2008). Undoubtedly, the construction industry is large and technically complex and involves a combination of specific skills. The leadership will shared through teamwork, and the position of the leader in teams will rotate. Thus, the construction teams are not only large but also involve various disciplines and this makes leadership significant in the construction industry (Zulkiffli & Latiffi, 2019). Most of the authors highlighted communication and teamwork as the most important skill for project managers in sustainable construction projects. Construction projects can be more complicated than traditional projects thereby increasing the need for project team communication and teamwork. Construction project managers should lead a team process to establish clear guidelines for communication and ground rules for teamwork, such as training to enhance these skills (Robichaud & Anantatmula, 2011).

The relationship between EI and leadership in project management has investigated at different levels (L. Zhang et al., 2018). Butler and Chinowsky (2006) found that EI behaviours such as interpersonal skills and empathy are significantly related to transformational leadership in construction executives. Similarly, Sunindijo et al. (2007a) examined the relationships between EI and thirteen leadership behaviours in construction projects and found that project managers with higher EI prefer open communication and proactive leadership styles.

Construction managers' leadership style can influence a project's outcome (Rowlinson et al., 1993). Similarly, Nam and Tatum (Nam et al., 1997) have stated that effective leadership is fundamental for innovation in construction. Construction project managers who deemed emotionally intelligent should be able to positively utilize charismatic leadership skills to regulate their own and others' emotions,

and use emotional information for decision-making to achieve creative and positive outcomes. In particular, Butler and Chinowsky (2006) have found a significant relationship between EI and transformational leadership behaviour among construction executives. In a similar vein, Sunindijo et al. (R. Y. Sunindijo et al., 2007a) demonstrated that EI influenced the style of leadership adopted by project managers and engineers in construction projects. It revealed that project managers and engineers with higher levels of EI tended to utilize open communication and proactive leadership styles. Sunindijo et al. (R. Y. Sunindijo et al., 2007a) also found it that EI generates delegation, open communication, and proactive behaviour, which provide positive outcomes within a project environment.

Construction project managers should also be engaged in team building skills for the success of their project. The results of a survey from Singapore revealed that project managers who are equipped with good team building skills could improve project team cohesiveness as well as enhancing the overall project team performance (Hwang & Ng, 2013). Interpersonal skill is the ease and comfort of communication between individuals and their colleagues, superiors, subordinates, clients, and other stakeholders (Peled, 2000). Interpersonal skill includes the ability to motivate others, conflict management, effective communication, and team building. In order to motivate others, construction management personnel have to determine what drives people to exhibit certain behaviour, what directs or channels people's behaviour, and how the behaviour is sustained (Lingard & Rowlinson, 2005).

Construction management personnel should be flexible, depending on the situation, in using different styles to manage conflicts. There are five-conflict resolution styles based on the levels of assertiveness and cooperativeness: avoiding, dominating, accommodating, compromising, and collaborating. Furthermore, in order to manage social interactions, construction management personnel should also be effective communicators to ensure that all stakeholders are 'on the same page' throughout construction life cycle. They have to listen effectively; have strong verbal, graphical, and written communication skills; deliver good and bad news effectively; have strong presentation skills; and be able to liaise among stakeholders (Brill et al., 2006). Lastly, construction management personnel should be able to build teamwork and cooperation by showing genuine intention to work cooperatively with others and use different approaches to get the best out of the team (Cheng et al., 2005).

A construction project team is temporary where people, in many cases from different organisations, come together for only one project with no guarantee of ever doing so again. This type of team has distinct characteristics and offers more challenges than the teams in other industries. Teambuilding and teamwork, therefore, is crucial for managing the knowledge and skills of the human capital and making them as a competitive advantage instead of an inhibitor of delivering successful construction projects. It is a fact that individuals have to be effective self-managers before overcoming barriers to interpersonal effectiveness because self-management gives individuals credibility in their interactions with others. This credibility along with the capacity to manage emotional outbursts are keys to effective communication, which is a foundation to resolve conflicts and build teamwork (R. Y. Sunindijo & Hadikusumo, 2014).

Furthermore, self-management is a source of achievement drive and initiative, which are crucial for motivating oneself and others. Sunindijo et al. (2007a) found that social awareness is related to sharing and open communication. This sensitivity to others is critical for superior job performance whenever the focus is on interactions with people. Furthermore, socially aware individuals are emphatic. They have an ability to put themselves in someone else's shoes, sense their emotions, and understand their perspective, thus enabling them to interact effectively with different types of personalities. This explains why social awareness is a prerequisite of interpersonal skill. Among the three dimensions, relationship management has the highest opportunity to influence the application of interpersonal skill.

Communication skills involve an ability to exchange information with a person or group. Otherwise, communication is especially important for project managers in construction projects. For instance, in the initial stage, a project manager needs to communicate with stakeholders about achieving its goals. This is because a project manager is responsible for holding the initial meetings that benefit the

communication between the project teams. Hence, the communication skills of a project manager may accommodate the different perceptions among project team and the stakeholders to ensure a successful outcome for the construction project (Robichaud & Anantatmula, 2011).

Communication recognised as one of the key skills for the project manager (Davis, 2011). Communication between team members and the entire network of stakeholders is vital to support the understanding of all involved in the project and their goals (Pant & Baroudi, 2008). Considered as one of the reasons for the success or failure of the project, effective communication between the project manager, staff, and stakeholders is essential. Sharing a language with terms in common use among staff and stakeholders and establishing communication standards are means to achieve effective communication. Project manager must understand how those involved in the project communicate and to keep the informal channels of communication open (Clarke, 2010).

EI AND WORKING WITH PROJECT TEAMS

Team based research in construction has generally focused on identifying task processes that distinguish the most successful teams. The underlying assumption appears to be that once these processes identified; other teams with similar effects can imitate them. The circumstance that contributes to team success is the condition that enables task processes to emerge and stimulate members actively engage in them. For this to happen a team needs to create emotionally intelligent norms that support behaviours for building trust, group identity and group efficacy. The composition of a project team is normally different for each construction project. And therefore the norms developed are impossible to replicate; this renders the notion of best practice an impossible task to attain (Love et al., 2011).

Assessing individuals and a team's EI before a project commences can provide project managers with an important psychological description, and enable them to identify strategies to improve their team's effectiveness (Fernández-Aráoz, 2001). Basic training with respect to EI could commence by examining the following concepts embedded in EI: feeling, thinking and acting. Members of a project team, particularly project managers, need to be aware of their emotions and understand how their feelings can affect other people. Next, project team members need to try to determine why they are experiencing certain emotions, and should be aware of how these emotions can controlled. Then, actions for a particular situation should only be undertaken when the situation understood clearly.

CONCLUSION

Emotional Intelligence is essential for the construction participants to successfully achieving their goals. It is very much clear that EI has a positive impact on the construction professional`s performance. EI is the key to managing the people in most effective way in construction industry. In this paper previous EI studies conducted in different organizations and industries were reviewed and it was found that EI is the one of the most important factor in construction project management and a powerful tool for one to succeed in job. The review of EI studies, surveys, and researches in various fields made the context of work to be established. The EI studies which were conducted previously on construction domain clearly show the importance of exploring the role and importance of EI in construction project management.

This paper has reviewed the EI literature and has expressed its importance in construction domain. It aimed at providing a basic understanding of emotional intelligence, explore the areas where emotional intelligence is applicable especially in construction project management. It is very much understood to everyone that to work in workplaces where the tasks have to perform in more and more teams is becoming difficult day by day. And to that point this study shows that how EI at team level and individual level helps in working more effectively. Individual`s performance and also of team`s performance increases with EI. In the present scenario of construction industry where almost all tasks are performed in teams and where there is always a pressure on employees which lead to emotional outburst, the findings of this study have a practical application.

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LOCUS OF CONTROL OF EMPLOYEES IN SERBIAN ENTERPRISES: A PILOT STUDY

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ABSTRACT

In this study, the representation of a particular locus of control of employees in Serbian enterprises is analysed. The analysis of a specific locus of control is very important, as the results from such research can serve as guidelines for improving employee management that will increase employees' satisfaction, and will positively affect business performance. Managing employees based on their locus of control includes a managing approach that is based on a psychological aspect that can result in productivity. The results of the research showed the proportional presence of both loci of control. Further, the weak external locus was the more represented compared to the strong external locus of control.

Keywords: locus of control, employees, Serbia.

INTRODUCTION

Psychological observation and assessment of people and their actions can provide the necessary information for predicting and modelling their behaviour. The analysis of the locus of control of employees represents one aspect of their psychological analysis. The term *position of control* in psychology refers to a person's opinion about the causes of the results achieved in life. In other words, the position of control indicates of how an individual perceives whom and what influences or causes good or bad results or events in his life. Beliefs can be viewed as events that occurred as a consequence of internal or external actions, which is one of the characteristics of a person (Rotter, 1954). Jagdischchandra and Vijayashree (2011) explained and noted that the locus of control as a personality variable that assigns individuals according to the degree to which they accept personal responsibility for what happens to them, as opposed to attributing responsibility to forces beyond their control (Vijayashree, & Jagdischchandra, 2011).

Sakač and Marić, (2019) explained and described in detail the two basic forms of locus of control. The description had taken into consideration the characteristics and individual perception of events. The first form of locus of control is the internal locus of control and is a characteristic of those individuals who believe that their own experiences determine their own skills and effort. The high probability of events of internally oriented individuals is under their control. The qualities of "internalists" are reflected in the fact that they anticipate the possibility of control, so they choose situations that allow them to have more personal control. The other form of locus of control is external and it is a characteristic of people who have external orientation, and who put individual expectations under the control of external factors (luck, authority, chance, difficulty of the task, etc.). This is why they are

prone to lack of perseverance and have low-level expectations. "Externalists" choose situations that absolve them of responsibility.

When it comes to superiors and locus of control, knowledge of psychological empowerment, job satisfaction and the importance of commitment to the organization is very important, as through this knowledge they can properly manage, develop and motivate employees (Jordan et al., 2017). Therefore, it is believed that it is important to assess the psychological traits of employees, so that superiors can manage them in an adequate way. The aim of this paper is to assess which type of locus of control is represented in Serbian enterprises, as well as to obtain a clearer idea of the characteristics of employees. Sakač and Marić (2019) argue that a strict division into "externalists" and "internalists" is not justified, given the existence of a large number of individuals belonging to mixed types. Similarly, Janković (2021) also pointed out that it is not justified to analyse human behaviour exclusively through the prism of the dichotomous relationship of two extremes, as the locus of control is not a classical typological concept. In addition, Nile (2005) argued that the idea that the internal locus of control is good and that the external locus is bad is not adequate not should it be accepted. With this paper, the authors aimed to build on research that speaks to the importance of the locus of control not being divided into only two basic groups. It is important to note that the locus of control is also a culturally conditioned trait. Some researchers believe that countries with a more pronounced individualistic trait (as opposed to collectivist cultures) show a greater propensity for an internal locus of control (Mueller, & Thomas, 2001). When it comes to the national culture of Serbia, it is a collectivist one, and there is more external locus of control present in enterprises..

THEORETICAL FRAMEWORK

Locus of control as a concept appears as a construct in the theory of social learning . In 1966, Julian Rotter introduced the concept of the locus of control into psychology. The concept of locus of control refers to the experience of the cause of causality (Joksimović, & Janjetović, 2008). Some people develop beliefs that the events and situations that happen to them depend on their own behaviour and are under the control of their own actions. Such interpretations of events are called beliefs in internal control or internal locus of control. On the contrary, people who believe that the events that happen to them are conditioned by factors of luck, destiny, and the influence of others have an external locus of control (Janković, 2021). In general, the locus of control can be thought of as behaviour in the function of expectation and support in a given situation (Rotter, 1966).

In his approach, Popadić (1986) distinguished three forms of locus of control, which depend on the employees goals. These forms are the locus of causality, perceived control and taking responsibility. If the locus of control is interpreted as one dimension, it will represent the belief to what extent the outcome of an event depends on external or internal factors. Further, when locus of control is viewed as perceived control of internal direction, it can be presented as an opportunity to achieve various set of goals. However, individuals with an internal locus of control can fall into the trap of powerlessness, when the factors that define success are external and when they are not favoured. In contrast, externally oriented individuals can feel power in a situation when they resort to rituals that they try to appease, e.g. powerful others. This confirms that success factors can be both external and internal. Furthermore, taking responsibility as the third form of locus of control, represents the readiness to accept responsibility. However, it has to be taken into consideration that the same situation of success or failure can be interpreted differently (Popadić, 1986). From here, locus of control is defined as the tendency of individuals to believe that they may or may not control their environment and course of events, and it plays a role in the way individuals perceive their environment (Rotter, 1954). Therefore, it can be concluded that locus of control plays a role in how employees perceive their work environment as well as the job itself.

Locus of control is crucial in decision-making in the professional field (Caliendo, Fossen, & Kritikos, 2009). This is supported by research that has shown that people with an internal locus of control have a far more pronounced need for achievement, expertise, high standards, challenging goals, control and

independence. In that sense, with age, as one gains more and more life experience, the inner locus of control grows until certain late years when it begins to move again towards external locus. Logically, among managers, the internal locus of control predominates. Similarly, internal locus of control is present among employees in high-paying jobs (French, 2005; Knezović, 1981). Further, the study showed that people who have an internal locus of control (faith in personal power in both family and non-family spheres) can develop a European identity, which does not mean losing the basic - national identity, but developing a new, expanded identity (Šakotić -Kurbalija, & Milenković, 2003). These results can be interpreted in such a way that people with an internal locus of control have a developed awareness of personal business power, so they are much more confident in their capabilities and have expanded perspectives for business, as well as for the relationship with their colleagues. It is considered that the internal locus of control is more pronounced among entrepreneurs than in the general population (Levine, & Rubenstein, 2017; Sokić, & Popov, 2019). According to Padmanabhan, (2021), employees with an internal locus of control are more likely to be more satisfied with their job. It was found that people with an external locus of control are more prone to interpersonal conflicts at work and organizational constraints. It has also been shown that employees with an external locus of control have lower well-being, experience lower feelings of satisfaction both privately and in the workplace, and have lower physical well-being (French, 2005).

METHODOLOGY

Research subject and framework

The subject of the research is observing and analysing locus of control among employees in Serbian enterprises. The goal is to determine which type of locus of control is more prevalent in the examined population. The research framework deals with the fact that locus of control cannot be seen only through two basic divisions. People may have an extremely internal or extremely external locus of control or be of moderate internal or moderate external orientation. The analysis of locus of control through a more detailed approach is what we will deal with in this paper. The subject of the research can be presented through the following research question: *What type of locus of control is most represented among employees in Serbian enterprises?*

Data collection

The empirical part of this paper includes the survey of employees (N = 250) in Serbian enterprises. Rotter's Locus of Control scale was used for assessing locus of control. Rotter's scale of internal versus external locus of control consists of 29 items, with a choice of alternatives between **a** and **b**. The results of the items are binary variables - 0 and 1, and the total score is expressed as the sum of points on 23 statements (6 items are not scored). A higher number of points indicates a higher degree of externality (Knezović, 1981; Rotter, 1966). The obtained data was processed in IBM SPSS Statistics Version 21. The data is presented with descriptive statistics.

RESULTS AND DISCUSSION

The results of the research indicate the presence of a certain locus of control among employees in Serbian enterprises. The sample of respondents was chosen so that the number of those with an internal locus and those with an external locus of control was proportional, based on the general (basic) division. The sample selected in this way is the key to the research, as the analysis of locus of control locus includes the analysis of intensity, as well as the various mixes of internal/external locus of control. Our goal is to compare the intensity and type of locus of control relationships on a sample that is proportional.

Table 1. shows the basic division of prevalence of a certain type of locus of control (internal or external). It is also evident that the sample is proportional when it comes to internal and external locus of control.

Table 1: Descriptive statistics of locus of control types

Types of locus of control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Internal locus (od 0 do 11)	125	50.0	50.0	50.0
	External locus (od 12 do 23)	125	50.0	50.0	100.0
	Total	250	100.0	100.0	

Based on Figure 1. it is evident that at the core of the model is the analysis of customer feedback, and according to this feedback data, improvements are made. Additionally, details on the model's elements and sub-elements are noted:

Table 2. presents the results of the descriptive statistics (intensity of locus of control). Identical data were analysed, and the sample was divided based on intensity. The internal locus of control includes the internal strong and internal weak categories. Here, the internal weak locus of control is more prevalent. The external control locus includes the external weak and external strong control categories, where the external sub-control locus is more prevalent in enterprises. Based on the analysis of the intensity of locus of control, it can be noticed that the most prevalent is the external weak locus of control, and the least prevalent is the external strong locus of control. Extremes of loci of control such as strong internal and strong external are the least represented.

Table 2: Descriptive statistics of locus of control intensity

Intensity of locus of control

		Frequency	Percent	Valid Percent	Cumulat. Percent
Valid	Internal locus of control (strong) 1 - 6	16	6.4	6.4	6.4
	Internal locus of control (weak) 7 - 11	109	43.6	43.6	50.0
	External locus of control (weak) 12 - 17	118	47.2	47.2	97.2
	External locus of control (strong) 18 - 23	7	2.8	2.8	100.0
	Total	250	100.0	100.0	

Table 3. presents the results of descriptive statistics through the new division of locus of control. The division conducted on the basis of the coverage of locus of control through: the extreme strong external and internal locus of control; through the combined weak internal and external locus of control; and internal locus of control. Based on the results, it can be concluded that the most common type of locus of control is the weak intensity of both loci of control, followed by the strong internal locus of control, while the least prevalent is the weak external locus of control.

Table 3: Descriptive statistics of new locus of control categories

New locus of control categories

		Frequency	Percent	Valid Percent	Cumulat. Percent
Valid	Internal locus of control (1 - 8)	53	21.2	21.2	21.2
	Weak intensity of both loci of control (9 - 16)	179	71.6	71.6	92.8
	External locus of control (17 - 23)	18	7.2	7.2	100.0
	Total	250	100.0	100.0	

When all three analysis are compared, it can be concluded that the presence of an external locus of control is the most common in Serbian enterprises. These results are supported by other studies conducted in Serbia, which show that the external locus of control predominates among employees in Serbian enterprises (Kavalić, 2021). Thus, when comparing the results of locus of control intensity and its new categorization, it can be noticed that the least strong external locus of control is the most represented in Serbian enterprises. Observing the new categorization of locus of control, it is

concluded that most of the respondents belong to the mixed group, which represents a weak intensity of both loci of control.

Looking at the characteristics of employees according to their locus of control, it can be concluded that most employees with regard to the external locus of control have a negative relationship with job satisfaction. Hren Galoić (2020) noted similar results, confirming the connection between internal locus of control and job satisfaction, and the significant negative connection between external locus of control and job satisfaction. A statistically significant positive association was found between internal locus of control and satisfaction with potential rewards, promotions, benefits, salary, communication, superiors, nature of work, and operational procedures. A statistically significant negative association was found between external locus of control and satisfaction with communication, potential rewards, operational procedures, the nature of work, superiors, and privileges. According to Krklec (2021), in individuals with external locus of control, anxiety is present as a personality trait. External locus of control is a positive predictor of sense of danger in new and unclear situations. Individuals with internal locus of control were found to be prone to extrinsic motivational bias, in contrast to individuals with an external locus of control (Panthy, 2020).

CONCLUSION

The goal of this paper was to analyse on which type of a certain locus of control is present in Serbian enterprises. Locus of control represents a significant personality trait, which further plays a role in the business environment. Therefore, it is important to analyse and determine what type of locus of control employees have. Based on the type of locus of control, a certain approach to employees can be formed that can further results in improved productivity. It is crucial to note that locus of control is seen not only as internal and external, but also to assess its intensity. The results of this research showed that weak external locus of control is the most represented, and strong external locus of control is the least represented in Serbian enterprises. When the locus of control is viewed through extremes and through mixed locus, it is noticed that the mixed locus of control of low intensity of is most represented in Serbian enterprises. When the characteristics of employees are considered, the results indicate that there is more anxiety in employees, as well as dissatisfaction with communication, potential rewards, operational procedures, the nature of work, superiors, and benefits.

For future research, a model should be developed through which employees would be approached in order to eliminate negative feelings and dissatisfaction based on their locus of control. In other words, it is necessary to create a motivational model in accordance with the type of locus of control. It would also be important to examine a larger sample to determine every effect of locus of control, and to identify what affects locus of control.

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EFFICIENCY OF HUMAN RESOURCES MANAGEMENT IN OIL AND GAS COMPANIES

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ABSTRACT

People are the ones who bring success or failure to organizations and projects. Most executives agree that effective human resource management is one of the most difficult challenges they face. Effective human resource management is one of the key components, as it is often very difficult to find and retain qualified people. One of the biggest challenges in modern HR management is the struggle to attract talent in the era of digital energy. Companies from different industries are trying to attract and retain young professionals, so-called "millennials" whose habits and interests differ significantly from traditional ones. Even HR managers in the oil and gas industry are not spared challenges in the modern labor market. New knowledge about man, as a multidimensional personality, introduces significant changes in the content (qualitatively and quantitatively) of human resources. Depending on the degree of democratization of each society, it reacts to everything new in this area on the principle of stimuli and anti-stimuli. Human resource management in the oil and gas industry involves much more than the use of software to assess and monitor resource allocation, resource leveling and other functions People are the most important resource, and human resources are significantly different from other resources. It is not possible to simply replace people, just as a piece of equipment is replaced.

Keywords: Human resources, HR management, "millennials", oil and gas industry, company.

INTRODUCTION

Although resource management involves managing human and physical resources (equipment, materials, supplies), most managers have the view that people are their most important resource. People are the ones who bring success or failure to organizations and projects. Most executives agree that effective human resource management is one of the most difficult challenges they face. Effective human resource management is one of the key components, as it is often very difficult to find and retain qualified people (Avlijas, 2011.). Therefore, it is important to understand the current problems of the workforce and the possible consequences in the future.

It is crucial that organizations behave in accordance with their principles. If people are truly their most important resource, organizations should work to meet the needs of their employees, that is, the needs of individuals in their organizations, regardless of labor market conditions. If organizations want to successfully implement projects in different areas, they must understand the importance of efficient human resource management and take actions that enable efficient use of labor (Avlijas, 2011.). Proactive organizations respond to current and future human resource needs through improving benefits, changing working hours, motivating and finding new workers. Many organizations have changed their remuneration policies, in order to meet the needs of workers. Certain companies offer benefits such as a less strict dress

code, flexible working hours and the possibility of additional training. Other companies may offer in-house kindergarten, discounts for fitness clubs, or appropriate retirement benefits (Avlijas, 2011.).

Effective management of human resources requires certain theoretical knowledge, as well as specific methods, processes and procedures in order to optimally engage human resources, ie to direct its development. The oil and gas industry is under special risks: the controversial attractiveness of this branch of industry, especially for millennials, and the passion of the middle management structure in vital processes - oil and gas exploration and production. In HR management today, there are three major global challenges, namely: efficiency, search and management of new talent and the development of an elastic operating structure (Saveta, 2018.).

MATERIAL AND METHODS

One of the biggest challenges in modern HR management is the struggle to attract talent in the era of digital energy. Companies from different industries are trying to attract and retain young professionals, so-called "millennials" whose habits and interests differ significantly from traditional ones. HR managers in the oil and gas industry have not been spared challenges in the modern labor market either (Saveta, 2018.). How companies in this area are struggling to attract talent, develop their skills and what methods to keep them in the company, as well as what is the new role of human resource management experts in the oil industry will be described below

Resource management

Resource management refers to the identification, engagement and management of human and physical resources, necessary for the successful implementation of the project and includes the following six processes (Institute, 2017):

- Resource management planning - determining how human and physical resources will be assessed, engaged, managed and used on the project.
- Estimation of required resources - includes an estimate of the amount of resources - people, equipment and materials - that the project team will use to carry out project activities.
- Hiring resources - means hiring the necessary staff, equipment, materials, supplies and other resources necessary to work on the project.
- Project team development - includes building individual and team skills, in order to improve project performance.
- Project team management - involves monitoring performance, team motivation, feedback, problem and conflict resolution and coordination of change.
- Resource control - ensures that physical resources are available and used as planned and take corrective action if this is not the case.

Industrial and organizational psychologists and management theorists have devoted much research and consideration to managing people at work. Psychosocial issues that affect the way people work and how well they work include motivation, influence, power, and efficiency.

Human resources as a factor of effectiveness

New knowledge about man, as a multidimensional person, introduces significant changes in the content (both qualitatively and quantitatively) of human resources. Every day, knowledge about the importance of personnel is also spreading. Depending on the degree of democratization of each society, it reacts to everything new in this area on the principle of stimuli and anti-stimuli (Stefanovic, 2013.). There are a large number of necessary conditions for the stimulating action of our society on new knowledge in human resources, since our country is in transition.

Thus, personnel with their knowledge, abilities, work habits, and professional experience make up the most significant part of the productive forces in a qualitative and quantitative sense. he organization and success of business depends on them. In fact, human resources are a determining factor in socio-economic development, regardless of the level and form of business (Stefanovic, 2013.). The evolution of human

labor has brought the worker to the managerial throne, but a period is ahead for the producer as a manager to build and transform into a freer and affirmed person.

He term human resources management is a syntagm, which has been appearing more and more in the scientific literature in recent decades. In short, human resource management means a scientific discipline, the function of management in organizations and practice, and the relationship with people in the organization (Stefanovic, 2013.). Although human resources, as a term, have provoked some resistance in some countries and among some authors, the recognition of this form of resource has led to the realization that people as a resource are most important for achieving goals and that the management of this resource should be given special attention. and scientific research.

Human resource management goals are derived from organizational goals and must be compatible with them. Since human resource management is aimed at successfully achieving the goals of the organization, this means that its goals must be aligned and compatible with the goals of the overall business. It also has specific objectives, which can be divided into three basic sets (Stefanovic, 2013.):

- Business and economic,
- Social and
- Objectives of flexibility and constant change.

The strategic challenges facing the human resource management function are shown in Figure 1.

Figure 1: Strategic goals of human resources management (Stefanovic, 2013.)

In human resource management, organizations must take into account (Stefanovic, 2013.):

- Meeting the needs of employees,
- Improving the social and economic situation,
- Ensuring acceptable working conditions and quality of working life,
- Ensuring a favorable working atmosphere and good interpersonal relationships, which affect, to the satisfaction of employees, and thus encourage personal engagement and development, and
- Care for the health of employees.

Human Resources Management (HRM)

Human Resources Management (HRM) is defined in a narrower sense as a series of interrelated activities and tasks of management and organizations aimed at ensuring an adequate number and structure of employees, their knowledge, skills, interests, motivations and behaviors needed to achieve current, developmental and strategic goals. In a broader sense, human resource management is a scientific discipline, managerial function and task, business function and specific philosophy and approach to management (Stefanovic, 2013.).

Human resources management can also be defined through its basic functions, ie activities and tasks, each of which includes a number of different and specific professional jobs and tasks. In this sense, the basic functions of HRM are (Stefanovic, 2013.):

- Strategic human resources management;
- Planning the required number and structure of employees;
- Analyzing and shaping jobs and jobs;
- Procurement, selection, introduction and deployment of staff;
- Monitoring and evaluation of performance;
- Motivation and rewarding;

- Education and development of employees;
- Creating an adequate organizational climate and culture;
- Social and health care and
- Labor relations.

Motivation theory

Psychologists, managers, professors, parents and others still have a hard time understanding what motivates people, that is, why people do certain things. Intrinsic motivation encourages people to participate in a certain activity for their own pleasure. For example, some people like to read, write or play an instrument because they feel good about it. Extrinsic motivation conditions people to do something for the sake of reward or avoidance of punishment (Avlijas, 2011.). For example, some children would rather not play an instrument, but still do so in order to receive a reward or avoid punishment.

Why do some people not need any external motivation to do their job well, while others need motivation to perform routine tasks? Why is it not possible to persuade someone who is extremely productive at work to do simple chores at home (Avlijas, 2011.)? Humanity will continue to seek answers to these questions. A basic understanding of motivation theories helps everyone who works or lives with other people to understand themselves and others.

Needs hierarchy theory

As part of the theory of motivation, the respected psychologist Abraham Maslov is best known for developing a hierarchy of human needs. Figure 2 shows the basic pyramid of Maslows hierarchy of needs, according to which peoples behaviors are directed or motivated by the order of needs. At the bottom of the hierarchical ladder are physiological needs. When these needs are met, behavior is driven by security needs. When security needs are met, social needs take precedence, and so on to the top of the hierarchy.

The order of needs and their relative sizes in the pyramid are very significant. Maslov states that each level of the hierarchy is a prerequisite for the next levels (Avlijas, 2011.). For example, it is not possible for a person to think about self-actualization if he has not met the basic needs related to security and safety. People in crisis situations, such as fire, will not worry about personal accomplishment. However, when a certain need is met, it is no longer a strong motivator of behavior.

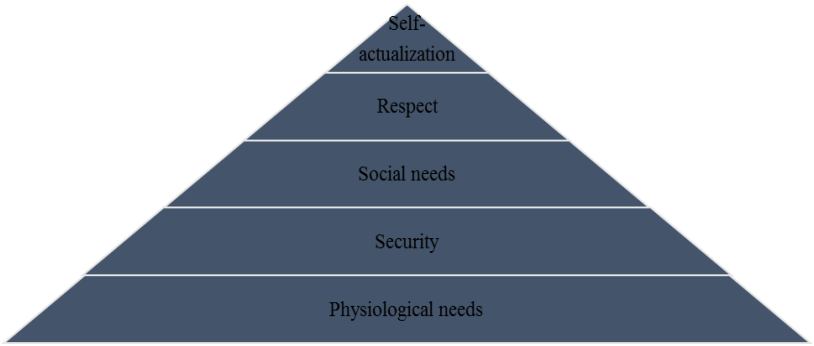

Figure 2: Maslows hierarchy of needs (Maslow, 1970.)

RESULTS AND DISCUSSION

Once known as the "personnel department", today it sounds much more sophisticated as "HR". In the oil and gas industry, globally, the work of these services today is accompanied by great responsibility, because they are most directly expected to bridge the gap that is deepening every day, the gap between the need for trained labor and its lack in the labor market (saveta, 2018.). Field work, which is a characteristic of these industries, requires that the necessary workers be especially motivated and stimulated, comparing it with office work. he reasons that led to the chronic shortage of qualified staff lie primarily in the aging population, retirement as its direct consequences, and dropout by going to other branches of the economy

where incomes are the same or higher, but work is more comfortable and much less demanding (Saveta, 2018.).

The implemented restructuring and reduction of the number of employees to a level appropriate to the current situation of forced cost reduction in the conditions of a drastic drop in the price of oil, were not preparations for dealing with the fundamental changes that were occurring, obviously those who were in business were unaware of the moment. The challenge of the HR function was to keep costs and increase the efficiency of employees, without resorting to dismissal of workers if at all possible. Unpaid vacations, part-time employment, early retirement, if possible relocation to other sectors not affected by the crisis, were options that were used only to avoid the worst for employees.

Three fundamental changes have taken place in the last decade in the oil and gas industry that have redefined the role of HR (Saveta, 2018.):

- Resources are plentiful and preparations need to be made for a period of lower oil prices that will be uncertain but primarily sustainable, focusing on reducing costs, increasing efficiency and speed of work,
- Advances in technology, which with its depth almost completely changes the old way of working, gradually introducing changes in productivity - automation takes jobs to workers, and where this is not increased human-machine interaction and
- Demographic change, which is reflected in the fact that employees are looking for changes in the work environment, and express concerns about the true role of oil and gas companies in society. "Millennials" in developed countries are expected to soon become the majority of employees (by 2025, as many as 75%). Starting to climb the hierarchical ladder brings a new way of thinking (it is no longer enough to just work in a new way) and expectations in terms of technology, management, interpersonal relationships, evaluation, etc.

The challenge of HR management in oil and gas companies

If we talk about the basic challenges in the field of human resource management in the oil and gas industry, two global tasks collide here. And accordingly, on the one hand, HR is a strategic function, and on the other hand it is business support (Saveta, 2018.). Of course, HR responds to the challenges facing the oil and gas industry and builds the companys HR policy accordingly. For example, the oil and gas industry is characterized by volatility - sensitivity to changes in oil and gas prices. It is still fresh to remember the period when, due to low oil prices, many companies in the sector started to reduce investments and costs and increase efficiency. Now the market conditions are different, prices have stabilized, but there is an awareness that these processes are cyclical and that is why companies try to plan human resources, bearing in mind how volatility affects the oil and gas industry (Saveta, 2018.).

The next trend that has characterized this branch of industry lately is the fight for talents, above all, technical talents with specific skills. Another important detail in the field of human resource management in oil and gas companies is the change of the companys traditional structures towards elastic structures. In conditions when increasing efficiency is required, more resilient organizations are more competitive (Saveta, 2018.). If we summarize all the above - in HR management today there are three major global challenges, they are efficiency, search and management of new talent and the development of a flexible operating structure.

The most important elements of human resource management strategy in oil and gas companies

These are strengthening and consolidating the strategic role of HR, performing transactional functions, and finally, as a result of all this, increasing the efficiency of human resource management. The next area, ie direction, is the development of an integrated employee management system. In essence, these are all the processes and all the phases that the employees in the company go through. Selection, selection, training adaptation, motivation, development and so on. One of the important elements is certainly the digitalization of HR and the use of data management, analytics, digital instruments in HR.

The next important item is the management of the employers brand and the so-called value offers. What the company as a whole offers to the employee, both to its own and potential candidate from the market. And

the last, but no less important element is the proper development of organizational models and structures. The most important thing is that the organizational model meets the needs of the business. The organization should not be cumbersome, it is important to reduce the level of management, as well as its ability to adapt to new business processes (Saveta, 2018.).

The most important elements of HR practice in the oil and gas industry that can attract new generations of professionals

After facing demographic trends as a consequence of the 1990s, when everyone in the profession was faced with a lack of technical professions, we now come to the conclusion that the oil and gas industry must become competitive and attractive to young professionals, the so-called "millennials" - it is a generation that was born and grows in digital reality and which is attracted by another value system, different from the traditional one The task of HR is to attract them, to give them the opportunity to achieve, but this requires changes in the oil and gas industry. Above all, they are attracted by the possibilities of applying the most modern technologies, such as robots and artificial intelligence. The next thing is the application of HR digital technologies, which inevitably increases the freedom of cooperation and expression at all levels in the company (Saveta, 2018.).

CONCLUSION

Human resource management in the oil and gas industry involves much more than the use of software to assess and monitor resource allocation, resource leveling and other functions. People are the most important resource, and human resources are significantly different from other resources. It is not possible to simply replace people, just as a piece of equipment is replaced. People need much more than occasional adjustment to work well. It is crucial to treat people with respect and commitment, understand what motivates them and communicate with them carefully. What makes good project managers great is not their use of tools, but their ability to enable project team members to get the job done on the project in the best possible way.

Successful organizations consider people as their primary development resource. Motivation and satisfaction of employees become the basis of a modern organization. Motivated employees today are a strategic resource that gains a competitive advantage of the organization. In order for a person to be able to motivate others, he must first of all be able to know and motivate himself, which means that in order to have a motivated staff in the organization, there must be a motivated manager who will know how to start his employees (Stojanovic, 2015.).

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Session C: MARKETING MANAGEMENT

Papers (pp. 157-192):

INTEGRATED MARKETING COMMUNICATION AS A NEW PARADIGM

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ABSTRACT

The increasing use of the latest forms of electronic media or better known as the e-revolution has led to the emergence of a large number of new forms of electronic communication, which manifests itself through the following forms: e-mail, online discussions, chat, forums, online communities, etc. Due to the emergence of a large number of new digital media, the expansion of the digital revolution, as they call the IV technical-technological revolution that is currently underway, consumers or end users of goods and services have established new relationships and perceptions of products and services offered in the market. The very way of planning and going shopping has also undergone several significant transformations. Large retail chains that merge and create wholesale systems on a daily basis in the process of acquisition, horizontal and vertical integration have unconsciously imposed on customers the need and desire for new products, payment methods, planning the volume and frequency of purchases and the need for new redistribution of household budget.

Keywords: Integrated marketing communication, consumers, marketing mix.

INTRODUCTION

The extinction of the so-called corner shop, closing of retail stores, centralization of operational and managerial activities, training of employees in accordance with new procedures and work procedures are just some of the novelties that are the result of new changes due to the digital revolution (Karrison et al, 2006.) These changes that have occurred as a result of the development and progress of the digital revolution over the past ten years have contributed first to pioneering and later to serious practical research. These researches have provided a serious platform (basis) that has led to the establishment of a new multidisciplinary branch of social sciences. The new branch builds its empirical (practical) research on the study of cyberspace, subjects in that environment and the relationships that develop between them.

The accelerated process and the inevitable progress of the development of society and global media as a consequence of the new technical-technological era found itself under the influence of new electronic media known as social or social networks. The subject and focus of research on a new social branch, the so-called Virtual marketing is based on the rapid adoption of new technologies that have gained new dimensions with the development of civilization. Research has shown that the emergence of new forms of media is adopted faster than other forms of technology. Political and economic trends that take place in parallel and are influenced by psychological and social factors have contributed to the introduction of society in the process of demystification or in the phase of media specialization. Media or content offered to consumers and end consumers of products and services are consumed in extremely different ways by the most diverse, highly segmented sections of the population (Kotler et al., 2006.). Media specialization is a consequence exclusively of the transparency of specific consumer needs. The specialization of the media had to happen in a very short period of time in order for the media themselves to survive or survive in a market competition that is played by new rules and without compromise.

End consumers, on the other hand, have influenced the specialization of the media and the tailoring of programs according to their own needs, desires, possibilities and requirements, which are conditioned by

the fast pace and way of life. The process of specialization and the creation of new media suppressed collectivism and civilization turned to strengthening individualism (Lovreta et al, 2010.).

MARKETING MIKS

The concept of marketing mix and service life cycle is used in economic theory and practice and as a framework when analyzing and planning the product life cycle and adapting to consumers in certain phases of the cycle (Kotler, 2006.). Marketng mix as one of the main tasks that guide production and trade in the process of creating the optimal strategy to achieve the desired goals and plans of companies can give effective results only if the given parameters work mutually harmonized, harmonized with consumer needs and overall business policy. relative competitive advantage in a given market.

The product represents the total supply in a given market that can provoke attention, interest, purchase or consumption and meet certain needs of end users. In addition to the required quality prescribed by the standards, the design, brand, packaging and manner of placement (promotion) of the product are the key factors that represent the product to the market and make it attractive and easily accessible.

The price or value expression of a product can be seen from two aspects, as a competitive price and the willingness of the consumer to pay a certain price.

Promotion as one of the most important factors currently influencing the attitudes, opinions and behavior of consumers is the process of communication between the business organization and consumers in order to create a positive attitude about products and services on the market. A positive attitude of consumers about certain products and services creates in their consciousness the need and desire to favor certain items and buy them.

The place of sale and distribution of certain products and services must at all times be harmonized with the needs and possibilities of purchasing products by consumers. One of the important factors that affect the process of presenting and purchasing a product is the packaging of the product, which informs the consumer and makes a decision when buying a specific product.

With the help of sales services, a specific manufacturer differentiates its product from competing goods on the market, stimulates the purchase of products by new consumers, contributes to better distribution and further construction of existing and new distribution channels, allows consumers to buy near the place of residence and offers them better use. product. Three sales services have a special significance on consumer behavior when deciding to purchase a specific product, namely credit, warranty and service (Kotler et al., 2010.).

The specific product that is placed on the market and its further survival, in addition to the marketing mix factor, depends on the phases it goes through during its life cycle (Keller, 2016). The concept of product life cycle is used in economic theory and practice and as a framework when analyzing and planning the product life cycle and adapting to consumers in certain phases of the cycle. During its life cycle, each product goes through four phases of its development (Maričić et al., 2012.): 1) phase of product introduction to the market; 2) product growth and development phase; 3) maturity phase and 4) decline phase. It should not be forgotten that during their life cycle, certain products, depending on the industry in which they are produced, go through the stages of trend, fashion and style. All products are characterized by the trend phase, the fashion phase, and only selected products and services reach the stage when they can proudly carry the epithet of style.

INTEGRATED MARKETING COMMUNICATION STRATEGY

The strategy of integrated marketing communication is characterized by certain joint activities, which should be undertaken as soon as possible in order to improve and increase its market share in the overall

business. The implementation of these activities implies taking into account the following factors (Milisavlljević et al., 2000.):

- economic factors related to the development of the information system, electronic business and online auction market, the level of consumer purchasing power, the degree of competition;
- technological factors that show the degree of technological development, innovation, connectivity and distribution of information and telecommunication systems;
- social factors related to the social structure and systematization of social strata, the achieved standard of living, the manner of organization of the pension system, the level of employment and the structure of occupations;
- demographic factors that include age and gender structure, educational level of the population, lifestyle and lifestyle, respect for the role of leaders and the degree of readiness to acquire new knowledge and skills, geographical distribution of the population, level of information literacy and demographic structure of Internet use, etc.

Characteristics specific to integrated marketing communications can be qualified as special requirements which include virtual transactions, unstable and dynamic markets, mutual high degree of integration between companies and high degree of uncertainty characteristic of online e-business (Moreira & Silva, 2015.). Successful implementation of an integrated marketing strategy implies certain criteria related to the selection of a strategic partner (Veljković, 2009.). At the same time, many business entities must pay special attention to changing the business environment, in order to implement a successful e-commerce strategy. Based on the presented facts that affect the program and market improvement measures related to e-commerce, sales management and knowledge management activities should be directed, primarily through intensive training and education.

THE PROCESS OF DEVELOPING SUCCESSFUL COMMUNICATION WITH CONSUMERS

The phenomenon of communication with consumers for many years is the subject of interest of economics as a social science and many theoretical and empirical research conducted to better understand, qualify and perceive future strategies, tactics and operational plans. Numerous models have been developed in economic theory to investigate consumer behavior, the most famous of which are: Howard-Sheht's model, Engel's, Kollat's, and Blackwell's. In the eighties of the last century, a simplified model of successful communication of consumers as an individual was accepted in economic circles. On the whole process communication with consumers is influenced by a large number of factors that can be divided into the following groups (Stojković et al., 2014.):

- socio-cultural factors that include culture, sub-culture, social classes, reference groups, public opinion holders and the family;
- demographic factors consisting of age, income and wealth, occupation and education;
- psychological factors such as: perception, senses, process of perception, selective perception, selective distortion, product image, learning, consumer impression and motives that lead him to purchase a product and / or service to meet a particular need, attitudes towards certain products, personal character and lifestyle and
- situational factors that are determined by the space and time in which the purchase is made.

The course of the purchase process itself is determined by a number of factors and takes place in several phases. The specific stages in which the consumer finds himself depend on the type of product, the situation and the consumer himself. The stages of purchase take place through several stages, such as complex decision-making, variable decision-making, brand loyalty and inertia or routine purchase, identification or concretization of needs, gathering information, evaluating offered alternatives, purchasing decisions and after-sales actions (services). right within the warranty period. In relation to their affinities and the amount of income available, the types of purchases can be differentiated as fully planned purchase, partially planned purchase and unplanned purchase (Vlastelica Bakić, 2012.).

Communication with consumers is one of the central topics and categories on which companies and in most cases represent a central point in the process of planning strategy, tactics and operational plan (Mortimer & Laurie, 2019.). Depending on the time dedicated to considering the role, attitudes, creativity and functioning of actions that are focused on consumer behavior, the success or failure of marketing of a manufacturing or trading company also depends (Porter & Kramer, 2011.).

CONCLUSION

A company can give effective results only if the given parameters function mutually harmonized, harmonized with the needs of consumers and with the overall business policy of the company, which creates a relative competitive advantage in the given market. In the theory and practice of marketing, this concept is known as 4P (product, price, promotion, place) or product price, promotion, place of sale (Kotler, 2006.). Only their optimal combination can achieve the desired effect, ie through the marketing mix as one of the main postulates by which production and trade companies are guided in the process of creating an optimal strategy for achieving the desired goals and plans for the placement of products and services (Ognjanov, 2013.).

Success in understanding the process of consumer behavior is expressed exclusively through the reactions of the consumer when deciding whether or not to buy a particular product of a manufacturing and / or trading company or whether to opt for a specific service offered to him in the market by the business. organizations or not. The process of communication with consumers in the modern, turbulent environment of the XXI century is constantly influenced by the process of digital revolution that has been implemented in all economic branches and social spheres. Also, digitalization has become an inseparable part of the life of modern man or consumer who expresses his performance and perception through the most modern media of mobile and digital technology, which have largely replaced the traditional, analog media. The trend of digitalization has slowly passed from the fashion phase and almost imperceptibly became a parameter of the standards and lifestyle of modern society.

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MARKETING AND MODERN BUSINESS

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ABSTRACT

Today, marketing is seen as a leading operation in company management process. Marketing finds its strength in information from the market, and its effectiveness using the knowledge to create action models and strategies according to the loyalty of consumers or users. This paper is focused on the development of marketing in modern business, especially in the field of modern business practice. In synergy with socially responsible business, marketing contributes to the creation of business excellence and strengthening the competitive advantages of the company.

Keywords: Marketing, marketing management, holistic marketing, users, technology.

INTRODUCTION

Today's marketing, according to Kotler, is based more on owning information than on other available resources. Although competitors can copy equipment, product and procedures between each other, it is certain that they can not copy the company's information and intellectual resources. The main competitive advantage of any company today is the information it has (Sajfert, Đorđević & Bešić, 2006). Marketing enables knowledge management, which means that it creates an opportunity to increase the productivity of that knowledge and other business functions in the company. Marketing is essentially a key tool that makes knowledge more productive. Management of any process in the company, especially marketing, consists of information, therefore, good information enables successful marketing, ie marketing management becomes an activity of information processing (Bešić & Đorđević, 2017).

The concept of social marketing, according to Đorđević & Ćoćkalo, implies „*the effort of the company to determine the needs of the target market, and to meet the needs of consumers in a more effective and efficient way than competitors in a way that maintains or improves the well-being of consumers and the society in whole*" (Đorđević, Ćoćkalo, 2010). The difference between the marketing concept and the concept of social marketing, according to the same authors, is recognized in the primary macro environment, and then in the specific market. Attention is focused on the whole society, not only on the consumer or the target group. The global marketing approach is applied in global business. The result of the application of the concept of social marketing is the satisfaction of the needs of consumers at the same time and the entire society, as well as the realization of company profits and increasing the welfare of society as whole. The concept of social marketing is based on three basic elements: the well-being of the entire society, meeting the needs of consumers and making a profit for the company. Kotler believes that there are several key trends that shape the further development of marketing: 1. "growth of non-profit marketing, 2. globalization, 3. changes in the world economy, 4. requirements for significant social responsibility of marketing" (Bešić, Đorđević, 2017).

Relationship marketing is based on information technologies, using the access to numerous databases it provides the necessary information about current and potential customers of products or services. Then, using the data of business realizations, transactions, communication. There is a faster and closer

access to users through social networks, telecommunications, web applications and similar activities. According to Brooks and Little, considering the market aproach of organizations in the future, they define a new model of market activity, *relationship marketing*, which is based on: database management, interactive market communication and network marketing (Bešić, Đorđević, 2017).

The crisis caused by the global pandemic directly affects the need to improve marketing as a business practice. Marketing has changed both conceptually and organizationally over the past twenty years. The future of marketing requires agility, flexibility, customer focus and mass application of modern technological advances. The development of technology and the spread of a large number of social networks have conditioned the emergence of hypercompetition and digital transformation. Availability to all and good information of consumers as well as an increased amount of information that can influence consumer decisions, are the reasons for marketing changes. New marketing activities seem subtle, clever and timely in search of effective action. In attracting new consumers, expanding the market and retaining existing customers. In addition, marketing is increasingly identified with consumers in terms of prioritizing ethical and moral business, protecting human health and the environment.

EVOLUTION OF MARKETING

From the aspect of marketing, market improvement of business quality, the following elements must be met: meeting consumer needs, suitability of products and services, market positioning and achieving competitive advantage. Modern age marketing is equated with technological development and Industry 4.0. Marketing 4.0 according to Kotler is a marketing approach that combines direct and indirect interaction between companies and consumers. Marketing professionals need to accept the new reality of the market and create brands that behave like people. That they are affordable, and attractive. Kotler (Burdet Douglas, 2016) points out that by shaping brands, you need to create authenticity, to become honest, to accept your flow and that the perfect look does not have to be in the foreground.

According to Kotler & Keller, (2017) understanding four “A” marketing implies: acceptability, accessibility, accessibility and awareness. The evolution of marketing management is by updating the four "P" marketing mixes: Product, Place, Promotion and Price, presented with four "P" of modern marketing management: People, Processes, Programs and Performance. Marketing 4.0 is essentially an effort to look at marketing from many different aspects. Kotler (Krauss Michael, 2017) emphasizes that traditional marketing is not rejected, there is a unification of traditional and digital. Kotler's belief indicates that technological convergence results in convergence between digital marketing and traditional marketing. Marketing professionals have the role of marketers to guide consumers through their journey from awareness to the ultimate level of product representation. The marketing environment today is hyper-connected, which means that consumers are moving from awareness (*I know about the product*), to action (*I buy the product*) to advocacy (*I recommend the product*).

In accordance with Industry 4.0 and technological progress, the marketing organization is being transformed. The growing development of information technologies has conditioned digital business. Traditional marketing merges with digital. Today's society basically works that way, digitally, so for these reasons marketing takes place in a highly competitive market space. According to Vassileva (2017) Marketing 4.0 requires new knowledge and new organizational structures. In support of this, a survey was conducted in the field of marketing among SMEs in Bulgaria, which included an assessment of the use of social networks, attitudes of SME marketing management and application of Information and Communication Technologies - ICT, as well as the possibility of applying Marketing 4.0 through employment in marketing organizations. Vassileva (2017) in her paper provides the conceptual model D^3I^2C Design-Direct-Develop-Interventions-Innovation-Capabilities developed to support the establishment of an agile marketing organization in relation to the digital transformation of the business model. The model is applicable to companies in different countries depending on their digital maturity. Vassileva (2017) explains the conceptual model of D^3I^2C marketing management,

management in Marketing 4.0 as a "*self-generating and self-renewing process of activating, adapting and anticipating challenges in an extremely dynamic environment*",… ibid… with an "*infinite cycle of improvement*" at the center. The results showed that the marketing management of SMEs in Bulgaria is being transformed. Guidelines for progress and improvements on the path of digital transformation would be exploring alternatives and defining proper marketing metrics in the first phase of the design where goals are set and priorities of digital transformation are identified, then, engaging top management in digital strategy and marketing redesign of current business model in Direct phase, depending on the level of digital maturity of the company and thirdly, the application of expertise and knowledge to implement the strategy in the development phase, where interventions, innovations and talent are primarily meant. Innovative thinking and creativity successfully integrate Marketing 4.0 into organizational practice (Vassileva, 2017).

Marketing Directions

Global marketing experts have set three main directions of marketing development (Kotler, Kartajaya & Setiawan, 2017): from exclusive to inclusive, from vertical to horizontal and from individual to social. The market is becoming inclusive, social media is reducing barriers to communication between businesses and consumers. Consumers are becoming more and more horizontally oriented. The buying process is becoming more faithfully oriented than it was before. Consumers pass on advice and recommendations from both businesses and consumers. Kotler advises marketing experts to think about horizontal consumer connectivity, inclusion, and society-oriented business (Kotler et al., 2017). Based on managerial priorities in the era of digital communications, Batra & Keller (2016) in their work propose two models for improving the efficiency, ie the efficiency of integrated marketing communication programs. One is a Bottom-Up Communication Matching Model, and the other is a Top-Down Communication Optimization Model. By observing consumer behavior and their access to communication means, modeling can influence consumer decision-making. With the development of technology, consumers today communicate through several different types of media. Until the moment of the final decision in choosing a brand, consumers are faced with numerous information and various messages, from TV, press, social networks, e-catalogs and other communication channels.

The Communication Matching Model takes into account the wishes, needs, or gaps in consumer knowledge and behavior in certain phases until the consumer reaches the final goal - the need for the brand, and proposes media combinations, marketing activities depending on the effects of different types of media at a given moment, or stage, to satisfy the mentioned gaps in the consumer and direct them towards the final decision. The Communication Optimization Model is designed based on seven integration criteria: coverage, cost, contribution, togetherness, complementarity, cross-effects, and adaptability. It should be noted that the first two criteria: coverage and cost are important for the financial efficiency of communication. Integrated Marketing Communications - IMC, according to Batra and Keller (2016) provide a conceptual framework of two communication models in the presentation of marketing communications from top to bottom. In essence, by looking at consumers who are committed to digital technologies (online) and the traditional way of informing (non-digital, offline), the integrated communication program has the purpose of informing, reminding and directly or indirectly directing consumers to place their trust in a particular brand or product.

MARKETING MANAGEMENT

Successful marketing is achieved by connecting and cooperating all business functions of the company. According to Kotler, Keller & Martinović (2014), the use of the most modern instruments and techniques during careful planning and organization achieves good marketing. The modern understanding of marketing, according to the same authors, implies holistic marketing, which consists of the following dimensions: Internal marketing, Business results marketing, Integral marketing and Relationship marketing.

Internal marketing implies relations between the marketing sector, management and other sectors in the company. Marketing of business results is aimed at increasing sales revenue, increasing the market value of the brand, ethics, community, business environment and the environment. Integral marketing presupposes relationships that arise in connection with communication, products and services and channels. Relationship marketing implies relationships between partners, consumers and marketing channels (Kotler et al., 2014). The holistic marketing concept implies that everything is important, so for these reasons, marketing must focus on consumers, society and business responsibility. To understand the new marketing reality, according to Kotler and Keller (2017), tasks in marketing management indicate that three main market factors need to be considered: technology, globalization and social responsibility, two key market outcomes: new opportunities for consumers, new opportunities for companies and the four basic pillars of holistic marketing: relationship marketing, integrated marketing, internal iarketing and performance oriented marketing. Special tasks that are the basis of successful marketing management and leadership can be identified by observing these concepts. The new marketing reality was created due to the change of the market, different than it was 10 years ago. Today's market provides new opportunities, opportunities and challenges in the field of marketing. The three main market factors that bring change are technology, globalization and social responsibility. Authors Kotler et. al., (2014) believe that, since the effects of marketing are felt outside the company, beyond consumers, and reflected on society as a whole, marketing professionals must take into account the ethical, legal and social context, as well as the context in the relationship on the environment, its roles and actions. Observing marketing as a socially responsible approach in business, ie as a responsibility towards the community and consumers, it is recognized trough the positive effects on the environment. Eminent experts recommend marketing activities to successfully overcome crisis periods of the company using the following: increase investment, convergence with customers, revision of budget allocation, highlighting the most attractive value and fine-tuning the brand and values of products (Kotler et al., 2014). When writing about sustainability Kotler et. al., (2014) "*which implies the ability to meet the needs of humanity, without harming future generations*", say that it is a priority of many companies today. Businesses must practice social responsibility through their legal, ethical and social expression and action. Marketing related to the common good can be a means for a company to productively connect social responsibility with marketing programs for consumers (Kotler et al., 2014).

Kee & Yazdanifard (2015) represent content marketing, a new trend in marketing practices. Although the term content marketing has been defined for a long time, it has been noticed that it is practically not implemented in the business of certain companies. Observing technological changes, there are also changes in consumer behavior. Accurate and honest information and contentually rich messages through digital channels lead to better selling. Content marketing builds trust through which consumers increasingly strive for personalization and connection with the brand. Personalized messages to a quality target audience are an example of good business decisions. The authors in their work Kee and Yazdanifard (2015) give an example, according to Hussain (2013), a global brand, the multinational company Coca Cola, which sent a personalized message to Coca Zero consumers on social networks by organizing the event "my favorite dance moves" and with this gesture enabled inclusive individuality in consumers. This form of marketing gives a sense of familiarity to consumers. Consumers are becoming more loyal to the brand precisely because of respect, personalization and useful information (Kee and Yazdanifard, 2015). On the example of Google's "Zero Moment of Truth" which investigates how customers search for information, how information affects consumer behavior and consumer decisions about brands, it was noticed that content search increases compared to the previous year, which increases the number of decisions to buy products (Kee and Yazdanifard, 2015).

The Quantitative Strategic Planning Matrix - QSPM, David & David (2017) presented as a marketing strategy. For their research, they cited two alternative marketing strategies to increase advertising costs by 50% versus lower menu prices by 10%. The research was conducted in a chain of 10 Mexican restaurants. In relation to SWOT analysis, QSPM allows the determination of numerical value to determine relatively important factors and a relatively attractive strategy that traders could apply to their business. As positive features of QSPM, the authors point out that, several QSPM strategies can be assessed at once or within a set of strategies, and that this analysis requires the integration of

relevant external and internal factors in the final decision-making process (David & David, 2017). The results of this research, QSPM for the restaurant chain, showed that advertising costs should be increased by 50%.

Fatma & Rahman (2015) provide an overview of the literature on consumer perspectives towards socially responsible business. The study found that this topic was researched in developed economies more and less in the economies of developing countries. The paper helps managers to understand the impact of the activities within the socially responsible business on consumer behavior. Competitive advantage, according to Fatma & Rahman (2015) can be gained when management understands when, why and how consumers perceive socially responsible business. The positive reactions of consumers are greater when the *Corporate Social Responsibility - CSR* activities of the company are observed internally from the aspect of awareness and knowledge, and less in relation to the external effects that are recognized in the purchase and consumer loyalty. Based on the results of research conducted by the authors, they noticed that marketing knowledge related to consumer reactions to CSR business activities is still insufficient and suggest management to direct more attention in this direction.

Marketing in the third Millennium

Acharol & Kotler (2012) believe that the company of the future will consist of a small team that does all the work from one office. The team will build and use its knowledge about the demands of the market and users, suppliers and partners and will be able to respond quickly through sophisticated electronic links to changes in fashion and economic circumstances. The value creation process will be free of all unnecessary activities. Considering marketing trends in theory and practice in the third millennium, the most important marketing theorist, Philip Kotler, emphasizes that the new marketing horizon announces the following facts in relation to key marketing stakeholders (management, science and professional public), which company executives must take into account (Acharol and Kotler, 2012): managers need to understand the nature and theory of network organization, establishing a new consumer philosophy of customer care, growth is not a all in cure in the new marketing model, new marketing requires a new way of calculating costs, taking into the consideration the nature of costs, calculations in decision-making will become increasingly complicated due to the role of intangible factors. Acharol and Kotler presented the marketing model and explained the dimensions of the models characteristic of the new millennium. The marketing model that emerges in the new millennium consists of three dimensions of marketing observation: subphenomenon, phenomenon and superphenomenon. Marketing viewed as a sub-phenomenon implies consumer experiences and a system of perceptions. Consumers experience products and services through their senses, and the understanding of sensory experiences is slowly moving to the level of neurophysiology. To follow this trend, marketing will need to develop a significantly expanded base of theoretical and methodological tools. When we talk about marketing as a phenomenon, we can see the fact that the days of vertical integration between producers and distributors are over and that distribution today takes place through network consumers, marketing networks, innovation networks and production networks. The theory of exchange, which has dominated for almost 40 years, gives way to relational concepts. This specifically means that rationalization and outsourcing innovation is required. In the future, there will be more and more insistence on micro-production systems, which create products whose demand is very close to the place of consumption. In the dimension of the super phenomenon, marketing is required to establish a sustainable model of consumer society. From the aspect of the global market, one can expect the establishment of a new type of regulatory environment that struggles to preserve market behavior and encourage and monitor the social performance of the social environment. The new philosophy implies giving priority to the well-being of society and consumers over the well-being of marketing management. The key issues of global marketing will be the issue of sustainability and the issue of poverty reduction (Acharol and Kotler, 2012).

Social Responsibility and Social Marketing in Business Practice

In the revolution of "green" marketing according to Kotler and Keller (2017), both consumers and companies are changing their views on environmental issues. From a consumer perspective, according

to the same authors, consumers have turned their attention to "green" products, corporate responsibility and other important environmental issues due to real concerns. Some of the most impressive and significant research is presented below. The Green Brand Study, conducted periodically by the WPP group, covers 9,000 respondents from eight countries and evaluates 370 brands. In 2011, this research showed that consumer interest in "green" products has expanded to the automotive, energy and technology sectors with the already existing interest in the personal hygiene, food and household products sectors. The majority of respondents, 60 percent of them, stated that they want to buy products from companies that behave responsibly towards the environment. In developed countries, such as the United States and the United Kingdom, 20 percent of consumers are willing to pay more than 10 percent more for a "green" product. Consumers in developing countries emphasize the value of "green" products even more: as many as 95 percent of Chinese consumers, for example, stated that they are willing to pay a higher price for a "green" product (Kotler et al., 2017). From the perspective of companies, "green marketing" programs have not always been successful in previous times. Only some companies have managed to convince consumers that, for example, by buying organic food that is healthier, tastier and safer or home appliances that save energy, they create their own long-term interest and at the same time contribute to the interest of society as a whole. According to the recommendations of some experts, the "*myopia of environmental marketing*" can be avoided by focusing on positioning value for the consumer. Understand what the customer knows and should know about the products, as well as present convincing facts about the product. It is especially important to offer real values in difficult economic times and to present "green" products as effective and affordable (Kotler et al., 2017).

In India, a study was conducted on green marketing practices, in the production of agricultural products organically. The study would encourage farmers to use organic ingredients such as bio-fertilizers, bio-pesticides, pest compost and green manure (Mayakkannan, 2019). The concept of green marketing, according to Mayakkannan (2019), implies green advertising as a holistic concept of advertising in production, advertising the input and disposal of products and services. This reduces the negative effects of non-biodegradable solids on the environment, waste and the hazardous effects of pollutants. Companies that have designed innovations in the form of eco-products have a better chance of conquering new markets and better placement. With an emphasis on people, the planet and income, better business results are achieved. Green marketing mix 4P means green product, green price, green place and green promotion. The social and environmental dimensions are inherent in green marketing which, with the speed of industrialization development, has an advantage over traditional marketing (Mayakkannan, 2019).

Environmental issues play an increasingly important role in product design and production. Most companies are considering ways, in what ways to reduce the negative consequences of doing business on the environment. Some companies change the way they produce their products or product ingredients. For example, "Levi's Waste<Less 20% of the material in denim comes from plastic bottles and trays (3.5 million bottles and trays recycled in the first year), and Water<Less less water for cotton irrigation, saving 360 million liters of water in the first year. Another example is Sigg Switzerland lightweight aluminum water bottles. In the following example, promoting the environmental benefits of glass bottles over plastic bottles targets those customers who fear that plastic chemicals can leak into food and beverages. Glass bottles have an increasing percentage share in the sale of bottled water. Glass is now being designed that is safer if the bottle is broken, for example, PURE glass bottles have a colorless protective layer in case the bottle breaks "(Kotler and Keller, 2017).

Today's, modern and responsible business should be guided by the advice and recommendations given in their book by top marketing management experts Kotler and Keller, who say that "*perhaps the most important lesson we should learn from these previous examples is that consumers care about the environment and they expect companies to make the necessary changes to address this problem. Second, competition will emerge in all possible forms as companies try to find ways to better meet unmet customer needs* "(Kotler and Keller, 2017).

CONCLUSION

Based on new theories and scientific knowledge, modern marketing significantly follows the technological changes in global society. New marketing concepts retain traditional ones and in combination with new marketing activities give a higher level of operations. Marketing and corporate social responsibility form a synergy that achieves successful business. Corporate social responsibility says a lot about the organization that applies it in business practice. CSR of the company leaves a positive impression on consumers and users, business partners, employees, creates the image and reputation of the business organization. Consumers pay more attention to their affection and affection for companies that behave responsibly towards the entire society. In the near future, green brands and green marketing will imply customer loyalty.

Domestic companies do not apply modern marketing methods and techniques in the way that is necessary. In that sense, it is necessary for domestic companies to implement new knowledge. Primarily, we mean the use of ICT, obtaining timely information from the market about the needs and purchases habits of users, the performance of competitors. Small and medium-sized enterprises are advised to focus their thoughts on green production and green products in order to win consumers and achieve competitiveness in the market. Implement internal marketing within the organization and involve all employees in the free expression of opinions, ideas, creativity.

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THE IMPORTANCE OF VERBAL AND NON-VERBAL COMMUNICATION IN PUBLIC RELATIONS DURING CRISIS

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ABSTRACT

The success of organizations in the market depends on its relationships with stakeholders. Organizations gain a good reputation through communication with their stakeholders, through public relations. It is very important that at PR managers when communicating with the public, both verbal and non-verbal communication are harmonized, so that some message would not be misinterpreted. It is often emphasized that non-verbal communication is more important than verbal communication, because some things cannot be hidden by behavior. This is especially true in business, but also in diplomacy. Nowadays, crisis situations are inevitable. They lead to the collapse of the company's reputation, so the task of public relations is to neutralize or minimize the damage that the crisis in the organization has produced through crisis communication.

Keywords: Public relations, verbal and nonverbal communication, crisis.

INTRODUCTION

Modern business is characterized by a constant need for accurate and timely information, as well as for quality communication between the organization and its stakeholders. Communication can be done with internal and external stakeholders, which is the task of public relations. Thus, public relations is a sector that helps the organization and the public to understand each other and adapt to each other. The task of public relations is to create a good reputation of the organization with its target publics, and therefore public relations can be said to be related to the concept of corporate social responsibility.

Public relations deals with business communication. Communication takes place daily in society, consciously or unconsciously, through speech or silence. Business communication is the exchange of ideas, opinions, information between the organization and target groups. This exchange can be done through verbal and non-verbal communication. Verbal communication is the transmission of messages between persons in words, that is, it is oral and written communication. Non-verbal communication is the transmission of messages through the tone of voice, facial expressions, hand movements, body movements, etc. According to the rule 55-38-7, in conversations, the greatest impression is left by the visual effect (55%), the tone of voice 38%, while the word itself, ie verbal expression is only 7%.

One of the key tasks of public relations communicating with its public is during crises. Crises are all unforeseen events, which can negatively affect an organization and thus damage its reputation. The

task of public relations is to react in a timely manner in such situations and to communicate complete and credible information to interested parties through good verbal and non-verbal communication. Through verbal communication, they convey the message that the organization sends to the public, while through non-verbal communication, they show emotions, which has a positive effect on those to whom they address it.

PUBLIC RELATIONS IN MODERN BUSINESS

The modern way of life creates the need for better and more complete information of man about everything that happens in the country and the world, regardless of whether it is in his immediate interest or not. The need for information and mutual communication is also important in modern business. Ways and means of public relations include constant research and search for new approaches in solving the problem of communication and understanding among people (Filipović, Kostić & Prohaska, 2003). Every organization, if it wants to achieve market success, must establish good public relations. Public relations is a communication and managerial function, which initiates, maintains and improves relations between the organization and its environment. Thus, public relations means the communication process, the source of communication with its target public, which it should inform about its actions. The public is a narrower or wider group of people who are bound by the same interests or problems for a particular organization (Bjekić, 2009). Because the target public is usually very numerous and has a variety of requirements, public relations must focus only on the most attractive segments of the target public, so that they can focus on the most necessary thing (Nikolić, 2012).

Public relations consists of two concepts (Pejaković, 2015):

- the concept of relationship - continuous and mutual interaction between the company and its public. It depends on the communication skills what the relationship will be between the company and its target public, but also what image the company will create in public. The reason for frequent conflicts is inadequate communication, and the key to resolving them is in the function of public relations (Bajić, 2011).
- concept of publicity - interest groups make up the public of the company. They can be divided into internal groups (owners, management, workers) and external groups (customers, suppliers, competitors, government, media).

Internal public relations, ie internal communication, plays a very important role in encouraging employees to be more committed to performing their work tasks, as well as in shaping their behavior (Kang & Sung, 2017). According to Thelen (2020) PR managers, in internal communication have a positive effect on good relations, better understanding of employees, their representation, which leads to greater commitment of those employees and better business results. Likewise, external public relations has the task of creating a positive image of the company and building good communication and good relations with external stakeholders. For this reason, one of the most important tasks of a PR manager is to build a good communication strategy within both internal and external communication (Hagan & Collage, 2011).

One of the most prominent topics in the field of public relations is corporate social responsibility. The connection between public relations and corporate social responsibility can be clearly seen. Companies have taken full responsibility outside their own economic activities in the community (Waddock, 2004). That is, it can be said that corporate social responsibility is based on the commitments of the organization and its relationship with different types of public (Capriotti & Moreno, 2007):

- in fulfilling its economic, social and environmental duties;
- in fulfilling its obligations;
- in the development of its products and services
- in providing transparent information;
- in ethical behavior;
- in company management.

Important social, economic and cultural changes, which occurred as a consequence of globalization, affected communication, which certainly had a direct impact on public relations. For this reason, public relations managers must constantly make efforts to recognize a potential attempt at contact in time and make it happen (Armendarit, 2015). The new social model favors personality and shared communication, whether it is a question of communication between professionals or between the company and its public (Marfil-Carmona, Hergueta Covacho & Villalonga Gómez, 2015.; Molares-Cardoso, López de Aguileta & Legerén Lago, 2020). This two-way communication relationship must be as efficient as possible, due to the widespread growth of information and because it is the foundation and one of the most important strategic tools of public relations (Nava, 2012).

VERBAL AND NON-VERBAL COMMUNICATION IN PUBLIC RELATIONS

Every human act in some way represents communication, so silence can also be said to represent a certain form of communication. Organizations cannot exist without communication. Effective communication is the basis for the development of internal organization, but also a key factor for survival in an uncertain environment (Jurković, 2012). The word communication comes from the Latin word communicare, which means to talk, to talk to someone, to communicate. Communication is a social interactive process of conveying messages through signs. The whole communication process can be imagined as a circle, moving from the sender of the message to the recipient of the message, with feedback. Public relations deals with business communication. Business communication is a deliberate exchange of ideas, opinions, ideas, information with target groups, in order to achieve the goals of the organization (Filipović, Kostić & Prohaska, 2003). The exchange of this information is done through verbal and non-verbal communication.

Verbal communication is the relationship between persons within messages are conveyed in words. It can take place as verbal oral communication and verbal written communication (Bjekić, 2009). The ability to communicate well verbally is a natural gift. However, this skill can be mastered through various types of theoretical and practical exercises. Good style in speech and writing implies respect for the norms of literary expression, such as (Marković, 2003):

- grammatical norm - correct expression and writing;
- lexical norm - preserving the nature of language;
- orthoepic norm - correct pronunciation of words, emphasis and expressiveness in speech;
- stylistic norm - rhetorical means.

Just as messages can be conveyed through conversation or written communication it can also be done through non-verbal communication. Non-verbal communication is quite neglected, but it has been proven that we get 60% of the first impression when we meet on the basis of non-verbal communication. Non-verbal communication is a relationship between people in which messages are transmitted and the connection is established using non-verbal signs - voice, which utters words, facial expressions, body movements, movements in space... The system of non-verbal communication consists of a series of movements and poses, of which are (Dumitrescu, 2016):

- directing the gaze - a direct gaze towards the interlocutor means that both parties care about communication;
- facial expressions - different facial expressions can show a person's feelings. They should be honest and effortless.
- listening - active listening means paying full attention to that communication;
- hand movements - hands practically draw what is explained in words. However, excessive manual gestures interfere with communication;
- movements in space - should be thoughtful, organized and controlled.

Non-verbal communication, except in business, has a special significance in diplomacy. Diplomatic "body language" encompasses everything. For example, handshake signifies good international relations, and the seating arrangement in a room shows prestige and power (Jonsson & Hall, 2003). A study

conducted in 2005 based on a television debate during the national elections in Germany, where the influence of verbal, visual and vocal communication of the participants in the show was compared. The results showed that the immediate impressions of the spectators were mainly influenced by verbal communication, while the effect of nonverbal communication was significantly smaller (Nagel, Maurer & Reinemann, 2012). These results differ significantly from rules 55-38-7, where 55% is a visual impression, 38% is a voice (sound) impression, and only 7% is a verbally conveyed message. According to Jones & LeBaron (2002) it is necessary to integrate the communication approach. That is, verbal and nonverbal messages must be viewed as inseparable phenomena.

Therefore, in order for business communication of PR managers to be successful, they are required to master both verbal and non-verbal communication. They need to learn how to express themselves correctly and unambiguously verbally, and also to complete that speech with non-verbal communication.

PUBLIC RELATIONS COMMUNICATION IN CRISIS SITUATIONS

Crises are unpredictable events that affect an organization's operations and can threaten stakeholders in terms of health, safety, ecology, or economics (Coombs, 2015). In this way, the crisis leads to a disrupted relationship between the organization and its stakeholders, which negatively affects the organization's reputation (Coombs, 2007). In order to reduce "reputational damage", crisis communication with the public is very important. Theories and research in the field of crisis communication with public relations are focused on strategies that have, in response to the crisis, e.g. apology, denial. The inclusion of emotional tone, ie sadness, has been shown to have the greatest impact on the stakeholders it addresses (Schoofs & Claeys, 2021). Verbal communication of grief in crisis responses has a positive effect on organizational reputation (Claeis et al., 2013; Claeis & Cauberghe, 2014). However, organizations and individuals in crisis often respond in an audiovisual way (e.g., press conferences). Through audiovisual messages, PR managers not only convey verbal messages, but also display non-verbal signs (eye contact, hand movements) and vocal signs (pitch, sadness, hesitation) (Waele & Claeys, 2017). Research in the fields of social psychology and political communications, have shown that nonverbal signs in times of crisis have a strong influence on the listener's perception of the message (Koppensteiner, Stephan & Jäschke, 2015).

Primarily, when the crisis affects the organization, the management of the organization and their behavior are affected, but the crisis also has an impact on the behavior of employees. Since they are unprepared for the crisis, the stages of a manager's reaction are usually the following (Berge, 1988):

- disbelief - exposure to a crisis can be devastating, because management is completely unprepared and does not know how to react in these situations;
- fear - the manager does nothing, is completely inactive;
- panic - an accompanying phenomenon, which occurs when management realizes that it has failed;
- leaving behind - when managers cannot break the crisis, they often want to leave it behind;
- denial of responsibility - looking for culprits in others;
- hurt feelings - resentment towards "hostile" stakeholders.

Employees' reactions to the crisis are also different. Some of them remain loyal to the organization, some use the crisis for personal gain, some leave the organization and look for a safer job, some oppose the management, some are afraid of losing their jobs, etc. (Todorović, 2012). Crises also have an impact on the external public. Buyers of products or services of an organization that is facing a crisis often choose other providers, and their opinion is most often influenced by the media. For that reason, the message that public relations sends to the media during the crisis is very important.

When a crisis hits an organization, the public relations manager is the voice of that organization. It is very important how he/she will address the target public. Therefore, his/her thorough preparation is crucial (Fearn-Banks, 2010). Most of the information on this topic can be found in press manuals, and researchers in the field of crisis communication themselves recommend training PR managers, so that

they can properly deal with the media (Bridger, 2015; De Waele, Claeys & Opgenhaffen, 2019). Therefore, in order to compensate for the damage caused by the crisis in the organization, public relations managers must have a reliable and credible response to what happened, as well as to communicate to the media and target audiences in the right way through verbal and non-verbal communication, that also requires constant training (De Waele et al., 2018).

Today, all organizations are affected by the crisis caused by Covid 19. In this situation, public relations also have to play a very important role, because organizations face complete uncertainty. The corona virus has affected organizations, and they had to adapt their business to the current situation, and in order not to reflect on the reputation crisis, as well as the internal crisis, public relations must communicate properly with its internal and external publics (Xifra, 2020).

CONCLUSION

One of the basic characteristics of modern business is the need for information and communication. For organizations to succeed in the marketplace, they must have built good relationships with their stakeholders. The public relations department is in charge of good communication with the organization and its target public. Public relations is a communication and managerial function, which initiates, maintains and improves relations between the organization and its environment. Communication between the public and stakeholders takes place through the transmission of messages verbally and non-verbally. Only by integrating verbal and non-verbal communication can the message be conveyed in its full meaning. In order for business communication to be successful, the task of public relations managers is to master both verbal communication (correct expression, correct pronunciation of words), but also non-verbal communication (facial expressions, gestures, movement), so as not to send an ambiguous or wrong message to interlocutors.

A crisis may be the beginning of the end, but it does not have to be. From the aspect of public relations, a crisis is any event, gossip, misinformation or fact, which has the potential to jeopardize the reputation, image and credibility of the organization. Public relations has the task of reducing that reputational damage. Crisis communication with the public must be focused on choosing a strategy in response to these situations. PR managers most often address the public through audiovisual means, when they convey their messages to interested parties verbally and non-verbally. Non-verbal signs, when addressing the public, have a very strong influence on the perception of stakeholders. In times of crisis, the public relations manager is the voice of that organization, he must be well prepared, so that he can address the target public in the right way. In order to minimize the damage caused by the crisis that hit that organization, PR managers must have the right, complete and unambiguous answer, which they will communicate to the media through verbal and non-verbal communication.

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TELEVISION ADVERTISING OF DIETARY SUPPLEMENTS DURING THE COVID-19 PANDEMIC

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ABSTRACT

The paper discusses the issue of television advertising of dietary supplements, as products that supplement the normal diet and represent concentrated sources of vitamins, minerals or other substances with a nutritional or physiological effect. Given the pandemic of the COVID-19 virus, the sale of these products has been on the rise. The research conducted among 187 users of these products aimed to determine the attitude of research participants towards the advertising of dietary supplements via television. In addition, the analysis of advertisements on dietary supplements broadcast within the commercial breaks in the prime time on the most watched televisions with national coverage in Serbia – public broadcasting service Radio Television Serbia of (RTS1) and the commercial broadcaster TV Pink was performed. The results of the research showed that the use of these products increased significantly in the observed period, and that television commercials, in the largest percentage, were not crucial in making the purchase decision, but nevertheless, had a significant impact on the choice of vitamins and minerals used to strengthen immunity with people who normally buy and use them. The topic was also discussed from the aspect of legal provisions in the context of advertising dietary supplements.

Keywords: Dietary supplements, Advertising, Television, Law, COVID-19.

INTRODUCTION

The COVID-19 virus pandemic has caused numerous health, economic and social consequences worldwide. The impact of this global plague is also reflected in the field of media consumption, as well as television advertising (Blanco-Herrero et al., 2021). Television viewership has increased in many world markets, including Serbia, which was especially pronounced during curfew (Polaris Report, 2020). On the other hand, the pandemic emphasized the importance of prevention in the field of health, the necessity of strengthening ones immunity and a great emphasis has been placed on a healthy lifestyle. Dietary supplements, although widely used, have become even more important. According to the Regulation on the safety of dietary products, food supplements (dietary supplements) are "foods that supplement the normal diet and represent concentrated sources of vitamins, minerals or other substances with a nutritional or physiological effect". Although there is no explicit evidence that dietary supplements in the form of vitamins, minerals and other components help prevent and treat COVID-19, they are readily available and can create a sense of security in the population (Adams et al., 2020). Confidence in such products has been noticeably significant, but there are studies that have shown that not only knowledge about dietary supplements is low (Wierzejska et al., 2014), but also the belief that such products have a very positive impact on health (Karbownik et al., 2019). Similarly, research conducted by Šiđanin and Njegovan (2020) showed that most respondents agreed with the claim that advertisements for dietary supplements are attractively presented, in order to attract the attention of potential consumers, but they did not instill full trust in their effectiveness.

The issue of advertising dietary supplements and other health-related products has been topical for some time in various theoretical discussions. Profit maximization appears as an imperative of marketing agencies and manufacturers of dietary supplements, while accurate and reliable information

on the effects of such products is in the background (Temple, 2014). Thus, the claims of numerous advertisements that dietary supplements are “scientifically proven”, are not supported by the professional literature (Avery et al., 2017). Nevertheless, numerous studies (Eisenberg et al., 2017; Snyder et al., 2009) indicate a significant impact of advertising on the demand for dietary supplements. On the other hand, there are also studies that did not show that familiarity with advertisements had a significant impact on attitudes toward dietary supplements (Willis, & Stafford, 2016).

According to the data of the Pharmaceutical Chamber of Serbia, the sales of drugs that strengthen the immune system in the first eleven months of 2020 were about 90 percent higher compared to the same period year prior, and vitamin C by about 130 percent (Mastilović, & Jasnić, 2021). Similarly, research conducted using the Google trends tool and cross-sectional studies has shown that interest in various vitamin and mineral complexes has increased, as has their use (Hamulka et al., 2020). Therefore, the pandemic directly affected multiple areas of social life and the market, and thus the advertising of dietary supplements, use and consumers’ attitudes towards them. For example, Karbownik et al. (2020) concluded that confidence in the quality, composition and safety of dietary supplements increased during the COVID-19 pandemic; on the other hand, respondents were less in contact with dietary supplement advertisements than before the pandemic.

In view of the above, a two-part study was conducted: in the first part, television commercials on dietary supplements were analyzed, and in the second part, the attitudes of research participants on television advertisements related to this type of product and their use during the COVID-19 pandemic were examined.

ADVERTISING DIETARY SUPPLEMENTS ON THE TWO MOST WATCHED TELEVISIONS IN SERBIA – RTS1 AND TV PINK

The analysis of advertising content intended for dietary supplements was performed in the period from 22 to 28 February 2021 and included the analysis of "prime time" (from 19:00 to 23:00) on the two most watched televisions in the Republic of Serbia - public broadcasting service Radio Television of Serbia - RTS1 and the commercial broadcaster TV Pink. The aim of the analysis was to determine: a) the average duration of commercials at intervals of one hour; b) the average number of advertisements broadcast on a weekly basis, with an emphasis on advertisements of dietary supplements; c) the average time of broadcasting advertisements on dietary supplements; d) compliance with the legal framework in the field of television advertising. Table 1, among other things, shows the representation of advertisements that promote dietary supplements in the total advertising time.

In accordance with the duration of commercials (6 minutes within an hour), the total number of commercials broadcast on Radio Television of Serbia – RTS1 is significantly lower than on TV Pink. There is also a smaller number of advertisements on dietary supplements within the observed time intervals in the evening, during prime time.

When it comes to respecting the legal framework in the field of advertising, the Advertising Law states that during one full hour of broadcast program, commercials may not occupy more than 20% of the time on commercial television, or not more than 10% of time on public media services. Article 21 of the same law stipulates that during, at least ten minutes before or after the broadcast of a children's show, that is, a show intended for minors, advertisements recommending, among other things, weight loss products and dietary supplements may not be broadcast. Also, advertising claiming that a product has health, medicinal or nutritional properties must be based on scientific or professional findings, i.e. such a property must be confirmed and approved in accordance with special regulations (Article 58).

Public media service - RTS1 did not exceed these legal limits. The longest commercial breaks were broadcast between 22:00 and 23:00, and lasted an average of 5 minutes (Table 1). Advertisements for dietary supplements lasted for 10, 15 and 20 seconds. The most often advertised products were

Conprosta Forte, Ecomer, Regulex capsule, Cedevita, Probiotic Forte, Imunobeta. Within one commercial break, only one or two such products were advertised, except for a Sunday, when 3 dietary supplements were advertised in the period from 22:00 to 23:00. Ecomer also appeared as a sponsor of the show on RTS.

Table 1: Weekly presentation of advertisements during prime time on RTS1 and TV Pink

TV RTS1				
Time interval	Average duration of a commercial break	Average number of advertisements within a commercial break	Average number of advertisements on dietary supplements within a commercial break	Duration of advertisements on dietary supplements within a commercial break
19:00 – 20:00	**3:17 min** (min:02:25; max:03:45)	**12** (min: 10; max: 16)	**0.85** (min: 0; max: 2)	**00:21 min** (min: 00:00; max: 00:35)
20:00 – 21:00	**3:20 min** (min:02:45; max:04:05)	**10** (min: 0; max:17)	**0.43** (min: 0 ; max: 1)	**00:08 sec** (min: 00:00; max: 00:20)
21:00 – 22:00	**3:18 min** (min: 02:30; max: 05:15)	**10** (min: 7; max: 14)	**0.57** (min:0 ; max: 2)	**00:06 sec** (min: 00:00; max: 00:20)
22:00 – 23:00	**5:05 min** (min: 04:25; max: 05:55)	**18** (min:15; max: 21)	**1.28** (min: 0; max: 3)	**00:17 min** (min: 00:00; max: 00:40)
TV PINK				
Time interval	Average duration of a commercial break	Average number of advertisements within a commercial break	Average number of advertisements on dietary supplements within a commercial break	Duration of advertisements on dietary supplements within a commercial break
19:00 – 20:00	**19:04 min** (min:18:07; max:19:53)	**63** (min: 59; max: 67)	**13** (min: 11; max: 15)	**4:24 min** (min: 3:11; max: 5:31)
20:00 – 21:00	**12:57 min** (min:11:22;max:14:27)	**45** (min: 41; max:50)	**10** (min: 4 ; max: 12)	**3:38 min** (min:1:32; max: 4:38)
21:00 – 22:00	**12:14 min** (min:8:35; max:15:39)	**46** (min: 42; max: 52)	**12** (min:8 ; max: 16)	**4:35 min** (min: 2:28; max: 5:07)
22:00 – 23:00	**7:33 min** (min:0:00; max:15:43)	**25** (min:17; max: 58)	**6** (min: 3; max: 16)	**2:16 min** (min: 0:00; max:4:47)

When it comes to the commercial broadcaster TV PINK, the analysis showed that this television generally did not adhere to the legal framework regarding the duration of commercial breaks, and that it often exceeded 12 minutes, which is provided for broadcasting economic and propaganda programs within one hour. Thus, for example, most commercials were broadcast between 19:00 and 20:00 – on average as much as 19:04 minutes. Exactly in this time interval, two commercial breaks were broadcast – the first, within the central informative show Nacionalni Dnevnik, which lasts on average a little less than 5 minutes, and the second within the Turkish series, which lasts up to three times longer. In the interval from 19:00 to 20:00, the largest number of advertisements was broadcast on average, as many as 63, of which 13 were advertisements for dietary supplements. More detailed data, given in Table 1, also indicate the fact that in the time intervals from 19:00 to 20:00 and from 21:00 to 22:00, on average, most advertisements from the category of dietary supplements were broadcast. Within each commercial break, every day, the same advertisements were broadcast for some of the following products: G132, Acai Berry capsule, Amazon Graviola, Astrax 3 + Direct, products of Dr

Theiss, Tensilen, Maxi Mag, Magnal Imuno, Cedevita etc. On a daily basis, a minimum of three and a maximum of 16 advertisements for dietary supplements were broadcast within each time interval, which on average makes up almost a quarter of the total broadcast advertisements. In the interval from 22:00 to 23:00, the smallest number of commercials was generally broadcast, and they were not broadcast at all on Monday, Wednesday, Friday and Saturday.

RESEARCH: AUDITORIUM'S ATTITUDE TOWARDS TELEVISION ADVERTISING OF DIETARY SUPPLEMENTS

Research sample

In the research participated 187 respondents, of which 75.9% were female. The highest percentage of participants was aged between 18 and 29 years (61.4%), followed by those aged between 30 and 44 (26.5%). A significantly lower percentage of respondents were older - between 45 and 54 (6%) and over 60 (4.8%). The majority of research participants were from the territory of Vojvodina (80.7%), and a significantly smaller number of them from Belgrade (14.5%) and Central Serbia (4.8%). The largest number of respondents (45.8%) had completed four-year academic studies, 26.5% of them master's academic studies, 12% secondary education, 8.4% higher education, while only 5% of them had acquired the title of doctor of science. In terms of employment status, 53% of respondents were employed, 30.1% of them were students, 10.8% of respondents were unemployed and 6% of them had pensioner status.

Research method and instrument

The research, conducted in the period from January 25 to February 14, 2021, was anonymous. Data collection was performed online, using a survey questionnaire created via the Google Forms platform.

The online questionnaire, as a measuring instrument through which data was collected, consisted of two parts. The first part consisted of five questions related to the socio-demographic characteristics of the research participants. The second part of the questionnaire contained eleven questions regarding the attitude of research participants towards television advertising of dietary supplements, with a mixed format of answers - three multiple choice questions, three questions where only one answer was possible, one question with an open answer, while the answers to four questions were assessed using different Likert – type scales.

Research results

Attitude towards television program viewing and television commercials

The television program was generally watched among the research participants, but with different frequency: it was rarely watched by 37.7% of respondents, sometimes – 27.7%, often - 0.5%, and regularly by only 6% of them. However, there were also those who never followed it - 8.4%. The television program was most often watched in the "prime" evening term (prime time), i.e. in the period from 19:00 to 23:00 hours (84.3%), and then in the morning, in the period between 7:00 and 11:00 (20.5%). The attitude towards watching television commercials within the television program was assessed by the research participants on the basis of a five-point linear scale, with the highest value indicating regular viewing and the lowest non-viewing of commercials. Television advertisements were most often rarely (34%), never (31.3%) and occasionally (24.1%) followed, which implies an average of rare viewings of such media content. Only 1.2% of survey participants watched them regularly, and 2.4% frequently.

More than half of the participants in the survey (52.2%), during the duration of the commercials that were broadcast as part of the television program being watched, most often "did not change channels but, while waiting for the commercials to pass, used their mobile phone (to visit portals, social

networking sites, etc.)", or "did not change channels, but performed some other activities" (18.1%). Only 16.9% of respondents said that they "switch to another channel as soon as the commercials start". In the form of a free answer, some participants in the research stated that they rewind commercials, i.e. that they "skip" them, if they watch the program delayed. According to the opinion of the majority of research participants, in the last year, the services of mobile operators (50.6%), food (33.7%), banking services (32.5%), cosmetic products (31, 3%), food supplements (27.7%) and beverages (19.3%) were most often advertised via television.

Attitude towards television advertising of dietary supplements

The participants in the research fully agreed with the estimates that in the last year, i.e. in the period since the pandemic of the COVD-19 virus began, vitamins "B, C and D" (25.73%) were advertised more intensively on television, as well as "vitamin complexes" (24.7%), than was the case before the pandemic. In contrast, in the largest percentage, survey participants were undecided in assessing the statements "that more dietary supplements are advertised during the pandemic than before" (31.54%), "that advertisements for dietary supplements are broadcast more often than before the pandemic" (29%), "that there were television commercials for dietary supplements that were not advertised before the pandemic" (29.05%), as well as with the attitude that they "pay more attention to the advertising of dietary supplements during the pandemic than before it". As the most advertised dietary supplements on television in recent years, study participants cited, in the form of a free response, vitamins C and D, followed by zinc and various vitamin complexes, such as G132.

Assessing the degree of trust in dietary supplements advertised in this way was of great importance, however, the obtained data indicated that almost no research participant had complete confidence in the advertised products. Only 15.7% of the respondents had partial trust, 50.6% of them "neither had nor did not have" trust, 20.5% of the respondents had distrust, while 13.3% of the survey participants did not trust the dietary supplements advertised on television at all. The largest number of research participants never bought a dietary supplement whose advertisement they saw on television (62.7%). One fifth of respondents (25.3%) bought at least one such product, while only 12% of them set aside money for a larger number of dietary supplements that they learned about while watching television commercials. All those who bought dietary supplements, that they found out about through advertisements, most often bought vitamins (74.2%), minerals (7%) and herbal teas and preparations (7%), and in a much smaller percentage protein (6.5%) and herbal drops (3.2%). Survey participants who bought dietary supplements advertised on television during the COVID-19 pandemic in the last year partly agreed with the claims that the TV commercial "encouraged them to buy products" (35.48%) and that they were "inspired to think about the use of such products" (38.71%). The largest percentage of survey participants did not agree at all with the assessment that TV advertising "helped them make the final decision to purchase the product" (38.71%). Similarly, the largest percentage of them were undecided when it came to assessing agreement with the claim that the effects of a product they used were in accordance with the effects proclaimed in the TV commercial (48.39%).

CONCLUSION

During the pandemic of the COVID-19 virus, there was an increased sale of products from the category of dietary supplements, especially vitamins and minerals. When it comes to advertising these products, our analysis showed that dietary supplements, on average, make up one quarter of the total number of products advertised on the most watched commercial television Pink, which is a significant share in the total advertising. This shows that the management of this television used the given opportunities and included in its advertising offer products that became quite popular due to the circumstances, not paying too much attention to violating the legal framework regarding the duration of commercial breaks, which often exceeded the allowed minutes. On the other hand, the national public broadcaster RTS1 was more balanced in this respect, given that on average one seventh of the total number of products advertised was dedicated to the advertising of dietary supplements. When it comes to monitoring advertising content that promotes dietary supplements, as well as the attitude of

the television audience towards these messages, our research showed that research participants did not pay great attention to these commercials, while trust in dietary supplements was mediocre. However, they noticed that certain vitamin complexes were the most advertised products in the category of supplements during 2020. Although TV advertising of dietary supplements did not have a decisive influence on the decision to buy these products, it turned out that TV advertising still, to some extent, encouraged people to think about buying and using certain preparations of this type. Research participants who used dietary supplements mostly bought exactly those products that were most often advertised on TV – vitamins, minerals, and herbal teas and preparations. Thus, it can be concluded that television commercials had a significant impact on the choice of vitamins and minerals used to boost immunity. Finally, we should add that possible future research on this topic should be directed towards the analysis of the content of such advertising messages from the aspect of their compliance with the provisions of the law related to the advertising of supplements. Also, it would be important to examine other factors that influence the decision when buying dietary products.

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MARKETING PROCESS MANAGEMENT IN CRISIS SITUATIONS

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ABSTRACT

The main feature of modern business conditions is business in crisis conditions, caused by the COVID19 pandemic. The crisis in the company is an unplanned and unwanted process, which, as a rule, can be influenced. Crisis marketing management must find the possibility of a positive effect on the crisis, to use the crisis as an opportunity and a possibility for change, for a new market positioning. Marketing in the conditions of crisis has the task of predicting in which direction the needs and demands of consumers will move. In fact, marketing processes in times of crisis should be focused on creating value for customers, customer retention, customer satisfaction and loyalty. In crisis situations, the only real orientation is the focus on consumers and new market positioning, which requires the development of new ideas about what types of offers should be provided to the target market, in relation to the offer of competitors. The subject of this paper is to examine the possibility of adapting the marketing process in a crisis imposed by the factors of the external environment, with the aim of a new market positioning of the company, in order to achieve a competitive advantage.

Keywords: Marketing management, Market, Crisis, Value chain.

INTRODUCTION

The paper starts from the generally accepted position that the real purpose and task of a company is to create value for customers, and consequently, to make a profit as a result of such efforts. Namely, it is pointed out that in the conditions of crisis, it is necessary to manage marketing processes that are carried out on several levels. The first level refers to the fact that marketing research requires the creation of an appropriate marketing program. The second level of the marketing process includes measuring customer satisfaction, examining the attitudes and intentions of customers, analyzing the brand image. The third level includes certain financial measurements that need to be integrated with the marketing analysis of the factors influencing the business performance of the company. Special attention should be paid to that part of marketing management in times of crisis that relate to withdrawing companies from weak markets, or considering entering new markets and gaining competitive advantages. In this context, marketing strategies are again important in crisis conditions related to product strategy, pricing strategy, distribution strategy and promotion strategy. Also, in these processes, the market positioning of companies in times of crisis should be constantly kept in mind. Market positioning requires a company to develop an idea of what kind of offer to make to current and potential customers. Based on the results of marketing research, marketing managers should pay special attention to benchmarking, in order to determine what competitors offer to customers in times of crisis in a particular market segment. The ultimate goal of these efforts should be the necessary competitive advantage, which is of particular importance for the survival of the company in times of crisis.

If every company in modern business conditions is going through a crisis due to the action of factors from the external environment, which as a rule can not be influenced, the problem is what is the difference between successful and unsuccessful companies, i.e. how successful companies go through crises, and that while not neglecting one of the most important issues of today: socially responsible behavior. There is a difference in the duration of the crisis and its consequences. Namely, successful companies are also not spared from the crisis, but these companies have the tools - methods and instruments of crisis marketing management, with the help of which the crisis is recognized and overcome in a timely manner.

The sooner management recognizes turbulent situations in the environment and approaches the analysis of the effects of crisis factors, the greater the chances that it will be prevented or at least mitigated. Recognizing threats and reacting to them early in order to reduce their negative impact on the company is the basic task of today's marketing managers. The application of the concept of marketing process management offers the possibility of successfully running a business organization.

DEFINITION OF CRISIS AND CRISIS MARKETING MANAGEMENT

Recently, the word "crisis" has been most often used, not only by economists, but also by others, by politicians, sociologists, psychologists, people in everyday situations. In general, a crisis means danger, but for optimists it can also mean a chance. However, despite the almost regular and everyday use of this word, there is still no clear understanding of its conceptual content and generally accepted definition from the point of view of science and practice. Numerous authors have tried to give a definition of the crisis. Thus, Becker believes that the crisis of a company exists when its existence is endangered, that is, when it is threatened by insolvency (Jovićić, & Stavrić, 2011).

For Ford, the crisis is a situation that manifests two characteristics (Senić, & Lukić, 2008): danger and time pressure. Danger - because participants in a crisis feel that they will not be able to achieve, achieve or maintain the values, resources or goals they consider important. These threats can be personal, organizational or national in nature (such as the economic stability of a country). Another characteristic is the pressure of time, that is, the observation by participants in the crisis of the length of time available to them to research, think, and take action, before losses begin to escalate. The time available for action is influenced by factors such as: the complexity of the problem, the level of stress felt and the individual characteristics of the participants. In principle, the more complex the problem and the greater the feeling of stress, then the shorter the response time and the greater the pressure of time. Therefore, the crisis has several generally recognizable features:

- endangers the business system, or slows down growth and development, or in the worst case scenario, leads to the collapse of the system;
- a crisis as an emerging risk does not necessarily mean that it must always appear suddenly, as well as lead to a sudden "shock". A crisis can have a gradual course, be visible and recognizable. It is up to the company's management to evaluate it, to assess its danger to the system, as well as to take appropriate measures accordingly;
- A crisis can mean a new chance. A crisis can trigger mechanisms in an organization that can: establish a new form of organization; to redefine planning goals; to improve the personnel structure; to enter into normative processes. Therefore, a good understanding of the message that the coming crisis can send can be a great chance for the organization to start on the path of recovery and development.

A crisis is a time or period in the life cycle of a company when it is characteristic that the fundamental values of the company are endangered, such as: liquidity, success, profitability and potential for success. Thus, a crisis of success potential means that the company has losses, or even no product or service at all with which to achieve business success. These values are fundamental values for the company, and three different types of business crisis are derived from this (Bakić, & Zeljić, 2011) liquidity crisis. According to Kristek, each crisis has four phases (Sikavica et al., 2008):

- potential crisis,
- latent crisis,
- acute / manageable crisis,
- acute / insurmountable crisis.

The main characteristic of a potential crisis is the absence of clear symptoms of the crisis, this is the phase of a quasi-normal state in the company. Almost all companies are now in this phase. In the company itself as well as in the environment, there is enough "potential" that can cause a crisis. This phase implies still enough space for management to avoid further course of the crisis. Management must have the ability to recognize signals that indicate the possibility of a crisis spreading in the company.

A latent crisis is a state of disguised crisis. When the company enters this phase, it is clear to the management that the crisis is there, but consciously or unconsciously, the signals that indicate that are hidden. If nothing is done in that period, the crisis will develop in all its forms. Also, this phase provides sufficient opportunities for managers to take adequate and decisive measures to prevent further spread of the negative effects of the crisis. This situation is more complex compared to the first phase, the complexity is reflected in the fact that the crisis with all its elements is present in the company and that the decisions that management needs to make must be far more complex and based on a lot of information. The results of management in this phase of the crisis can be very efficient, because a more complex phase of the crisis has not yet occurred, and the room for maneuver is quite sufficient to make effective decisions.

The phase of acute manageable crisis is the phase when the crisis already greatly affects the further destiny of the company. During this period, the management is no longer able to cover up the presence of elements of the crisis. In such a situation, most of the company's potential is focused on overcoming and neutralizing the elements of the crisis. The basic preoccupation of the management is to stop the negative trends that endanger the very survival of the company. This potential, which is available to the company's management in this phase of the crisis, is still strong enough to be able to divert the course of the crisis, that is, to direct the company towards recovery.

If the management fails to enter the recovery phase from the phase of acute / manageable crisis, the company will inevitably and quickly go towards its collapse, i.e. disappearance. At this stage, the potential of the company is not enough to meet the requirements for finding solutions to the problems present. Managers can no longer influence the direction of the crisis in the desired direction with their decisions, they only mitigate the negative reflection of the crisis on the company, aware that they only postpone the disappearance and liquidation of the company for a short or long time.

The crisis is not an act, it is a process that lasts, where the management of the company must act quickly, take steps to eliminate the threat to the survival of the company, and later to growth and development. Only, for those decisions, the management of the company is required to have knowledge and good assessment, courage and readiness to take the risk of a bad outcome of the decisions made.

MARKETING MANAGEMENT RESPONSE TO THE CRISIS

In a crisis situation, marketing management has at its disposal several possible models of organizational transformation as a way out of the crisis. Which model of marketing process management will be chosen and applied depends on the cause, character and extent of the crisis. Thus, only partial or comprehensive models can be applied (which mean a radical strategy of turning and profound transformational change). In some situations, they resort only to those methods of transformation that provide quick and short-term solutions, and wait for new, more favorable times for business excellence. There are two steps in analyzing the situation of the strategic marketing process (Anđelković, 2008):

1) Determining where the company was and where it is now, and
2) Designing where the company will arrive with existing plans

The choice of target markets in times of crisis as an aspect of the marketing process includes (Anđelković, 2017):

– Development of appropriate marketing MIKS
– Budget formation.

Before a decision is made on the application of an appropriate model for overcoming the crisis, the so-called crisis management, which does not presuppose only the change of the existing management or the introduction of a new one, but the establishment of such an environment in the company that requires fast and directed action of all levels of the company. The existing marketing management is changing because of the role it played in the untimely identification of the occurrence and growth of the crisis, its own mistakes that it made out of negligence or ignorance. It is certain that in order to form a strategy for companies to get out of the crisis, it is necessary to understand the nature of the causes of the crisis, as well as to recognize the stages in the development of the crisis. The following exit strategies are available to marketing management (Sučević, 2010):

1) Downsizing - In the theory of marketing management, "downsizing" is a type of transformation of the organization, which goes to reduce the business activities of the company, abandon certain activities, narrowing the product range, closing certain plants, and accordingly reducing the number of employees. In practice, "downsizing" is often reduced to the kind of downsizing that leads to downsizing, and everything else is just used as an argument. If we remember the first effects of the crisis caused by COVID19, it is a massive process of laying off employees. The first task of such a strategy is to directly reduce costs, through the elimination of uncompetitive products, including reducing the cost of layoffs. The strategy of reducing the number of employees can lead to negative effects, especially for those who remain in the company, because they are expected to compensate the work of former employees, which often leads to increased intensity and volume of work and extension of working hours. The threat of dismissal creates stress and insecurity for employees, but leads to an intensified struggle for a job in crisis conditions.
2) Disinvestment - used when the narrowing strategy does not give the expected results. Some strategic business units in the company need more support than others. When it is clear which strategic business unit is responsible for the poor performance of the company, and the company needs cash, the solution is the alienation or sale of part of the liabilities. The fact that it is difficult to determine which strategic business unit is responsible for poor performance makes this strategy not very popular with managers. If marketing management decides on a disinvestment strategy, and if it proves to be a good decision, the money gained in that way is invested in the remaining strategic business units and the future growth of the company.
3) Fruit or harvest strategy - used when deliberately reducing market share in order to achieve short-term cash flow or profit. Management most often opts for this strategy when: a) the market is in the stage of maturity, b) a product of average or above-average quality, c) when there is a significant market share, and d) when the price is average or above average. An important reason for a company to decide on a "harvest" strategy is the emergence of a new company in the industry. Three important factors are analyzed here (Milosavljević, 2002): the competitive advantage of an existing company in the branch, which can be strong, equal and inferior, in relation to the company entering the branch; an economy the size of a company entering a branch, which can be smaller, equal and larger than an existing company; resources of the company entering the branch, and they can be inferior, equal and superior.
4) Restructuring - it is a model that includes a much wider range of measures, in order to raise the internal capacity of the organization and its market competitiveness. The breadth of organizational restructuring starts from a wide range of measures, such as:
   - closure or sale of unprofitable parts of the company (reduction of assets),
   - control and reduction of all types of costs,
   - reorganization of the organizational structure.

   In addition to these defensive strategies, a number of offensive business improvement strategies are included, such as:
   - preservation and development of a healthy core of the company,
   - focusing on specific products and new markets,
   - sales improvement.

   Company restructuring is often applied not only in crisis situations but also when changing the ownership structure. Through this model, the new management is implementing a strategy of turning towards increasing the company's performance and increasing its market value. In the world, it is often the case that investment companies or funds buy companies whose market value is not high at that time, restructure them in order to increase their value on the stock exchange, and then sell that company, thus making a profit. There are three types of restructuring: 1) organizational, 2) portfolio, and 3) financial.
5) Liquidation strategy - represents the cessation of business activities of the company, either by selling assets or closing production and business units. It is clear that it is not an attractive strategy for company management, but it is still a better option than bankruptcy. The right moment for liquidation is when the management estimates that the company is worth more if it is liquidated on time than that it still exists. When making a decision on liquidation, a good assessment of the liquidation value of the owner's assets is important. The market value of these assets is called the "liquidation value", which is reduced by overdue receivables.

CREATING VALUE FOR THE CONSUMER

The most important elements that have a significant impact in creating value for the customer in times of crisis are: the development of new products, creating a strong brand, product positioning and the formation of adequate product prices. The greatest importance in creating value for the customer are innovations, because they are the basis for the successful application of other elements that affect the creation of value for the customer. Many companies follow a process-oriented approach to creating innovation, while other companies gather ideas for innovation by researching the attitudes of their consumers. Managerial thinking is just moving between these two opposing approaches. The concept of modern consumer marketing believes that these two approaches must not be considered separately, but must be used simultaneously and mutually. They can lead to the creation of strong brands on which consumer loyalty is built. The product brand also plays an important role in the process of creating value for the customer in times of crisis. With the development of modern marketing orientation, the brand has gained a new meaning. Today, the brand is thought of as a consumer entity, which provides it with rational and social values. The success of a brand in the market depends primarily on understanding the attitudes of consumers. Researching consumer attitudes is a prerequisite for the creation and survival of successful product brands.

An important factor in creating value for the consumer is the positioning of the product. Product and service providers try to differentiate their product range by emphasizing features that they believe will better meet the needs of consumers compared to competing products. Price as an indicator of value and quality has a very important role in the process of creating value for the consumer in times of crisis. The price of a product or service can significantly affect the positioning of the brand, it is an important source of competitive advantage of the company. Increasing profitability can be achieved through an appropriate pricing strategy, lowering costs, or increasing sales volume. It is very important for a company to create an appropriate pricing strategy in times of crisis: it includes costs, goals, constraints, low or medium price strategy, competitive pricing strategies and consumer research.

Market communication is a necessary condition for providing value to consumers. After acquainting the consumer with the product that the company offers, it is necessary to direct marketing efforts towards the sale of the given product. Marketing orientation does not mean simply selling products to consumers, but establishing good long-term relationships with them. The application of this strategy implies not only relationships related to customer transactions, but also the provision of services after the sale of products. Gupta and Lehmann (2006, pp. 154-155) point to the concept of a value chain, which encompasses primarily marketing activities through which attempts are made to create value for customers. At the lowest, first level, it is necessary to create an appropriate marketing program that includes marketing mix instruments and appropriate loyalty programs in accordance with the results of conducted marketing research. At the second level, it is necessary to include measuring customer satisfaction, examining the attitudes and intentions of customers, and analyzing the brand image through marketing research. The third level includes certain financial measurements which, among other measurements, must be included in the content of marketing research work. This primarily refers to the calculation of acquisition costs, ie. gaining customers and measuring the rate of customer retention, ie that customers will buy again in that company. As a result of the application of a certain marketing program and the performed measurements, value for the customer appears. Finally, at the top of the chain, the value of the company is assessed, which primarily depends on the degree of customer satisfaction and the quality of the delivered value for customers. Customer relationship management is one of the most critical management processes. The implementation of this management process enables the company to approach building customer relationships in a reasonable and systematic way, especially in times of recession. In this context, non-financial measures of business success (Ivkov, 2014, pp. 207-226) are gaining in importance for achieving a sustainable competitive advantage of companies in times of crisis, when it comes to customer satisfaction and loyalty (measured through service quality variables, prices and brand).

When a company creates superior value for the customer according to the expressed satisfaction, it simultaneously generates knowledge from its output aimed at creating value for the customer. This approach to value creation allows the value of the company's input to increase at the same time (Komnenić, Lukić, 2010). In this context, based on information obtained through procedures and methods of measuring customer satisfaction and loyalty, certain changes in key customer management strategies can be

undertaken, such as resource allocation and level of services, pricing, product or service brand, all in order to increase overall performance of the enterprise.

The need for a quick and efficient response to the challenges faced by companies in crisis conditions requires consideration of the concept of running an organization that will enable: 1) rapid adaptation; and 2) minimize business disruptions that would jeopardize market survival. Usually, each answer leads to neglect of certain aspects of business policy, but successful companies and many large corporations, respecting the demands of today 's environment are forced to accept and set as a basic business motive and set as a goal and implementation of marketing process (Stošić Mihajlović, Lj. , 2018). The application of the marketing management concept enables the company to prepare for the upcoming crisis situations, without neglecting other aspects of business policy.

CONCLUSION

Companies operate in an environment that is constantly changing and creating crisis situations. Modern business is burdened by the crisis that occurred due to the COVID19 pandemic. Successful crisis management and the development of good management marketing processes and programs for its prevention and rapid resolution are the best way to overcome the two most important management mistakes in relation to the crisis: 1) ignoring early warning signals of the crisis, and 2) denying the problem. Knowing the environmental factors is the first step to excellent preparation for crisis events. Learning from the crisis becomes an instrument for preventing a new crisis, and if the future crisis cannot be avoided, it will last shorter and its consequences will be less devastating. Choosing a successful crisis response strategy is the best way for an organization to operate successfully even in times of crisis.

In the conditions of crisis, at the first level it is necessary to create an appropriate marketing program in accordance with the results of conducted marketing research. At the second level, it is necessary to include through marketing research the measurement of customer satisfaction, examination of attitudes and intentions of customers, in relation to the existing or adjusted range of products or services in times of crisis. The third level includes certain financial measurements that need to be observed integrally with the marketing analysis of influencing factors on the business performance of the company. From the research in this paper, possible marketing strategies in times of crisis arise, which refer to the withdrawal of companies from weak markets, consideration of entering new markets, gaining competitive advantages. These strategies are closely related to the strategies for selecting appropriate marketing programs in times of crisis, which relate to product strategy, pricing strategy, distribution strategy and promotion strategy.

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SHOPPING TRENDS IN DISCOUNT STORES

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ABSTRACT

Discount stores recently increased its growth by continuously developing and offering new services and products. We can say that the definition of discount stores will have to change gradually. In fact, their main goal is still to offer quality products at low prices, and in addition, they are constantly refreshing their offer and setting new goals. They do all this based on the trends they follow in the market. In any case, customers are the ones who dictate certain trends, habits, desires, so it is important that retailers follow this and offer customers what they want. The main goal of this paper is to identify trends that are being introduced mainly in discount stores. We will also try to identify how customers react to innovations in the case of discount stores.
Research has shown that both younger and older customers follow the innovations introduced by discount retailers and want online retailer stores.

Keywords: retailing, discount stores, trends, consumer behaviour

INTRODUCTION

The health crisis was closely followed by the whole industry throughout 2020, courtesy of the havoc it wreaked on retail operations. Stores were forced closed, employees were furloughed or laid off, rent was skipped, supply chains were strained (Howland, 2021).

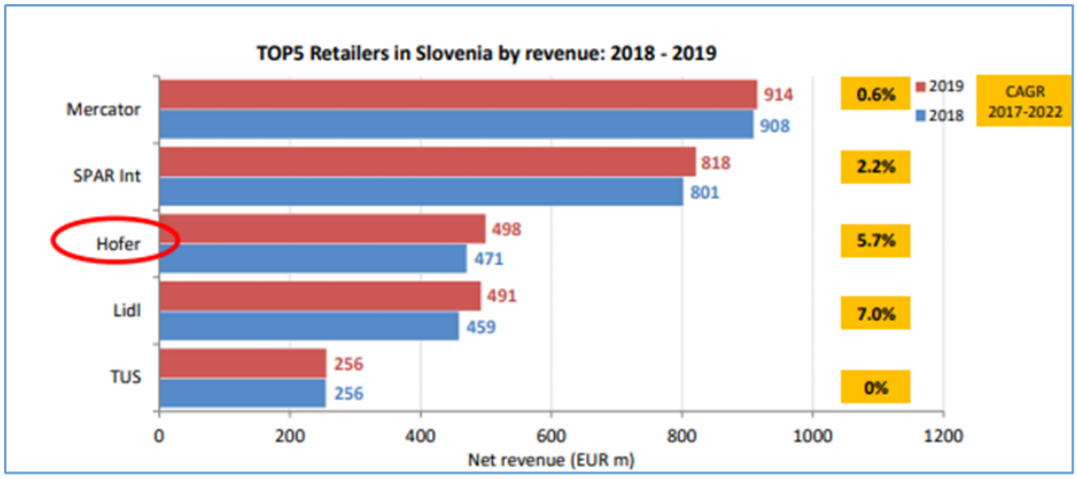


Figure 1: Retailers in Slovenia by revenue for the years 2018 - 2019 (Ryba, 2018)

In Figure 1, we can see retailers with the highest revenues in Slovenia. Last year and the year before, Mercator was in first place with just over € 900 million in revenue and 0.6% growth, followed by Spar with just over € 800 million and 2.2% growth. In third and fourth place are discount retailers Hofer and Lidl with higher growth rates. In fifth place is Tuš, which has just over € 250 million in annual revenues (Ryba, 2018).

The growth of discount retailers is not stopping for once. We can see that discount retailers are constantly approaching traditional retailers mainly by expanding the offer and additional services. The

line between discount retailers and traditional retailers is increasingly blurred. Discount retailers are still expanding as they are constantly opening their stores and expanding into new markets.

Retailers could implement and leverage discount dynamics in a variety of ways. First and foremost, retailers can utilize these dynamics when designing consumer shopping experiences in which retailers can control or predict the order in which consumers make purchase decisions and see information (Sheehan et al., 2019).

DISCOUNT STORES

In the fast moving consumer goods sector, discount retail chains have experienced tremendous growth over the last two decades and remain one of the fastest growing segments in grocery retailing. The basic idea of discount retailing is to offer products at significantly lower prices than those offered by competing formats while economizing on store layout and customer service in order to keep product prices down.

This growing success poses serious challenges for both traditional retail formats and national-brand manufacturers. Naturally, the growing popularity of discounters threatens the market share of traditional retailers, and puts pressure on them to increase operational efficiency and/or decrease prices (Grewal et.al.,2017).

In recent years, sales in discount stores have been growing, and the most important role in this is certainly played by low product prices, which can be lower by up to 50% compared to other stores. The largest European discount sellers are Aldi and Lidl, in addition to them we also know Norwegian Norges Gruppen and Reitangruppen, Portuguese Jeronimo Martins, Spanish DIA, Dansk Supermarked and Italian Eurospin (Letter one 2019).

Data from e-commerce analytics firm Edge by Ascential show that discount retail stores have been growing at a faster clip than other retail environments. Non-food value-based or discount retailers, like Dollar General, are expected to grow at an annual rate of 5.2% through to 2024. Food discount stores, like Lidl, are expected to grow at 4.9%. Conversely, supermarkets are forecast at 4.4%, and superstores at 2.7%. (Weisman, 2019).

In Slovenia, we know the three largest discount stores, namely Hofer, Lidl and Eurospin, which represent just over 26% of the market. Hofer has just over 80 stores in Slovenia, Lidl has 60 and Eurospin has 50. All discounters still strive to remain a discount store. Lidl is working towards business optimization and also wants to gain an extremely good shopping experience for customers. Hofer has a similar performance, where in addition to the above, they want to offer products of exceptional quality at low prices.

In the picture 1, we can see retailers with the highest revenues in Slovenia. Last year and the year before, Mercator was in first place with just over € 900 million in revenue and 0.6% growth, followed by Spar with just over € 800 million and 2.2% growth. In third and fourth place are discount retailers Hofer and Lidl with higher growth rates. In fifth place is Tuš, which has just over € 250 million in annual revenues.

Recently, discount retailers have been developing very well and increasing their market share, especially Lidl and Aldi, which are currently the strongest discount retailers.

This classification is based on several factors: the amplitude and breadth of the products carried (fewer than 1,000 stock keeping units in hard discounters and three times more in soft discounters), operating costs (much lower at hard discounters), pricing level (hard discounters more competitive than soft discounters), and the role of private labels (in hard discounters the percentage of exclusive private labels may exceed 90 per cent, whereas in soft discounters it may account for less than 50 per cent).

Given that consumers become more price sensitive in harsh economic times, hard discounters will probably win more consumers in those times as they offer even deeper discounts than soft discounters. Based on this argument regarding economizing-on-price, consumers have a stronger incentive to switch from traditional stores to hard, rather than soft discounters. On the other side, hard discounters primarily carry their own labels, demanding more drastic changes in consumer buying preferences.

This would make consumers more reluctantto switch to hard discounters. Soft discounters offer, above and beyond their ownlabels, a broad assortment of national brands, allowing consumers to keep buying their preferred national brands in most categories. Although soft discounters' store atmospheres are less exciting, their assortment more strongly resembles that of traditional retailers, but with more attractive prices (Lamey, 2012).

Given the assortment argument, consumers are more likely to switch to soft discounters than hard discounters. Hence, whether hard versus soft discounters are relatively more popular during economic contractions is an empirical question. Aside from the question of whether consumers tend to switch to hard versus soft discounters during the economic contraction itself, one might wonder whether consumers are more likely to keep buying from hard versus soft discount formats when the contraction is long over.

EMPIRICAL FINDINGS

The survey was published online using the 1ka program. We shared the link to the survey via e-mail and distributed it to various groups on Facebook.
The total number of respondents for carrying out a market survey was 104 of this, 78 were women and 26 were men.

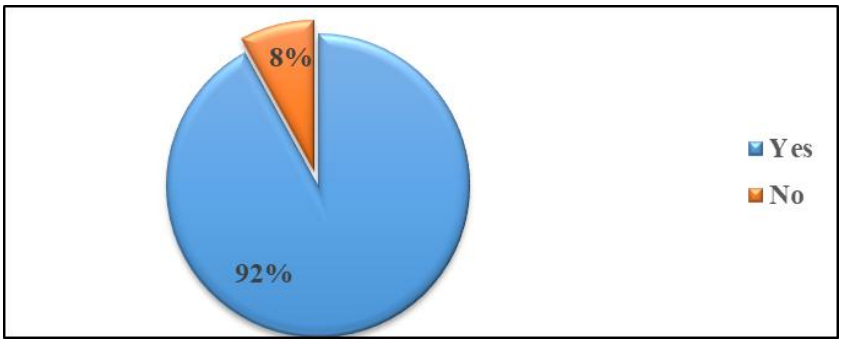
In the following, we were interested the age of the respondents, finding that 3 persons belong to the age group up to 20 years, 77 persons belong to the age group between 21 and 40 years, 16 persons belong to the age group between 41 and 60 years and only 8 persons in the sample are older from 60 years.

First, we were interested in how many respondents buy into discount stores. 92 respondents answered that they buy in discount stores, and 12 did not.

In Table 1 we can see which of the discount stores the respondents visit most often. The results showed that Hofer is the most frequently visited in Slovenia with 82 consumers, followed by Lidl with 75 and then Eurospin with 16 consumers. In Table 1, we can see in which discount stores consumers most often buy.

Table 1: Types of discount stores

Discount store	**Frequency**	**Percent**
Hofer	82	45%
Lidl	75	41%
Eurospin	16	9%
Other	9	5%
Total	182	100%



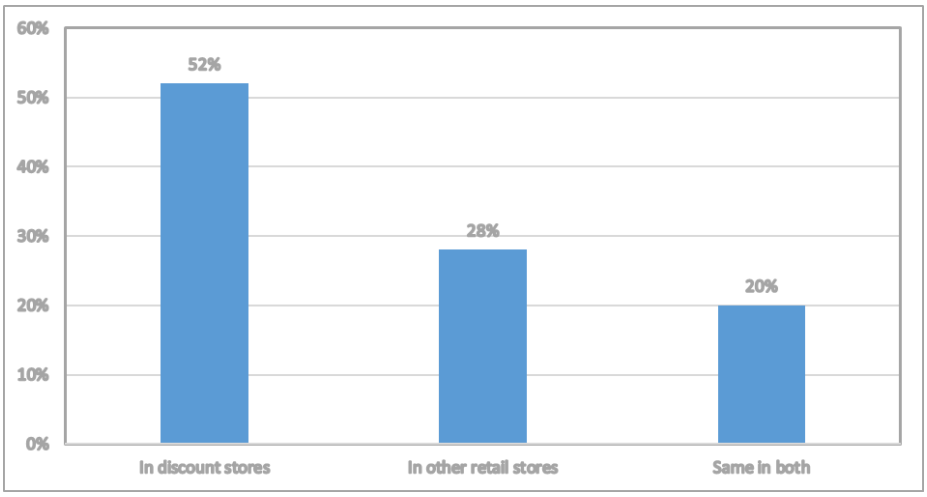
Picture 2: Do you visit other stores in addition to discount stores?

When asked whether consumers visit other stores in addition to discount stores, the majority answered Yes, 92%, and 8% visit only discount stores.

Table 2: Other retail stores

Retail store	**Frequency**	**Percent**
Spar	82	41%
Mercator	54	27%
Tuš	38	19%
ELeclerk	8	4%
Jager	13	6%
Other	7	3%
Total	202	100%

Table 2 shows that the most consumers in addition to discount stores, also visit Spar 82 and Mercator 54, followed by Tus, Jager and ELeclerk. This question was answered only by those who answered Yes to the previous question, so that in addition to discount stores, they also visit others stores.



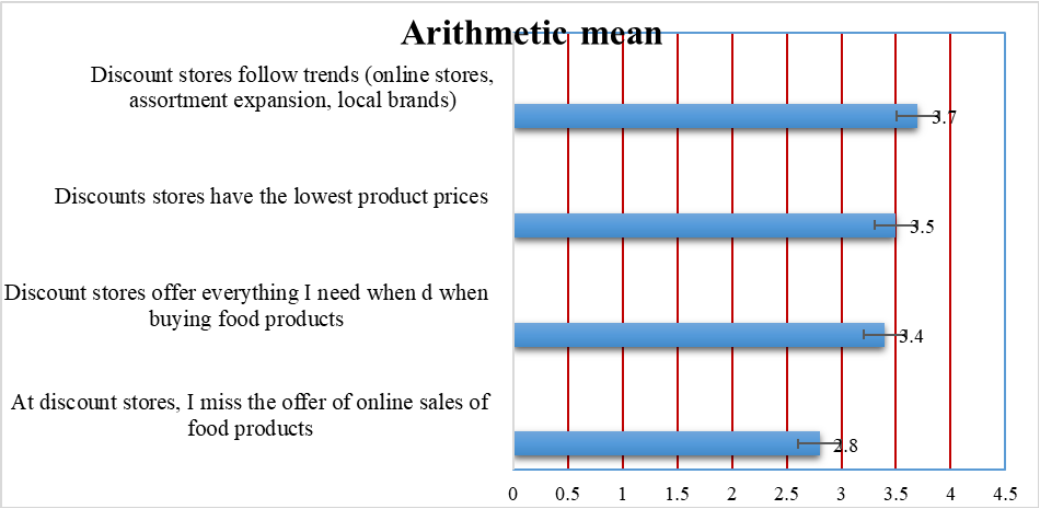
Picture 3: Most purchases are made by consumers

As shown in picture 3, most purchases consumers made in discount stores.

We were interested whether the respondents agreed with the statement about discount stores. Respondents expressed their agreement with the above statements using a five-point Likert scale of responses ranging from 1 (I don't agree) to 5 (I fully agree).

We can see on picture 4 that most respondents agree with the first statement that discount stores offer everything they need when shopping for groceries.

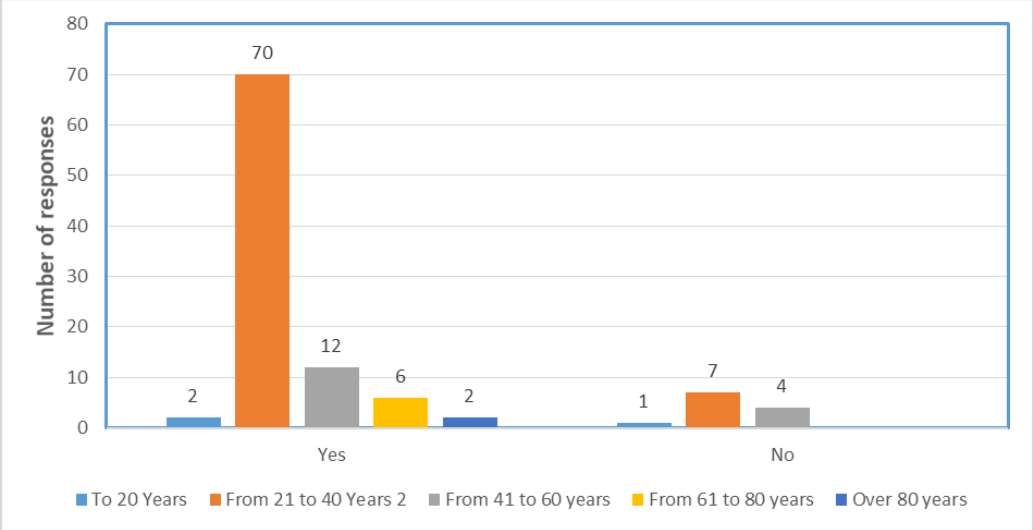
The majority of respondents also agreed with the second statement. So they are aware of the expansion and development of discount stores as they believe they are following trends



Picture 4: Arithmetic mean of respondents' answers

In the third statement, we checked to see if they agreed that discount stores had the lowest product prices. Again, the majority of respondents agreed with this statement.

In the fourth statement, we checked whether the respondents were missing the offer of the online food store. However, we found that most people are not yet interested in buying food online.



Picture 5: Visiting discount stores according to age

From Figure 5 we can find out how many people according to age group visit discount stores and how many do not. We can see that in all age groups, most people visit discount stores, which means that discount stores are not just stores for certain age groups, but that they are visited by everyone, both young and old.

The next question was where consumers make most of their purchases in terms of monthly net income.

Picture 6: Visiting stores according to net income

From Figure 6 we can see that most consumers, in terms of monthly net income, make most of their purchases in discount stores. Respondents with higher net incomes are roughly divided, a third make most purchases in discount stores, a third in other stores, and a third about the same in both. In terms of net income, everyone else makes most of their purchases in discount stores.

CONCLUSION

Discount stores have been on the rise lately as they are constantly evolving and offering new services and products. We can say that the definition of discount stores will have to change gradually. In fact, their main goal is still to offer quality products at low prices, and in addition, they are constantly refreshing their offer and setting new goals. They do all this based on the trends they follow in the market. Certainly, customers are the ones who dictate certain trends, habits, desires, so it is important that retailers follow this and offer customers what they want. We need to be aware that we are increasingly demanding customers, and our desires are no longer easy.

In the research, we determined the shopping habits of consumers, especially in discount stores in Slovenia, which are very popular today and are on the rise. We analyzed the obtained results and found that most consumers know and visit them, which did not particularly surprise us. Hofer is the most visited discount store in Slovenia, which can also be confirmed from our survey results, followed by Lidl and then Eurospin. The fact is that in addition to discount stores, people also visit other stores, which is also shown by the results of our research.

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Session D: ECONOMY

Papers (pp. 195-264):

FORECASTS FOR THE DOMESTIC ECONOMY AND NATIONAL COMPETITIVENESS

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ABSTRACT

The globalization of markets, the fourth industrial revolution - Industry 4.0, and the post-pandemic business paradigm affected not only domestic enterprises but enterprises around the world as well. Forecasts regarding GDP growth, unemployment rates and competitiveness are provided and discussed by various organizations (World Bank, European Central Bank, World Economic Forum etc.). Additionally, a large number of quarterly reports on various metrics for almost every country are published. In this paper the existing data and reports published by some of the noted organizations are analyzed. The goal is to provide a concise and informative overview on potential domestic macro-economic trends, on national competitiveness and on the competitiveness of domestic enterprises. The overview is conceptualized through discussing existing and potential economic forecasts based on reports. The paper provides a solid basis for future research in the domain of domestic economy and national competitiveness. The paper also provides suggestions and guidelines for improving the competitiveness of domestic enterprises.

Keywords: Economic forecast, GDP growth, Unemployment, Competitiveness, SMEs.

INTRODUCTION

The globalization of markets has increased the barrier for enterprises when it comes to achieving and maintaining a competitive position on the market (Bakator, Đorđević, & Ćoćkalo, 2019). In addition, the rapid development and application of information-communication technologies (ICTs) has contributed to the globalization process. Modern ICTs are the cornerstone of the fourth industrial revolution - Industry 4.0. Conducting business within the framework of Industry 4.0 has put up additional barriers for enterprises. Modern technologies in manufacturing and other business processes are becoming an imperative for long-term success. Becoming competitive on the international market requires unique business strategies, innovation and providing value to the customer (Đorđević et al., 2020). Furthermore, the COVID-19 pandemic and its impact on the global economy has showed just how vulnerable are enterprises when a crisis occurs. Supply chains were compromised and demand for some products fell drastically, while for others demand grew exponentially. The lack of local manufacturing has created shortage of various consumer products but also and other types of products as well (Armani, et al., 2020). National economies experienced GDP shrinkage of over 5%. The negative impact of the COVID-19 pandemic has affected every country in various intensity. From here, new business concepts and approaches arise such as remote workers, freelancers and entrepreneurs with a focus on local manufacturing and sustainability.

Furthermore, the Serbian economy, and domestic enterprises faced serious challenges when it comes to liquidity and survival. Lockdowns and curfews across the globe took a big toll in the tourism, travel and other service industries. When globalization, Industry 4.0, and the post-pandemic factors are taken into consideration, economic outlooks and national competitiveness are uncertain. More precisely, it is hard to estimate to what degree will the domestic economy and national competitiveness recover and improve. The available data from credible organizations such as the World Bank, World Economic Forum, European Central Bank, etc. and their forecasts can provide an insight into the domestic economic.

In this paper the available data from some of the noted organizations is analyzed. The goal is to determine the potential of the domestic economy and the potential of national competitiveness. Additionally, data for other neighboring and few other selected countries will also be addressed. The main factors that are presented are GDP growth, unemployment, and competitiveness. These metrics are sufficient to discuss domestic macro-economic and competitiveness trends. The paper consists two main sections (excluding the Introduction and Conclusion sections). The first section provides an overview on the available data and forecasts. The second section includes suggestions and recommendations for improving the competitiveness of enterprises and overall national competitiveness.

DATA AND FORECASTS

GDP forecasts

GDP forecasts vary from one organization to another. GDP growth is a relatively strong macro-economic indicator and it can serve for discussion when it comes to national competitiveness. In Table 1. the GDP forecasts published by the World Bank for the last 5 years and next year are presented.

Table 1: GDP growth and forecast from 2017 to 2022 (in %)

Country	2017	2018	2019	2020	2021	2022
Albania	3.80	4.07	2.21	- 8.40	5.00	3.50
Austria	2.48	2.42	1.61	- 6.70	4.60	2.10
Bosnia and Herzegovina	2.12	3.72	2.58	- 6.50	5.00	4.00
Bulgaria	3.51	3.08	3.37	- 4.00	4.10	3.70
Croatia	3.14	2.69	2.94	- 9.00	6.00	4.40
Greece	1.51	1.93	1.87	- 9.50	4.10	5.60
Hungary	4.32	5.09	4.93	- 6.10	3.90	4.00
Montenegro	4.72	5.08	3.62	- 12.00	5.50	4.20
North Macedonia	1.08	2.72	3.55	- 5.40	5.50	4.50
Romania	7.11	4.44	4.08	- 4.80	4.60	3.90
Serbia	2.05	4.39	4.19	- 3.00	2.90	4.00
Slovenia	4.83	4.12	2.44	- 6.70	5.20	3.40

(Source: World Bank, 2020a)

It is no surprise that the GDP shrunk for the majority (if not every) of countries in the world. Serbia experienced a decrease in GDP growth by 3%, and compared to its neighboring countries and several EU countries, these percentages are acceptable. For 2021 and 2022 a more positive outlook is noted with a growth for Serbia's GDP of 2.9% and 4%. Overall, no country has been "spared" when it comes to the negative impact of the pandemic. Larges drops in GDP growth were experienced by countries where tourism is key industry (Croatia, Greece, Montenegro). However, other countries, regardless of their main "money-bringing" industries experienced strong economic downturn.

Unemployment

Unemployment rates can be a strong indicator of standard of living, future GDP growth, and overall national competitiveness. In Table 2. unemployment rates for several countries for the period of 2017-2022 are presented. The data is retrieved from the reports and estimations by the World Bank.

Table 2: Unemployment rates (% of total workforce) World Bank

Country	2017	2018	2019	2020	2021	2022
Albania	13.62	12.30	11.47	11.8	11.5	11.3
Austria	5.50	4.85	4.49	5.8	5.5	5.0
Bosnia and Herzegovina	20.53	18.40	15.69	19.0	17.5	16.8
Bulgaria	6.16	5.21	4.23	5.6	4.5	4.3
Croatia	11.21	8.43	6.62	9.3	10.3	9.6
Greece	21.49	19.29	17.31	19.9	18.3	16.6
Hungary	4.16	3.71	3.42	6.1	4.7	3.9
Montenegro	16.07	15.17	15.12	/	/	/
North Macedonia	22.38	20.74	17.26	20.2	17.8	16.7
Romania	4.93	4.19	3.91	7.9	6.0	5.5
Serbia	13.48	12.73	10.39	13.4	13.0	12.7
Slovenia	6.56	5.11	4.45	8.0	6.0	5.0

(Source: World Bank, 2020a)

Based on the data from Table 2. it is evident that the pandemic increased unemployment rates for every noted country. Serbia's unemployment rate increased by 3% of the total workforce, and this can heavily affect the standard of living, and even GDP growth as the increase of unemployment rates can be results of enterprises shutting down. Therefore, it can be argued that unemployment rates have to be addresses on a national level as it can affect competitiveness.

National competitiveness

National competitiveness as an integral whole includes various indicators. The Competitiveness report published by the World Economic Forum provides extensive data on various competitiveness indicators. In Table 3. data on competitiveness rank, unemployment rates and renewable energy consumption shares for several countries for 2019 are presented. There are no specific ranks in the new Competitiveness Report for 2020.

Table 3: Competitiveness indicators for 2019

Country	**2019**
Albania	Rank: 81st; UEM: 13.9%; REN: 38.6%
Austria	Rank: 21st; UEM: 4.8%; REN: 34.4%
Bosnia and Herzegovina	Rank: 92nd; UEM: 13.5%; REN: 40.8%
Bulgaria	Rank: 49th; UEM: 5.3%; REN: 17.7%
Croatia	Rank: 63rd; UEM: 8.9%; REN: 33.1%
Greece	Rank: 59th; UEM: 19.2%; REN: 17.2%
Hungary	Rank: 47th; UEM: 3.7%; REN: 15.6%
Montenegro	Rank: 73rd; UEM: 15.5%; REN: 43.0%
North Macedonia	Rank: 82nd; UEM: 21.6%; REN: 24.2%
Romania	Rank: 51st; UEM: 4.3%; REN: 23.7%
Serbia	Rank: 72nd; UEM: 13.5%; REN: 21.2%
Slovenia	Rank: 35th; UEM: 5.5%; REN: 20.9%
UEM - Unemployment REN - Renewable energy share consumption	

(Source: Schwab, 2019)

Based on the data in Table 3., it is once more noted that Serbia has a relatively high rate of unemployment at 13.5% out of the total workforce in 2019. In addition, the renewable energy source

consumption percentage with 21.2% is moderate, while the overall ranking (72nd out of 141) could be improved. Furthermore, in Table 4., individual rankings for each indicator group is presented for Serbia for 2019. As noted earlier, there are no specific ranks for individual countries in the 2020 Competitiveness report. However, it is noted that in order to increase competitiveness directing innovation and technological diffusion are an imperative and have high priority. More precisely, investing in R&D is a necessity in order to improve economic development (Schwab, 2020).

Table 4: Competitiveness indicators for Serbia for 2019 and 2020

Indicator	**2019 ranks (out of 141)**
Institutions	75
Infrastructure	51
ICT adoption	77
Macro-economic stability	64
Health	76
Skills	55
Product market	73
Labor market	54
Financial system	82
Market size	74
Business dynamism	54
Innovation capability	59

(Source: Schwab, 2019)

In 2019, the highest ranked indicators are Infrastructure, Business dynamism, Labor market, and Skills (workforce). The lowest indicator ranks are Institutions, ICT adoption, Health, Product market, Market size and Financial system. The noted indicators have to be addressed over the next few years in order to improve the overall competitiveness rank. The competitiveness rank shouldn't be the main goal, but rather organic improvement within the main indicator groups. Next, the Doing business ranks for several countries are for 2019 and 2020 are presented in Table 5.

Table 5: Doing Business Ranks 2019-2020

Country	2019	2020
Albania	63	82
Austria	26	27
Bosnia and Herzegovina	89	90
Bulgaria	59	61
Croatia	58	51
Greece	72	79
Hungary	53	52
Montenegro	50	50
North Macedonia	10	17
Romania	52	55
Serbia	48	44
Slovenia	40	37

(Source: World Bank, 2019; World Bank, 2020b)

Based on the Doing Business report published by the World Bank, Serbia has managed to increase its Doing Business rank from 48th in 2019 to 44th in 2020. This moderate rise in rank can be an indication of overall improvement in Serbia when it comes to conducting business.

SUGGESTIONS AND GUIDELIES FOR IMPROVING COMPETITIVENESS

Based on the obtained and analyzed data in the domain of GDP growth, unemployment, competitiveness ranks, and doing business ranks, it can be argued that the competitiveness of domestic enterprises and national competitiveness overall, face challenges on multiple levels. In the

Introduction section the importance of modern ICT application in business is hinted. This is necessary for achieving and maintaining a competitive position on the international market. The following suggestions and guidelines for increasing the competitive ability of domestic enterprises and for improving national competitiveness are proposed:

- Enterprises have to consider implementing modern ICTs in their business processes in order to increase business performance and competitiveness.
- Globalization has led to globalized competition, thus domestic enterprises have to focus on innovation and sustainability as two important metrics of competitiveness.
- The government should introduce strategies for systematic changes in the domain of entrepreneurship including subsidies and awareness increasing promotional campaigns.
- The government should conduct a thorough reform regarding the bureaucratic procedures of starting own business.
- Incentive programs for entrepreneurs and self-employment should be introduced.
- Renewable energy sources should be slowly strategically introduced in larger percentages across industries.
- Innovation and quality should be the main driving forces in manufacturing industries.
- Enterprises should evaluate the needs and expectations of consumers and based on these findings improvements in their business process could be conducted.
- ICT adoption should be fueled with increased awareness on its importance for the economy and through the help of government supported strategies.

Modern ICTs are becoming an imperative for enterprises in order to achieve a stable competitive position on the international market. ICTs have the potential to increase productivity, quality and product and service innovation. This would further positively affect GDP growth. The global green initiative and its continuous rise slowly but surely bring changes in how business is conducted. Renewable sources of energy, reuse and recycling, and a sustainable approach of conducting business is necessary to stay afloat in the dynamic changes that climate change and the fight against climate change brings. When it comes to unemployment rates the government has its role in the whole process of increasing the number new enterprises and increasing the entrepreneurial activities. Entrepreneurship reduces unemployment rates, positively affects the standard of living and contributes to development of national competitiveness. In order to improve the business environment in Serbia, it is advised to reduce bureaucratic procedures and to create a somewhat level playing filed within industries. As noted earlier innovation, quality and productivity should be the main driving forces of growth. This involves not only enterprises the government initiatives as well. Finally, continuous improvements in the noted domains has the potential to increase the competitiveness of domestic enterprises and to increase national competitiveness.

CONCLUSION

The Serbian economy has experienced a mild to moderate economic recession with around 3% GDP decrease. Compared to the majority to its neighboring countries where the decrease of GDP growth is between 5 to 9%. Further, the unemployment rates are not favorable. It was noted that government supported initiatives for entrepreneurship should be introduced. The suggestions and guidelines that are proposed address the main areas that affect the economy and national competitiveness. Based on the noted concepts in the Introduction section, and the data overview, it can be concluded that in order to achieve competitiveness, domestic enterprises have to adapt to changes brought by globalization, Industry 4.0 and the COVID-19 pandemic. The adaption process involves ICT application, sustainable business development, innovation and quality.

The main limitation of this paper is the lack of empirical finding through surveying enterprises. Another limitation are the references. Namely, mainly literature in English was used for obtaining data and information for the paper. This creates a certain bias as non-English sources were not consulted. However, the goal of the paper was to provide a concise overview on some key metrics regarding the

economy and national competitiveness. For future research it is recommended to conduct a thorough meta-analysis on additional metrics as well. This way a specific economic scenarios could be discussed.

ACKNOWLEDGEMENT

This paper was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia As a part of the current project TR-35017.

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INNOVATION ECOSYSTEM AS THE BASIS FOR POST-PANDEMIC ECONOMIC GROWTH, BUSINESS AND COMPETITIVENESS

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ABSTRACT

The contemporary world today faced with dynamic technological advances and the great potentials of modern technology for overall economic prosperity, which is accompanied by the increasing digitalization degree of the economy and society. The result of these processes is a fundamental redefinition of the business environment and the creation of knowledge-based digital economy, supported by numerous technological innovations. The article deals with global trends in knowledge creation and transfer, relationship between innovation and standardization, as well as with the importance of innovation for economic development. The focus of the analysis is on digital innovations and their role in enabling post-COVID economic recovery and dynamism.

Keywords: Digital economy, Innovation, Knowledge, Standards, Economic growth.

INTRODUCTION

The outbreak of the COVID-19 crisis has profoundly affected countries' and companies' relationship with digital technologies. Never before has the world's global dependency on digital technology touched all industries, from production to trade, and all aspects of society – from education to health. Teleworking, distance learning and e-commerce have surged across the globe, as has the uptake of digital tools in businesses. Governments, businesses and academia have been quick to grasp the potential of artificial intelligence (AI) to contribute to the crisis response, as well as the need for timely, secure and reliable access to data within nations and across borders (OECD, 2020). In fact, the power of digital technology has become so very visible and economies and companies became highly aware that they must now use technology to transform their business models and social patterns. The road to the creation and implementation of new breakthrough technology goes through science and innovation. Only a science, technology, and innovation machine in full gear can ensure a prosperous post-COVID-19 economy that provides well-paid jobs and a healthy, safe, and clean environment for all the people.

CHARACTERISTICS OF A MODERN INNOVATIVE ENVIRONMENT

Accelerated technological change associated with the rise of digitalization and globalization have deeply disrupted innovation pathways with increased complexity, faster pace of change, the rise of network effects and enhanced uncertainty about their net impacts on society. An enabling environment for innovation based on 1)investment in fundamental science and skills and 2)fostering knowledge flows can provide"quantity of innovation" and address 'market failure' and 'system failure'. Although relevant, this innovation approach has now become insufficient. New global and digital environment for innovation requires also the orientation on 'quality of innovation', which means that innovation

outcomes have to ensure contribution to broad societal goals, such as inclusiveness or sustainability (to address 'orientation failure') (WEF, 2019).

That means that innovation cannot only focus on boosting growth and jobs, but it also needs to contribute to solving societal challenges, such as climate change, health, education and social inclusiveness. In other words, innovation in the current world environment must contribute to the creation of productive, inclusive and sustainable economies, with a human-centric approach at its core.

THE CONCEPT OF INNOVATION AND THE RISE OF DIGITAL INNOVATION

According to the Oslo Manual (OECD, 2018), innovation is a new or improved product or process (or their combination) that is significantly different from previous products or processes of the observed institutional unit and which is made available to potential users (in the case of a product) or becomes applicable in a unit (in the case of a process). In a similar manner, the European Commission defines innovation as the use of new ideas, methods or products (services) that have not previously been implemented and are introduced to the market (EC, 2004).

Innovation can be divided into business, product and business process innovations. They can also be seen as product and service innovations, as well as marketing and organizational innovations (Vidas, & Madžar, 2019). For the modern companies, of high importance are the so-called open innovations, as a utilization form of knowledge inflow and outflow streams, whit the aim of accelerating internal innovations and expanding the market for their external use. The innovation process requires the fostering of valuable ideas that can come from inside or outside a company, as well as the flow of internal and external ideas between firms (Chesbrough, 2003).

Joseph Schumpeter points out the importance of knowledge and innovation for economic dynamism and growth in the 1940s. According to him, the key role in the innovation process has an entrepreneur, who is not only a manager, but also a person who takes all business and financial risks related to the introduction of new product and technologies. That is why he realized that economic development was largely based on entrepreneurship (Schumpeter, 2003). Since then, key influences and values for the realization of innovation have shifted from physical assets (e.g. factories, equipment, and machines) to knowledge and intellectual property that rests on their innovative ideas, technology, industrial and intellectual property rights, information systems, corporate and manufacturing brands, goodwill and other forms of intangible assets, while intellectual capital is recognized as a key developmental resource.

As in modern business conditions digital technologies have become the key drivers of development, so in the innovative process, the most important position is given to the so-called digital innovations. According to Yoo et al. (2010), digital innovation "means innovation enabled by the use of digital technology that leads to the creation of new forms of digitization," while other authors often treat digital innovation simply as an innovation realized in the digital economy. On the other hand, the OECD and Eurostat in their (2005) Oslo Manual believe that digital innovation should include the following: 1) in a narrower sense, ICT product innovation (the application of new and significantly improved ICT products) and 2) in a broader sense, ICT enabled innovations (that is, the use of ICT in order to apply new or significantly improved products or processes, new marketing methods, or new organizational methods in business practice, workplace or in external relations with partners).

THE IMPORTANCE OF DIGITAL INNOVATION FOR ECONOMIC DEVELOPMENT

The relationship between digital innovation and economic growth can be simply explained by the following formula: innovation drives productivity and productivity drives economic growth. Spurred by increased initial investment in the adoption of digital technologies, productivity growth picked up in the latter half of the 1990s. This surge proved short-lived. Recent analyses point to a slowdown in

the contribution of ICT to economic growth, especially through the productivity effect after the bursting of the digital bubble in 2000 and the escalation of the economic crisis in 2007. OECD statistics show a decline in the contribution of ICT to GDP growth from 0.59% in 2001-2007 year to 0.22% of the contribution to GDP growth in the period from 2008 to 2013 (OECD, 2016). Even as digital technologies continued their advance in the last decade and automation of production deepened and became more sophisticated, productivity growth slowed, settling into a longer-term trend of persistent weakness. In the United States, for example, labor productivity growth has fallen considerably since the early 2000s, and in 2020 it has averaged less than half the growth rate of the decade prior to the slowdown (Qureshi, Z.,2020).

The benefits of technological transformation have been shared highly unevenly among countries, companies, and individuals and the income inequality has been rising. Nowadays in some industries we indicate large productivity differences between a handful of 'superstar companies' that have exhibited robust productivity growth based on innovation capacity and a vast majority of companies that have seen their productivity growth stagnate (due to modest innovation efforts) (OECD, 2019). According to Andrews (2015), these divergent tendencies between a slowdown in aggregate productivity growth and a continuous rise of productivity growth in the world's most dynamic companies is not an indication of a slowdown in the innovation process itself, but a slowdown in the process of diffusion of innovation across the economy outside the most advanced global companies. The phenomenon is defined as a "breakdown of the diffusion machine" that leads to a further widening of the digital divide between those countries and corporations that can take full advantage of digital technologies and those that cannot (Andrews et al., 2015).

Some of the interpretations of the reasons for the decline in the effects of ICT productivity on economic growth after 2013 are related to lower level of complementary investments in knowledge intensive capital KBC (knowledge-based capital). Namely, investments only in ICT (hardware, software, connections) are not enough, because the positive effects of productivity growth are realized only through the efficient use of ICT. Efficient ICT use cannot be realized in the absence of complementary investments in KBC, i.e., in knowledge and know-how that are specific to each company (firm-specific), organizational changes that imply new business processes and new business models (Ark, et al., 2008; Bresnahan, 1998; Corrado et al., 2014; Pilat, 2005). Underinvestment in knowledge limits the impact of ICT on productivity and partly explains Soloviev's productivity paradox.

The majority of authors agree that technology itself is not the problem. On the contrary, the new technologies hold considerable potential to boost productivity and economic growth, create new and better jobs to replace old ones, and raise human welfare. The challenge for policymakers and entrepreneurs is to better harness this potential and turn innovation in our digital era into a driver of stronger and more inclusive growth in economic prosperity (Qureshi, 2020).

GLOBAL AND REGIONAL TRENDS IN THE CREATION AND IMPLEMENTATION OF INNOVATIONS

Global investment in R&D increased from $ 438 billion to $ 576 billion (at an average annual growth rate of 4.4%) between 1991 and 1996. By 2013, total R&D investments in OECD countries reached $ 1.1 trillion (OECD, 2015). According to R&D Magazine estimates, global R&D investments in 2018 are worth over $ 2 trillion in PPP value, while more than 115 countries in the world have R&D investment which exceeds the amount of $ 100 million (R&D Magazine, 2018). In 2019, global R&D investment further rose, reaching $ 2,37 trillion. Due to the COVID-19 negative effect on available R&D funding, in June 2020 the total R&D investment value indicated a slowdown tendency to 2,28 trillion $ (R&D Magazine, 2020). The key investors in R&D are mainly developed countries (United States, Japan and Germany) and some emerging developing countries, especially China and the Republic of Korea. High R&D investment growth rates in Asian fast-growing economies (China, India and South Korea) are changing the regional R&D investment structure, so that the Asian region in

2020 holds a dominant position, with 45% of global investment, followed by the North American region with a 26.8% share, and Europe with just over 20% share (Table 1) (R&D Magazine, 2020). However, when analyzing R&D investments by industries, four industries stood out, amounting to nearly 77% of the total investment. These sectors participate in the total investment value with a high percentage, as follows: ICT manufacturers (23.0%), the healthcare industry (20.5%), ICT services (16.9%) and the automotive industry (16.3%). In fact, global investment in research and development has been driven by fast-growing industries, mainly ICT and healthcare; therefore, differences in sector structure explain the different growth patterns of R&D across the world. The growth rates of research and development of these leading sectors in 2019 were ranging from 19.8% (ICT services), to 10%, (healthcare), 8.0% (ICT manufacturers) and 2,2% (automotive industry) (Grassano et al., 2020, p. 2).

Table 1: Individual regions` and countries` share in total R&D expenditure, 2014-2020, %

	2014	2015	2016	2017	2019	15/7/2020
North America	29.1	27.9	27.8	27.7	27.2	26.9
USA	26.9	25.8	25.6	25.5	25.2	24.9
Asia	40.2	41.3	42.3	42.9	43,9	45
China	19.1	19.4	20.1	20.8	22.5	23.6
Europe	21.5	21.6	21.2	20.8	20.8	20.1
Russia/CIS	3.1	2.9	2.8	2.8	2,7	2.7
South America	2.8	2.7	2.5	2.4	2,2	2.1
Middle East	2.2	2.5	2.4	2.5	2.4	2.4
Africa	1.0	1.0	0.9	0.9	0.9	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

(Source: R&D Magazine, 2018 and 2020)

When analyzing R&D activities on the micro-level, companies that push the boundaries of knowledge to create feasible solutions are ultimately destined to do business globally to take advantage of their innovations. This makes multinational companies key players in the globalization of innovation, making up the bulk of R&D results in OECD member countries. For example, in Sweden, only 10% of research and development is done by companies without a presence in other countries. In this respect, MNEs are the main direct recipients of government support for R&D activities. National incentives can be considered as one of several important criteria for retaining innovative activities and for helping companies that face greater obstacles in this respect. For this reason, it is important to design a national innovation support system to favor independent firms, especially SMEs and start-ups, and help them to increase their R&D activities and projects. Despite incentives on promoting new entry into R&D to new companies, the concentration of R&D and research funds seems to be growing lately. For example, in the United States, firms with more than 1,000 employees moved from 76% of total R&D performance in 2008 to 82% in 2017 (OECD, 2021).

THE IMPORTANCE OF STANDARDS FOR INNOVATION MANAGEMENT

In pursuing innovation activities, standards can be a critical means of realizing these ideas and supporting their successful evolution by helping the company to use and maximize ideas in a structured way. The use of recognized international standards can also give a stamp of approval, instilling confidence in future investors and future trading partners around the world. Moreover, as a benchmark of international best practice, standards provide methods, systems, and processes that can help companies save time and resources, freeing up valuable working time for new, inventive activities (Naden, 2020, p. 14).

The International Organization for Standardization (ISO) has a number of standards that help organizations embrace innovation in a systematic and effective way and integrate it into their strategies. Moreover, ISO standards are themselves a catalyst for innovation. They do this by offering agreed-upon best practices that organizations can follow, freeing up time for more creative work,

providing trust in products and services that enable them to develop and improve, and enabling and strengthening collaboration (Mujica, 2020, p. 3).

The ISO 56002: 2019 standard is based on the principles of innovation management. The application of the ISO 56002 standard is possible for all companies regardless of the number of employees, activity, industry. Also, the application of this standard in several different industries would enable joint projects between companies, both public and private. According to ISO 56002: 2019 (BS ISO, 2019, pp. Vi-vii), the basis of the innovation management system is in the following principles: a) value creation; b) future-focused leaders; c) strategic direction; d) culture; e) exploitation of insights; f) uncertainty management; g) flexibility; h) system approach. The application of innovation management systems provides a systematic approach to integrating innovation at all levels of the organization in order to use all the potential to create new solutions, systems, products and services. For example, the European multinational aviation corporation Airbus pays great attention to creating a culture of innovation, which is a prerequisite for the development of innovation in the organization itself. Companies thus use the creativity and motivation of staff by improving their overall performance. The advantage of ISO 56002: 2019 is that it is objective and well-structured. Thanks to the application of ISO 56002, companies are able to manage their own ideas, constantly improving and preparing against business disturbances such as competition.

CONCLUSION

The modern world, faced with the COVID-19 crisis and stagnant economy, in order to open new post COVID growth opportunities, turns the focus to innovations in digital technologies, and more importantly in green and health technologies. Concerning non-digital manufacturing and services, the main innovation challenge will be the integration of new digital technologies, including advanced digital services, the Internet of Things, and artificial intelligence. As a result, network-based supply processes will profoundly reshape traditional value chains. If modern firms are unable to develop and integrate new digital technology-intensive services into the evolving paradigms of supply, they will not win the races of the future, even in sectors where they are currently well-positioned in the global market (Veugelers, 2020). Big companies and developed countries are aware that raising investment in R&D activities and knowledge are the only way to a great economy restart after the pandemic outbreak and stagnant economic tendencies. New innovation policy has a crucial role to play in improving the enabling environment for the birth and development of the global technology space that is a fair, level playing field, operating with open access to key technologies. The main aims of such a policy are to support strong science and technology knowledge base, promote entrepreneurship, and provide space for innovative companies to grow and earn appropriate returns from their innovative investments on world markets.

Co-operation is an equally important way to source knowledge to generate new ideas and bring them quickly into use. Setting up digital clusters is a means to foster cooperation and stronger knowledge flows across stakeholders thanks to physical proximity. In the same line is an activity of creating new intermediary institutions (technology centers and other research and technology organizations) that can play a fundamental role in both generating targeted knowledge, as well as in brokering knowledge flows between knowledge creators and users (WEF, 2019). Public investment in R&D should be revived to strengthen support for innovation that serves broader economic and social goals rather than the interests of narrow groups of investors. The Small Business Innovation Research and the Small Business Technology Transfer programs should be strengthened and their effectiveness enhanced by shifting more resources to early-stage awards to small and young firms (Qureshi, Z., 2020).

New technology requires new skills and there is the lag in the supply of skills relative to the changing skill demand. This has hampered the broader adoption of innovations and has limited productivity gains. The mismatch between the skills available and the skills needed has been growing. Having this in mind, new innovation policy should support the availability and quality of continuing education and the mechanisms such as Lifelong Learning. Factors such as education, knowledge, digital literacy are

important preconditions for the use of all the potentials of new digital technology and innovation. Our analysis confirmed that digital technologies will keep their revolutionary power of a key catalyst for change, modernization and innovation in the post-COVID economic environment. This is why contemporary concepts of developing national economies or competitive business necessarily include a digital element. This element enables them to build and enhance their capacity for coping with sudden changes and risk in a successful way, respond to them, adapt to them and use them for their growth continued dynamics and successful business. The knowledge stock and innovative capacities have priority in this game.

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IMPROVING COMPETITIVENESS THROUGH THE CIRCULAR ECONOMY MODEL

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ABSTRACT

In the modern business environment, which is characterized by major economic, technological and environmental changes, the concept of circular economy (CE) arises as it has a significant role in achieving competitiveness. This approach takes into consideration waste management, creation of new value, recycling, and reuse of products. When it comes to the concept of CE, enterprises, customers, citizens, government and other organizations' representatives are all involved in some degree. Now, the concept and business model of CE has the potential to increase competitiveness and to improve environment preservation and protection all within the frameworks of sustainable development. However, even though the benefits of CE are evident, the vast majority of enterprises and countries on a national scale, don't implement nor practice any CE focused concepts. In this paper the importance of CE is analyzed, alongside with environmental protection and sustainable development. Additionally, suggestions and guidelines for CE process integration and competitiveness and environment preservation improvement through CE are proposed and discussed.

Keywords: Competitiveness improvement, Environment preservation, Sustainable development, Circular economy.

INTRODUCTION

Sustainable development will play a significant role in the global economy in the coming decades. More precisely, waste management processes are becoming an important factor in economic development. The predominant method of production implies that the production process is based on the exploitation of natural resources where the main concept is that the product enters the market, and after use the product is disposed of in a landfill. This model is called a linear business model. In the long run this model is not sustainable and it leads to overexploitation of natural resources and accumulation of waste. Another approach, where the focus is on resource reuse and recycling processes is referred to as the circular economy (CE) model. This model is considered an important approach towards a sustainable economy model and a way to achieve certain UN Sustainable Development Goals (SDGs). CE gained traction when it comes to business strategies, policies of government institutions and academic research (Ilić-Kosanović, Tomašević, & Tomić 2019).

The CE model aims at extracting the greatest possible value from the materials and energy used in products in order to avoid unnecessary and excessive consumption of raw materials and other resources. In the CE model, waste is considered a potential resource that can be used as a raw material or energy source, either in the same process or in a different supply chain. The main goal is to keep materials, components and waste circulating, thus maximizing the value of resources (Lopes de Sousa,

2019). This approach can create additional value from already exploited products. The CE model can bring high-quality, safe and functional products to consumers. Further the CE model can increase the standard of living among citizens, it can modernize and increase the application of intellectual capital, and it can open new green and innovative jobs (Europska komisija, 2020). However, despite the significant benefits of the CE, it is still underrepresented globally. Data on the representation of the CE for 2020 (8.6%) showed that there is a decrease compared to the previous year (9.1%).

In this paper main key aspects of the CE model is analyzed. In addition, suggestions and guidelines for improving competitiveness within the frameworks of sustainable development are proposed.

KEY ASPECTS OF THE CIRCULAR ECONOMY APPROACH

Economic development, environmental protection and community development are connected. An enterprise that wants to thrive in the modern business environment has to synchronize its business strategy with the requirements of environment protection and improvement. This indicates the production of environmentally friendly products, the use of integrated waste management and the protection of natural resources. In addition, the enterprise has to influence the development of the social community by improving the quality of human resources (Bakator, Đorđević, & Đorđević, 2019).

Globally, guidelines for sustainable development have been defined for many years. It includes the balance between the goals of economic development and social development, taking into account the need for improvement and protection of the environment. Modern society is more often demanding and putting pressure on enterprises when it comes to defining its social responsibility. Namely, enterprises must become responsible for their behavior in society and the environment. One of the main conclusions of Agenda 21, which is a guide for the application and implementation of the sustainable development concept in all sectors of development, is that waste recycling is undoubtedly the best and the most rational way of waste management. The current overall negative trend regarding ineffective production and inadequate waste management can be explained by three related, basic factors: high rate of extraction (extraction of ores), continuous accumulation of storage of finished products, low level of usability and recycling (PACE, 2020).

The CE model offers a new business model that implies a product-waste-product relationship. In order to create conditions for continuous economic growth while reducing the amount of waste and reducing the extraction of natural resources, it is necessary to reuse materials that have completed their life cycle. Instead of thinking about waste, it is necessary to focus on the reuse of materials in the recycling process.

In the CE model, products are designed for durability, upgradeability, reparability and reuse (after the initial exploitation period). Products are managed with the aim of maximizing their usable capacity and prolonging their lifespan, thus maintaining value for as long as possible. Modern business models are focusing on maintaining value through services and added content that are available after a certain product is purchased. At the same time enterprises use resources more efficiently and give new value to products.

Responsible consumption and production are one of the goals of sustainable development (Eurostat, 2018). Indicators of sustainable development are the reduction of environmental pollution in relation to the impact of economic development, sustainable energy consumption and the creation and management of waste.

In the field of industrial production, special attention is paid to environmental efficiency (in relation to pollution). There is a significant impact of environmental taxes and voluntary agreements aimed at reducing waste generation. EU policy in the field of waste management is guided by a document called the Waste Management Strategy, whose main goal is to establish waste management policy at

the EU level. The strategy is based on a hierarchy of principles, giving priority to waste prevention, material reuse, recycling, energy regeneration, and final waste disposal.

The reuse rate of circular materials in the EU is 11, %, with the recycling rate being 55% of the total generated waste (Eurostat, 2018). The situation in the domestic economy regarding the implementation of the integrated concept of waste management in order to build a CE is not satisfactory. Currently, in Serbia, 11 sanitary landfills have been built. A large number of municipalities / cities still have their own landfill. These are unsanitary landfills, because the capacity of these existing landfills in most municipalities has already been filled. Most do not meet even the minimum technical standards. According to the data obtained from 144 local self-government units, on their territory, waste is disposed in 137 unsanitary landfills (dumpsites) located in 111 municipalities. Data on illegal landfills were submitted by 131 local self-government units and reported the existence of a total of 2,305 illegal landfills in the Republic of Serbia (Agencija za zaštitu životne sredine, 2020). According to some research, 5-7% of waste is recycled annually (OEBS, 2017).

SUGGESTIONS AND GUIDELINES FOR CIRCULAR ECONOMY APPLICATION AND COMPETITIVENESS IMPROVEMENT

Organized recycling within waste management is an imperative. Recycling is important as it reflects in the following:

- Conditions are being created for preserving natural resources and the environment;
- Energy savings;
- Environmental pollution is reduced due less waste.

The recycling process enables the reduction of raw material prices, reduction of waste disposal costs, and the reduction of strategic dependence in production (Bakator, Đorđević, & Đorđević, 2019). The full potential value of the CE model goes beyond just the recycling process. Value is present in reuse, maintenance, refurbishment and in the processing of components and products, so it is equally important to strengthen these inverted settings and capabilities (WEF, 2014). The CE model was created in response to the challenges related to the depletion of natural resources and increased volume of waste. It describes an economic system capable of being renewed in the life cycle of production and consumption (Rok, & Kulik, 2020).

According to research by the World Economic Forum (WEF, 2019a), four steps can be observed that shape the development of the CE. These are: the role of leadership, the role and potential of the fourth industrial revolution - Industry 4.0, the establishment of the value chains, and the key role of cooperation.

In order to efficiently apply the CE model, it is necessary to develop the following (WEF, 2019b): a) standards and regulations, b) management programs, c) infrastructure with enabled data, d) investments and f) innovations and entrepreneurship.

In the CE model, entrepreneurship is considered a key element. Enterprises that develop entrepreneurship and innovation within their business, enable the development of circular innovation. The connection between environmental protection and innovation dates back to the early 1990s. That is why today eco-innovations are an important segment of the CE model. According to the EIO (Eco-Innovation Observatory) (de Jesus, & Mendonça, 2018) eco-innovation (EI) is recognized as a special way to increase efficiency and competitiveness of enterprises, while having positive impacts on the environment and society.

In order for enterprises to be able to operate in the global market, it is necessary for them to accept a new way of life and business. Enterprises develop their strategies and values through discussions with

different generations and cultures. The information obtained from these conversations serves as a corrective factor for the business philosophy of the enterprise.

Furthermore, the experience from the period of the COVID-19 pandemic showed that enterprises whose business is characterized by a high degree of application of technologies have more easily adapted to the new changes on the market. The application of technology in business is extremely important. However, due to the negative impacts on society and the economy, good legislation and adequate policies are necessary.

One of the consequences of the post-pandemic period on the global economy is that enterprises make their global system more local, sustainable and fairer. Enterprises focused their business on providing benefits to consumers, and the pandemic irreversibly redirected the conversation to building community resilience. The issue of trust by consumers and other stakeholders is of paramount importance to the position of local supply chains. Enterprises with their capacities must react to changes on the market by offering a new idea or innovation that meets the needs of the local market, and is faster and more efficient than previous innovations.

For enterprises today, knowledge that is characterized by true data is extremely important. Modern leaders pay special attention to public health and safety, and they aim to consult with scientific experts if this goes beyond their field of education. The new leaders are aware that public institutions must be strengthened in order to reduce the crisis and at the cost of diminishing their authority. For change to happen (Parker, 2020), it is necessary to create leadership and private sector leadership training and development programs that are more strongly focused on (a) the needs of followers; (b) strengthening competences in the field of public health and safety; (c) the benefits of sharing leadership with experts.

CONCLUSION

By applying the CE model, the Serbian economy would get a chance for development, and society and citizens would get an improvement in environmental protection. The social capital of a nation is an investment without which there is no future. They are process that by applying the concept of CE, about 30,000 jobs can be created. The level of recycling in Serbia, both in terms of the volume of collected and processed waste materials, as well as in terms of assortment, does not meet the needs of the domestic industry, nor is it in line with the available potentials. Applying the above noted guidelines would bridge the discrepancy between the conceptual understanding and the applicability of recycling.

It is important to note that in the whole CE model the process of standardization and entrepreneurship are the most important areas that can help organizations in the further development and advancement. Standardization through the application of international management standards as well as certain national standards, enables the efficiency of business processes in the organization and better application of CE. Overall this current paper provides a solid basis for future research. It is recommended to address specific industries where the CE model could be applied on a larger scale and how would it affect the domestic economy.

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ANALYSIS OF FINANCIAL SECRECY INDICATORS

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ABSTRACT

The subject of the research is the analysis of the index of financial secrecy in the world and the surrounding countries, with the aim of understanding the problems related to tax practice in the world. The research covered the period from 2011-2020. The paper analyzes the functionality of tax systems of countries using the index of tax payments, and due to the fact that in certain countries tax rates are very high and complicated tax payment procedures, tax havens are created. Tax systems work best in developed countries, and some developing countries are most often tax havens. Finally, based on the conducted research, it can be concluded that the leading countries according to the index of financial secrecy are the Cayman Islands, the USA, Switzerland, Hong Kong and Singapore.

Keywords: FSI, Tax havens, Financial secrecy.

INTRODUCTION

Economic practice and certainly theory has known taxes from the earliest days as the most significant public revenue. Tax is an important instrument by which the state forcibly takes money from entities under its tax authority, and the goals of taxation are primarily economic and social (Raičević, 2005). In this way, two thirds to three quarters of the total amount of funds for financing state expenditures are provided (Đorđević, & Ignjatijević, 2013). When we talk about the characteristics of taxes, it is especially important to point out the so-called "general interest of taxes" (Raičević, 2005), i.e. that taxes are in direct and indirect dependence on cultural, social, political, economic and historical factors. Taxation goals have changed over the years from purely fiscal (in the Middle Ages), to non-fiscal goals, which are increasingly present today, and which serve to ensure, as Ignjatijević and Buturac (2018) point out, fiscal, economic and social goals of taxation. As Raičević (2005) and Raičević et al. (2017) point out, the principle of coercion and generality is important in taxes. So, tax is an obligation of every person, while taxation systems differ, as well as attitudes about the necessity of taxation, from the attitude that every income of individuals should be taxed at proportional rates, through the fact that there should be only one type of income tax, to a mixed way taxation (Đorđević, & Ignjatijević, 2013).

This is where the reasons for the various negative effects of taxation lie. Individuals and businesses are constantly looking for ways to reduce the tax burden or avoid paying taxes. The actions of individuals and tax evasion, finding loopholes in the law or other ways of tax evasion are directly related to the reduction of budget revenues, and thus the quality of meeting government functions. Economic theory points to the problem of evasion or tax evasion and as Djordjević and Ignjatijević (2013) state is a measure and or action taken by the taxpayer in order to reduce the amount of tax liability or avoid it altogether. Tax practice knows legal and illegal evasion, i.e. situations in which the actions of the taxpayer do not constitute a violation of positive legal regulations or represent. The subject of numerous studies is precisely illegal tax evasion, when the actions of the tax debtor are aimed at avoiding the payment of taxes that violate the law, commit a misdemeanor or a criminal offense. Economic theory points to the problem of evasion or tax evasion and according to Djordjević and

Ignjatijević (2013) it is a measure and/or action taken by the taxpayer in order to reduce the amount of tax liability or its avoidance completely. Business-wise, these activities require the activity of banks and companies in other countries, and the manner and amount depends on the country from which the entrepreneur or the actual owner of the offshore company originates. Fiat (2013) points out that an offshore is a legal enclave that differs from an onshore country, in which activities are defined in which the state chooses to exempt some or all of its regulations or fees. In offshore countries, transactions are linked to unsupervised and poorly supervised banking operations. Masciandaro (1998) cites factors of attractiveness of certain money laundering sites: high GDP, banking secrecy law, government attitude towards money laundering, membership in the World Organization for Interbank Financial Telecommunications, absence of conflict situations (guerrilla wars) and absence of corruption. The key question is how certain states decide to become a tax haven. The fact is that offshore countries offer lower tax rates and the obligation to employ the local population. However, the global effect of the offshore zone is negative and represents damage to the local and global economy. However, in recent years, new rules have been introduced for offshore countries. Black and gray lists are being created, in which countries that do not cooperate in the fight against tax evasion are registered. The control was entrusted to the OECD (Organization for Economic Co-operation and Development) and changes were proposed in the international tax systems, in order to modernize them and solve the problem of tax evasion and the so-called tax havens. An agreement was reached on data transparency: the identity of the owners of companies, funds and foundations.

TAX PAYMENT INDEX

Because of the importance of taxes for a country's economy, building a prosperous society depends on a transparent and efficient tax system. The balance between GDP growth, security and stability to tax rates and business activities is especially important (Milojević et al., 2017). In order to efficiently compare tax systems around the world, a Tax Payment Index has been created. The tax payment index has been designed and monitored since 2004 and provides information on the tax systems of countries in the process of attracting investment. The fact is that not only the tax rate is an important indicator, but also the way in which the tax system affects business (time and cost). Thus, the Tax Payment Index provides data on taxes and shows all taxes and contributions paid by a standardized medium-sized enterprise. The tax payment index, therefore, analyzes the profit tax, salaries and mandatory contributions, indirect taxes and some small payments such as municipal taxes and the like. The tax payment index is also based on the frequency and method of filling and payment, as well as the time required to deal with tax law, the time to file tax returns, the VAT refund process, and the time to correct minor errors in income tax returns, if it's possible. The components of the tax payment index are: payment index, payment time, total rate and post-filing effect (since 2017) (Ignjatijević, & Buturac, 2018).

The tax payment index shows the total number of taxes and contributions, payment method, filling frequency. The number of taxes includes those taxes that are electronically prepared and paid. Payment time shows how many hours per year it takes to pay taxes. It measures the time required to prepare, complete and pay most major taxes and contributions: income tax, VAT, income tax (on labor), including consumption tax, social benefits and personal income tax. Total rate: measures the amount of taxes and contributions paid. The taxes included in the calculation of the tax payment index are: profit tax, social security contributions and labor taxes paid by the employer, property tax, turnover tax and other taxes (such as municipal taxes, movable property tax, such as are cars, fuel excise taxes, etc.). Post-filing index is based on four components: time needed to deal with VAT refunds, time to refund, time to correct errors in documentation and time to audit, if necessary. The value of each component is converted to a distance from the upper limit between 0 and 100. A score of 100 indicates the most efficient process, and a score of 0 indicates the least efficient process.

The continuation of the research presents the results of the analysis of the tax payment index in 2011, 2015 and 2019 by countries and regions.

Table 1: Competitiveness rankings of countries for 2018-2019, (WEF, 2018; WEF, 2019)

	Albania	**B&H**	**Bulgaria**	**Croatia**	**North Macedonia**	**Romania**	**Serbia**
2011							
Score-Paying taxes	54.3	51.9	64.2	75.2	75.8	48.8	52.4
Paying Taxes - Payments (number per year)	44	55	15	34	40	113	67
Paying Taxes - Time (hours per year)	360	422	598	196	119	230	279
2015							
Score-Paying taxes	64.4	58.2	73.5	86.8	94.2	80	48. 90
Paying Taxes - Payments (number per year)	34	45	14	12	7	14	67
Paying Taxes - Time (hours per year)	357	407	436	208	119	161	279
2019							
Score-Paying taxes	64.9	60.4	72	81.8	84.7	80.3	74.8
Paying Taxes - Payments (number per year)	35	33	14	12	7	14	33
Paying Taxes - Time (hours per year)	252	411	453	206	119	163	226

(Source: https://www.pwc.com/gx/en/services/tax/publications/paying-taxes-2020/explorer-tool.html)

Serbia's position has changed over the years, from 149th and 165th places in 2013 and 2015 to 78th and 85th places in 2017 and 2020. The data indicate that the position of Macedonia, Croatia and Bosnia and Herzegovina has deteriorated, while the position of other analyzed countries has improved.

FINANCIAL SECRECY INDEX ANALYSIS

In addition to the tax payment index, the most important indicator of the functionality of the tax system is the Financial Secrecy Index (FSI). The mentioned index ranks countries, and enables the understanding of global financial secrecy, tax havens or secret jurisdictions, illicit, ie illegal flows or capital flows. Problems with financial secrecy are far more complex and are not just a matter of taxes. In order to ensure the secrecy of the fiscal system, the entire system is subject to corruption, market principles are disrupted, financial regulations are circumvented, embezzlement, bribery, money laundering, and many other frauds occur (Ignjatijević et al., 2016). What is most worrying is that rich countries, OECD members and their companions, are the main recipients or distributors of these money transactions, i.e. the recipients of these funds set the rules of the game. The Index of Financial Secrecy was created in 2009, and it has been improved in recent years. In the initial years, as many as 204 criteria were used, information was collected in a legal and regular manner, websites and laws and regulations were analyzed. At that time, 60 tax havens were identified, and an additional thirteen new states. In 2013, nine more countries were added, and in 2015, six countries were added due to their participation in the global offshore financial services market.

The leading countries of financial paradises are: China, Finland, Mexico, Taiwan, Venezuela, Turkey, and seven more countries have been added: Bolivia, Chile, Gambia, Macedonia, Montenegro, Paraguay, Tanzania. Selection indicators for creating the index of financial secrecy the following parameters are used: Banking Secrecy; Trusts & Private Foundations; Company Ownership Registration; Freeport & Real Estate; Limited Partnerships; Company Ownership Publication; Company Accounts Publication; Country-by-Country Reporting; Corporate Tax Disclosure; Legal Entity Identifier; Tax Admin. Capacity; Personal Income Tax; Promotion of Tax Evasion; Tax Court Secrecy; Harmful Structures; Public Statistics; Anti-Money Laundering; Automatic Exchange of Info; Bilateral Treaties; Int'l Legal Cooperation. Based on the displayed parameters, the Final Secrecy Score is obtained.

Below are the first ten countries and countries in the region according to the index of financial secrecy. It is noticed that in 2020, the value of FSI index increased in Cayman Islands, USA, Japan, Netherlands, Macedonia and Montenegro. The value of the FSI index decreased in Switzerland, Croatia, Bulgaria and Slovenia.

Table 2: Overview of the FSI index 2018 and 2020

	FSI 2018 results			FSI 2020 results			Changes between FSI 2018 & FSI 2020 (going up is bad!)				
Jurisdiction	**Rank**	**FSI**	**SS**	**Rank**	**FSI**	**SS**	**Rank**	**FSI**	**FSI (%)**	**SS**	**SS (%)**
Cayman Islands	3	1267,7	72,3	1	1575,2	76,1	2	307,5	24,3%	3,80	5,3%
United States	2	1298,5	59,8	2	1487,0	62,9	0	188,5	14,5%	3,06	5,1%
Switzerland	1	1589,6	76,4	3	1402,1	74,1	-2	-187,5	-11,8%	-2,40	-3,1%
Hong Kong	4	1243,7	71,1	4	1035,3	66,4	0	-208,4	-16,8%	-4,68	-6,6%
Singapore	5	1082,0	67,1	5	1022,1	65,0	0	-59,9	-5,5%	-2,15	-3,2%
Luxembourg	6	975,9	58,2	6	849,4	55,5	0	-126,6	-13,0%	-2,75	-4,7%
Japan	13	623,9	60,5	7	695,6	62,9	6	71,7	11,5%	2,35	3,9%
Netherlands	14	598,8	66,0	8	682,2	67,4	6	83,4	13,9%	1,37	2,1%
Croatia	79	119,4	59,3	93	112,3	55,1	-14	-7,0	-5,9%	-4,20	-7,1%
Bulgaria	89	91,4	54,2	115	57,5	49,5	-26	-33,9	-37,0%	-4,72	-8,7%
North Macedonia	102	39,8	60,7	116	54,9	64,1	-14	15,1	37,9%	3,38	5,6%
Montenegro	99	52,6	63,2	119	53,6	60,0	-20	1,0	1,9%	-3,13	-4,9%
Slovenia	104	35,3	41,8	128	27,5	37,6	-24	-7,8	-22,2%	-4,28	-10,2%

(Source: Financial Secrecy Index http://www.financialsecrecyindex.com)

CONCLUSION

Tax systems, their functionality or non-functionality, the amount of the tax rate, the number of procedures for paying taxes, the number of hours needed to pay taxes, etc., expressed in the index of tax payments, leads to the movement of capital from one country to another.. In fact, taxpayers are in constant search of countries with more favorable conditions for paying taxes. This is how we come to the countries of tax havens. Tax havens have been present in practice since the beginning of the last century, and today they are some highly developed countries or developing countries. The reasons for its' creation is precisely to overcome the problems that are present, and they are directly related to the payment of taxes. Offshore banks guarantee privacy and discretion to clients, and business secrecy is at the highest level.

The problems of tax evasion deeply disrupt the economic system of a country, corruption develops and the freedom of market business and investment is disrupted, and thanks to the evasion of financial regulations, embezzlement and money laundering occur. The problems that are manifested in society affect the entire population and have a restrictive effect on economic growth.

The results of the analysis and comparison of data in the past few years show that certain regions and countries are highly ranked, that some countries have been reformed and that the FSI index has decreased. Analyzing individual countries from the aspect of the index of financial secrecy, the Cayman Islands are still in the first place, although they follow the trend of tax reforms. Hong Kong, Singapore and Luxembourg have not changed their position in recent years, and the most positive trends are present in the surrounding countries. Tax reforms and the action of EU membership have led to Croatia, Bulgaria, North Macedonia, Montenegro and Slovenia improving their positions on the FSI list. Some countries are rapidly working on transparency, exchange of information on taxpayers and as part of global reforms of the tax system, simplify the whole process (by introducing electronic filing, tax payments, etc.). Of course, in addition to this, it is necessary to act in the direction of tax harmonization and changes in the law.

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CASH FLOW ANALYSIS

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ABSTRACT

Cash flow analysis is a recent notion. It first appeared in the early 1950s in some American companies, spreading quickly to Europe under the influence of American practice. Thus, cash flow analysis has been used in recent years as an auxiliary instrument of financial analysis for assessing the financial strength of a company. The main aim of cash flow analysis is to consider and assess the amount of cash inflows and cash outflows, i.e. cash flows from operating, investing and financing activities. Simultaneously, it is of primary importance that the net cash flow from operating activities remains positive, because this is an important prerequisite for investments and financing of a company. Bearing in mind the aim of the paper, we will consider the use of cash flow analysis as a means of assessing the ability of a company to generate cash and maintain liquidity and solvency. Similarly, it is necessary to present several significant sets of issues, such as: (1) the subject and aims of cash flow analysis, (2) creating a cash flow statement, and (3) cash flow statement analysis using the most important financial indicators.

Keywords: Cash flow, Cash flow statement, Liquidity of company, Cash inflows, Cash outflows.

INTRODUCTION

Cash flow analysis is one of the instruments of corporate financial management, which has been the subject of many discussions and comprehensive analyses in the last decade, especially in the American and European reference works. At the same time, different interpretations of the content of the term "cash flow" and its use have often led to various misinterpretations and dilemmas due to the term's vagueness. Bearing in mind the fact that the use of such an instrument of financial management is closely related to its content, it is logical that the definition of the term takes priority. The term cash flow comes from the English language and is understood as “the flow of cash” or “cash inflow”.

Although it is not possible to see what is actually meant by the term from its etymology, it can be inferred that it is a movement of money or a condition that results from the movement of money. However, having in mind the information from a wider range of reference works, it could be said that the term cash flow is used in its two basic meanings: first, as a constant river of income and expenditure flowing through the company (gross cash flow), or as the difference between income arising from sales of goods and services and expenditure related to the production of goods and services (net cash flow). Second, as the sum of income, depreciation and other expenditures that do not cause cash outflow as part of the income remaining in the company and are used to pay dividends, finance investments and pay off debts, or a part of the net operating working capital arising from business operations.

In the first sense, cash flow understood as a flow of income and expenditure, or a state of cash arising from the movement, is subject to planning and control in order to maintain the financial balance of the

company, or its liquidity. In this case, cash flow forecasting refers to financial planning, while cash flow analysis refers to financial control. The differences arising between financial planning and financial control, on the one hand, and cash flow forecasting and analysis, on the other hand, are solely a matter of the form of presentation. However, there is no pattern in this context. Namely, since the annual reports on the company's operations are based on the elements of the balance sheet and income statement, which serve as grounds for control, then cash flow analysis, as an integral part of these reports that reveal the financial strength and earning capacity of the company, also relies on the data from balance sheet and income statement.

In the other sense, cash flow is used as an instrument of financial analysis to measure yield in terms of supplementing the annual result (income) and to analyze investment alternatives (projects). In this regard, when it comes to cash flow as an instrument of financial analysis, it should be borne in mind that its real function is not to determine the financial position of the company, but to interpret and explain the amount and changes in ratio numbers and net operating working capital, on which the conclusion about the financial situation of the company is drawn. Therefore, cash flow as a part of the net operating working capital that arises from the business process, i.e. as the sum of income, depreciation and other expenditures which do not cause cash outflow is used as an instrument of financial analysis. At the same time, from this standpoint, there is a significant tendency to recognize cash flow as a very suitable tool for assessing the financial strength and profitability of the company.

In a wider range of reference works, cash flow has a twofold use, namely as: (a) gross cash flow, and (b) net cash flow. Gross cash flow is the cash flow of income and expenditure in a company. Gross cash flow enables monitoring of the dynamics of income and expenditure. Net cash flow is the difference between income and expenditure in a company. Therefore, net cash flow is used to determine the available funds in the company that can be used in the process of repaying due liabilities of the company.

Having in mind the goal orientation of this paper, the subject of our further consideration will be the use of the cash flow concept as a means for analysis and assessment of the financial balance of the company. In this regard, the use of the cash flow concept in financial analysis requires the knowledge of the following sets of issues: (1) the subject and aims of cash flow analysis, (2) creating the cash flow statement, and (3) cash flow statement analysis.

THE SUBJECT AND AIMS OF CASH FLOW ANALYSIS

In reference works in recent years, "cash flow" analysis is increasingly considered as an indispensable auxiliary instrument of financial analysis. Although it is compatible with ratio numbers and net operating working capital, cash flow analysis, i.e. cash flow statement analysis is aimed primarily at interpreting and explaining the amount and changes in ratio numbers and net operating working capital, based on which a conclusion is drawn about the financial situation of the company. In this regard, cash flow analysis is performed based on the cash flow statement, which constitutes the third segment of financial reporting. In other words, cash flow statement forms an inseparable whole with the balance sheet and income statement. Thus, in addition to the balance sheet and income statement, another significant financial report is introduced into the financial reporting system, containing combined data from the both mentioned reports, with the aim of enabling users of this report to assess the company's ability to generate positive cash flows, i.e. to assess its liquidity and solvency. This allows users to gain a thorough insight into the following: (a) the financial position and the state of liabilities and equity, which the balance sheet is used for, (b) the results of operations and the degree of profitability for which the income statement is intended, and (c) a more reliable assessment of the liquidity and solvency of the company can be given, for which the cash flow statement is intended.

It is considered that the primary aim of cash flow statement analysis is to provide information on cash inflows and outflows from the company's operating activities, while the secondary aim is to provide insight into the company's investing and financing activities. Furthermore, it is essential that the net

cash flow from operating activities is positive, because this creates an important precondition for investing and financing. There is a general consensus that cash flow analysis should provide the following: first, an assessment of the company's ability to generate cash, and second, an assessment of its liquidity and solvency. In this sense, cash flow analysis is also called the assessment of solvency. This means that the assessment of solvency is a significant segment of cash flow analysis and consists of an analysis of key cash flow statement items related to the operating, investing and financing activities of the company. Additionally, the subject of analysis can be not only the statement that contains cash flows in the previous period, but also the planned cash flow statement. When it comes to the planned cash flow statement, its main purpose is to contribute to the establishment and maintenance of an optimal liquidity zone, which is one of the key tasks of financial cash management.

In the process of cash flow statement analysis, one must primarily start from the generated cash flow in the current year. At the same time, cash flows from the previous year are taken into account. In that way, it is possible to notice changes and tendencies within the cash flows from all activities of the company, especially when it comes to net cash flow based on operating activities. The observed changes (variations) within the cash flow should be considered with maximum observance of the results of the analysis of the financial position and business performance of the company. This approach will be useful in terms of making the assessments regarding the explanation of the amount and changes in the ratio numbers and the net operating working capital as reliable as possible.

CREATING A CASH FLOW STATEMENT

In order for the cash flow statement to be used for analytical purposes, it is necessary to group all business transactions of a company that have an impact on the state of funds and money equivalents into certain activities. In doing so, an appropriate classification criterion should be used. In this regard, it should be noted that according to their character, cash flows can be grouped into cash inflows and outflows arising from three basic groups of activities of a company, namely: (a) Cash flows from operating activities; (b) Cash flows from investing activities; (c) Cash flows from financing activities.

(a) Cash flows from operating activities - relate to the main activity of the company, which means that they are primarily focused on the production and sale of products, goods and services. Therefore, business transactions arising from this activity affect the generation of net profit or loss. Consequently, it is expected that a company will generate positive cash flows from operating activities. Conversely, negative net cash flows of a more permanent nature would undoubtedly lead the company to its liquidation. Therefore, net cash flows from operating activities are a key indicator of the company's ability to generate sufficient cash to maintain business capacity, new investments, orderly servicing of obligations to creditors and paying returns to business owners, without resorting to external sources of financing.

(b) Cash flows from investing activities - refer to all those transactions that are intended to generate future profits and cash inflows. Therefore, business transactions arising from this activity include inflows and outflows related to the acquisition and disposal of long-term assets and long-term investments (fixed assets, intangible assets and long-term financial provisions). In this case, cash outflows are a consequence of efforts to maintain operation of existing capacities, or to provide capacities for the planned growth of a company. On the other hand, cash inflows arise as a result of the sale of parts of fixed assets and the return of long-term financial provisions. However, cash inflows are generally smaller in amount, so cash flows from investing activities are often negative. For the purpose of systematization, investing activities of companies can be classified into two basic groups: investments in long-term assets (fixed assets) and other investments.

(c) Cash flows from financing activities - relate to business transactions that result in a change in the size and structure of capital and sources of financing from loans. Cash inflows in this part may arise from the issue of new shares of a company, the issue of bonds and the acquisition of new long-term and short-term loans. On the other hand, cash outflows may arise as a result of repurchase of own

shares, repayment of debts and payment of dividends. Therefore, it could be said that cash flows from financing activities include transactions with double relations, that is: first, company - owners, and second, company - creditors. The first relation refers to receiving money from the owner (issue of shares) and returning money to the owners (dividends). The second relation refers to the receipt of money through corporate borrowing (loans, bond issues) and to the return of money through debt servicing (not including the payment of interest, which is a part of the company's operating activities).

The total net cash flow of a company is the sum of net cash flow from operating activities, net cash flow from investing activities and net cash flow from financing activities. Information on total net cash flow enables us to see the ability of companies to generate cash flows in different segments of activities, to better understand changes in the financial structure and net assets of a company, as well as to see the relationship between net cash flows and profitability.

To create the cash flow statement two methods can be used - direct and indirect. The difference between these methods is in the way of showing cash flows from operating activities, while cash flows arising from investing and financing activities are presented in exactly the same way by both direct and indirect methods. The same amount of funds should be obtained using both methods for each position from the cash flow statement. Both mentioned methods give equal amounts of cash flows from operating activities which are then supplemented by cash flows from the company's investing and financing activities. However, the direct method is considered to provide information-rich cash flow statements, so companies are encouraged, but not obligated, to use the direct method in preparing cash flow statements.

CASH FLOW STATEMENT AND KEY INDICATORS

An in-depth cash flow statement analysis implies linking certain information contained in the statement with information that is contained in the balance sheet and income statement. At the same time, a precise quantification of the relationship between characteristic quantities should enable a more thorough understanding of the existing and future position of the company. Therefore, in modern business conditions, in addition to the basic groups of financial indicators based on the balance sheet and income statement, the importance of financial indicators based on cash flows is given increasing prominence. Having in mind the importance of cash management for the overall business of the company, it is recommended to perform the analysis of data from the realized cash flow statement. This is especially important in the conditions of general illiquidity of the company. Moreover, these indicators should always be viewed in interdependency with the basic (classical) performance indicators of the company. The most significant financial indicators of a company's performance based on cash flows are the liquidity and solvency indicators of the company, among which we wish to highlight the following:

a) Current Cash Debt Coverage Ratio
b) Cash Debt Coverage Ratio
c) Cash Interest Coverage Ratio
d) Cash Dividends Coverage Ratio.

a) *Current Cash Debt Coverage Ratio* - is a newer concept of testing the liquidity of the company, created in the context of the fact that within the set of annual accounts of the company there is also a cash flow statement. The numerator of the company's liquidity indicator contains the net cash provided by operating activities, i.e. the net cash inflow generated by operating activities of the company after the necessary investments in working capital and settlement of business liabilities during an accounting period. This data is taken directly from the cash flow statement and it represents the difference between cash inflows and outflows based on operating activities. The denominator of this indicator includes current liabilities (taken from the balance sheet of the previous and current accounting period), i.e. average current liabilities, since it is for a reporting period of one year. Therefore, the Current Cash Debt Coverage Ratio is determined using the following formula: Current Cash Debt Coverage Ratio = Net cash provided by operating activities / Average current liabilities.

The resulting quotient of this formula shows the ability of the company to pay current liabilities, i.e. how much cash generated by operating activities covers each monetary unit of current liabilities. The higher the ratio, the less likely it is that the company will have liquidity problems. In this regard, experience of modern economic practice shows that if the ratio is 40 percent and above, the company is considered liquid.

b) *Cash Debt Coverage Ratio* - is a very important indicator of the company's solvency, i.e. the company's ability to service its liabilities from cash secured by the company's operating activities, without having to liquidate assets used in the company's business operations. The numerator of the ratio is the net cash provided by operating activities, while the denominator contains the total liabilities (including long-term provisions) determined from the balance sheet for an accounting period. The Cash Debt Coverage Ratio is determined using the following formula: Cash Debt Coverage Ratio = Net cash provided by operating activities / Total liabilities.

The resulting quotient of the above formula shows the time period required to settle the total liabilities of the company, assuming that all cash flow from operating activities is directed to the settlement of liabilities. The lower the ratio, the more likely it is that the company will have financial problems in the future. In this regard, the experience of modern economic practice shows that if the ratio is 20 percent and more, it is considered that the company can finance its total liabilities with funds provided from operating activities, assuming that external sources of financing have become too expensive or limited.

c) *Cash Interest Coverage Ratio* - is another important indicator of a company's liquidity in terms of its ability to service liabilities. In general, this indicator serves to determine the ability of a company to make interest payments on its total debt and shows the number of times that cash outflows for interest were covered by cash flows from operating activities. The numerator of this ratio is the net cash provided by operating activities increased by interest expense and taxes expense. The denominator contains interest expense on the basis of long-term and short-term liabilities. Therefore, the Cash Interest Coverage Ratio is determined using the following formula: Cash Interest Coverage Ratio = Net cash provided by operating activities + interest expense + taxes expense / Interest expense.

There is no general criterion in terms of how much the Cash Interest Coverage Ratio should be, but it is mostly a matter of the subjective assessment of the company's analyst. However, it is considered that this ratio should always be higher than 1. This means that if it is less than 1, then there will be an immediate risk of inability to pay due interest, which will necessitate the need to procure the money for servicing of the liabilities from external sources of funding.

d) *Cash Dividends Coverage Ratio* - is also one of the important indicators of a company's liquidity in terms of its ability to pay dividends. Therefore, shareholders are particularly interested in this financial indicator, as they are reluctant to invest money in a company that does not have enough funds provided from operating activities to pay dividends. The numerator of this indicator consists of the net cash provided by operating activities, while the denominator contains dividend declared. Therefore, the Cash Dividends Coverage Ratio is determined using the following formula: Cash Dividends Coverage Ratio = Net cash provided by operating activities / Dividend declared.

Like the previous indicator (Cash Interest Coverage Ratio), this ratio must always be above 1. Otherwise, if the resulting ratio of the given formula is less than 1, then the company will undoubtedly have to borrow at some point in order to be able to pay liabilities to shareholders on the basis of dividends.

CONCLUSION

In addition to the balance sheet and income statement in a company's financial reporting system, there is another financial report - cash flow statement, which provides the grounds to assess the ability of a

company to generate positive cash flows in order to assess its liquidity and solvency. In general, it is considered that the primary goal of a company's cash flow statement is to obtain information on the company's cash inflows and outflows over a period of time, while the secondary goal is to provide insight into the company's investing and financing activities. A company that generates a positive cash flow generates a sufficient amount of funds and is able to reduce its dependence on external sources of financing, whereas a company that is not able to generate enough funds will sooner or later have to stop operating regardless of the realized profit. The cash flow statement explains the changes in cash by highlighting those activities that increase and those that decrease cash in a company. Two methods can be used to create the cash flow statement: direct and indirect. The difference between these methods is in the way cash flows from operating activities are presented, whereas cash flows arising from investing and financing activities are presented in an identical manner in both methods. The most important thing for a company is that net cash flow from operating activities is positive, because future investing and financing of the company depend on it.

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IS FISCAL SYNCHRONIZATION HYPOTHESIS VALID FOR WESTERN BALKAN REGION?

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ABSTRACT

Fiscal synchronization is one of the most important issue for every government in the world. Estimating the relationship between government revenues and government expenditures is often subject of methodological and empirical analysis. The aim of this paper is to emphasize the importance of adequate public finance management in terms of nexus between government revenues and government expenditures. The subject of the research is the relationship between government revenues and government expenditures in Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia) for the period 2006-2020. The empirical results confirmed bidirectional causality between government revenues and government expenditures which implies presence of fiscal synchronization at Western Balkan group level for the observed period.

Keywords: Government revenues, Government expenditures, Fiscal synchronization, Western Balkan.

INTRODUCTION

Many politicians and economists argue that good governance is one of the key factors for democratic development of the country, as well as economic growth (Pere, 2015). Dynamic nexus between government revenues and government expenditures is broadly discussed because of the significant increase of the public sector growth and debt level after the World War II (Richter, & Dimitrios, 2013). Public expenditures as a share of GDP has been relatively low in Western Balkan region compared to the EU, where only Bosnia and Herzegovina and Serbia have had shares of expenditures similar to the EU (Bartlett, & Prica, 2017). Before the 2008 global financial crisis, the Western Balkan countries had government budget deficit levels below the EU averages. However, the effects of crisis and slower economic growth as well as reduced government revenues and higher government expenditures have negative implications to the macroeconomic structure of this region (Janowicz-Lomott et al. 2020). The structure of the research is as follows. After the introduction, there is literature review that includes previous theoretical and empirical analysis about relationship between government revenues and government expenditures in the world. The third part is empirical analysis of government revenues and government expenditures in five selected Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia for the period 2006-2020. The last par includes summarizes and conclusion about the relationship between government revenues and government in Western Balkan countries.

LITERATURE REVIEW

The debate about revenues and expenditures has always been present in empirical studies throughout the second half of the 20th century and especially since 1995 (Jaén-García, 2019). Generation of public revenues is often related to existence of the state due every economy needs source to covering

public needs (Kalaš et al. 2020). Bolat and Belke (2015) examined the relationship between government revenues and government expenditures in CEE countries for the period 1999-2014. Their results confirmed unidirectional causality from revenues to expenditures in Slovenia, while running from expenditures to revenues is identified in Estonia, Latvia and Slovakia. The bidirectional causality or fiscal synchronization is confirmed in Romania and Bulgaria, while absence of causality was in Czech Republic, Hungary, Lithuania and Poland. Mutascu (2016) revealed unidirectional causality from revenues to expenditures in Czech Republic, Hungary and Slovenia, while running from expenditures to revenues is identified in Poland, Romania and Baltic states. Finally, bidirectional causality is only confirmed in Slovakia. Using ARDL model, Samal (2017) confirmed fiscal synchronization in India for the period 1980-2016. Alili Sujemani and Ibraimir (2018) analyzed causality between government revenues and government expenditures in Macedonia and Albania for time period 2004-2016. The results showed unidirectional causality between these variables in both countries and running from revenues to expenditures. government expenditures in G7 countries using annual data for the period 1980-2016. Karlsson (2019) analyzed casualty between government revenues and government expenditures in China for the period 1980-2015. The empirical results confirmed tax-spend hypothesis in the wavelet scales of two to four quarters and fiscal synchronization of eight to sixteen quarters. Tashevska et al. (2020) investigated the relationship between government revenues and government expenditures in Southeast European countries from 1999-2015. Their results indicate a unidirectional causality from government revenues to government expenditures in Albania, Bulgaria, Croatia, Serbia and Slovenia, while bidirectional causality is identified only in Macedonia.

METHODOLOGY AND DATA

The main purpose of this segment is to show methodological approach in order to investigate the presence of causality between government revenues and government expenditures in five selected Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia. Time period is 2006-2020 and annual data are used in this analysis.

The hypotheses can be defined as:
H_0: There is a fiscal synchronization in Western Balkan countries.
H_1: There is no fiscal synchronization in Western Balkan countries.

The fiscal synchronization hypothesis confirms that decisions of revenues and expenditures by government are jointly made (Sanusi, 2020). It implies bidirectional causality between government revenues and government expenditures and this hypothesis is confirmed by previous studies (Musgrave, 1966: Meltzer and Richard, 1981).

EMPIRICAL ANALYSIS AND RESULTS

This segment of the research includes an analysis of trend of the government revenues and government expenditures in selected Western Balkan countries for the period 2006-2020. After presenting relative trend and their percentage share in GDP, there is descriptive statistics and causality analysis in order to provide evidence about presence or absence of causality.

Figure 1 shows percentage share of government revenues and government expenditures in Western Balkan countries from 2006 to 2020. Looking the whole period, the share of government revenues increased for 1.46% in GDP of Albania, 8.12% in GDP of Bosnia and Herzegovina, 7.26% in GDP of Montenegro and 3.5% in GDP in North Macedonia. Serbia is only economy where percentage share of government revenues declined by 0.68% in GDP from 2006 to 2020. If we analyze government expenditures, it can see that their share in GDP is smaller in Albania (-3.71%), Montenegro (-7.52%) and North Macedonia (-3.72%) from 2006 to 2020. On the other hand, share of government

expenditures in GDP are higher in Bosnia and Herzegovina (+0.15%) and Serbia (+0.24%) in 2020 compared to 2006.

Figure 1. Government revenues and government expenditures in Western Balkan countries (% GDP)
(Source: Authors based on https://www.imf.org/en/Publications/WEO/weodatabase/2020/October/select-country-group)

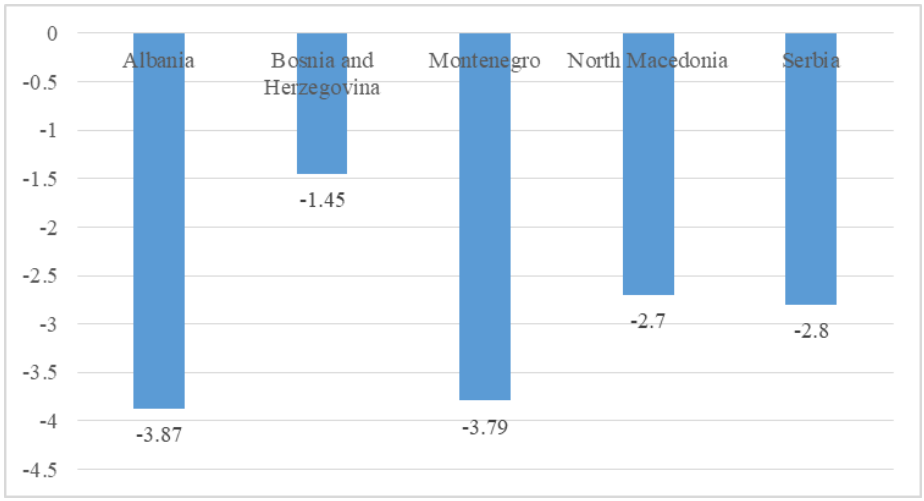

Figure 2: Mean difference between government revenues and government expenditures in Western Balkan countries
(Source: Authors based on https://www.imf.org/en/Publications/WEO/weodatabase/2020/October/select-country-group)

Analyzed mean difference between government revenues and government expenditures in selected Western Balkan countries, the results identified the negative values in observed countries. It implies that shares of government expenditures in GDP are higher than shares of government revenues in GDP in the analyzed countries. The highest mean difference is recorded in Albania and Montenegro (values above 3%), while the smallest value is identified in Bosnia and Herzegovina (values above 2%).

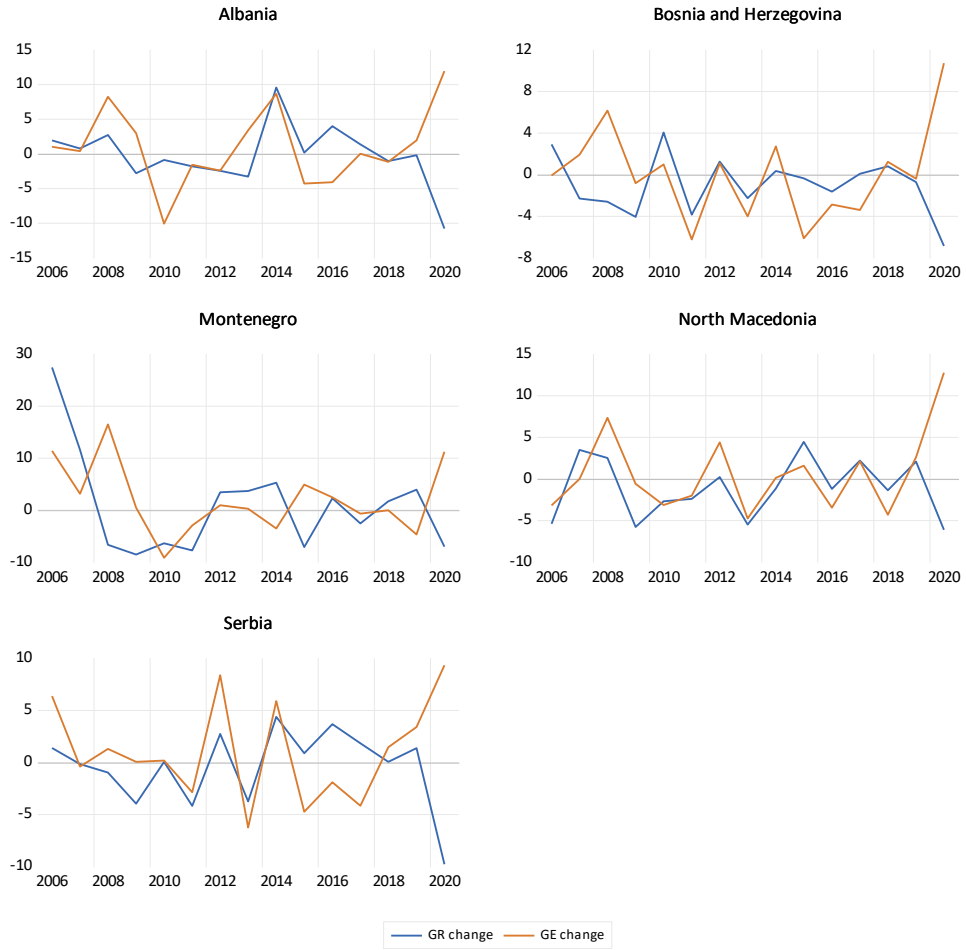

Figure 3. Relative trend of government revenues and government expenditures in Western Balkan countries
Source: Authors calculation

Figure 3 show the relative trend of government revenues and government expenditures in selected Western Balkan countries from 2006 to 2020. The results showed that government revenues decreased by 0.36% at average level, while mean change of government expenditures was 0.96%. Analyzing by countries, Montenegro is only economy where share of government revenues in GDP increased by 0.89% at average level for the observed period. Contrary, the mean share of government revenues in GDP is decreased in Albania (0.17%), Bosnia and Herzegovina (-1.01%) and Serbia (-0.42%). The highest change of government expenditures is identified in Montenegro (2.03%) at average level, while their smallest change is recorded in Bosnia and Herzegovina (0.07%) at mean level.

Looking the share of government revenues in gross domestic product of selected Western Balkan countries, we can see that Bosnia and Herzegovina and Montenegro had the highest mean values of 43.82% and 42.85%, while Albania and North Macedonia had mean share below 30% of GDP. Analyzing by year, Montenegro recorded the maximum value 52.29% of GDP in 2007, while the minimum value is identified in Albania in 2013 (23.98% of GDP). The similar situation is at government expenditures, where Montenegro had the maximum values of 51.34% in 2008, while Albania had the minimum value 28.23% of GDP in 2012.

Table 1. Descriptive analysis

Government revenue				
Country	Mean	Std. Dev.	Min.	Max.
Albania	26.14	1.14	23.98	27.76
Bosnia and Herzegovina	43.82	1.95	39.71	47.82
Montenegro	42.85	3.82	38.55	52.29
North Macedonia	29.51	1.59	27.45	32.83
Serbia	39.89	1.57	37.32	42.11
Government expenditure				
Albania	30.01	1.49	28.23	32.89
Bosnia and Herzegovina	45.28	2.96	40.76	49.50
Montenegro	46.65	2.56	42.53	51.34
North Macedonia	32.21	1.25	30.39	35.17
Serbia	42.69	1.58	40.14	46.05

(Source: Authors calculation)

Table 2. Causality test

Western Balkan countries		
Null Hypothesis	F-stat.	Prob.
GE GR	5.9325	0.0045
GR GE	10.6369	0.0001
Albania		
Null Hypothesis	F-stat.	Prob.
GE GR	0.0278	0.9726
GR GE	0.3489	0.7157
Bosnia and Herzegovina		
Null Hypothesis	F-stat.	Prob.
GE GR	1.3291	0.3174
GR GE	4.5236	0.0485
Montenegro		
Null Hypothesis	F-stat.	Prob.
GE GR	2.2274	0.1702
GR GE	3.6519	0.0747
North Macedonia		
Null Hypothesis	F-stat.	Prob.
GE GR	3.1257	0.0993
GR GE	2.7971	0.1199
Serbia		
Null Hypothesis	F-stat.	Prob.
GE GR	3.5761	0.0851
GR GE	9.8925	0.0091

(Source: Authors calculation)

Table 2 shows causality between government revenues and government expenditures at group level, as well as individually by country from 2006 to 2020. As we can see, there is bidirectional causality between government revenues and government expenditures in Western Balkan level for the observed period. Analyzing by the country, it can see that unidirectional causality is identified in Bosnia and Herzegovina, Montenegro and North Macedonia at significance level of 10%, while only in Albania there is no presence of causality between these variables. Finally, there is bidirectional causality in Serbia for the analyzed period.

CONCLUSION

The research analyzed government revenues and government expenditures in five selected Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia) for the period 2006-2020 from the aspect of their share in GDP of observed economies. Analyzing these

variables, mean share of government revenues was 36.44% of GDP while government expenditures had higher average share 39.37% of GDP. Bosnia and Herzegovina recorded the highest average share of government revenues (43.82%), while mean share of government expenditures was the highest in Montenegro (46.65%). Results of causality analysis showed bidirectional causality between government revenues and government expenditures at Western Balkan group that implies there is a valid hypothesis of fiscal synchronization in this region. We can conclude that H_0 can be accepted that implies there is a fiscal synchronization in Western Balkan countries. Looking by country, the results manifested unidirectional causality from revenues to expenditures in Bosnia and Herzegovina and Montenegro. Contrary, running from expenditures to revenues is recorded in North Macedonia at significance level of 10%. It is necessary to point out that particular country analysis found bidirectional causality only in Serbia, while in Albania there is no causality between selected variables.

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THE ASSET ALLOCATION OF OCCUPATIONAL PENSION PLANS

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ABSTRACT

The paper provides the overview of the important features of pension plans' asset allocation. Pension plans are facing opposite goals in conducting investment policy. On the one hand, pension plans tend to provide stable and predictable retirement benefit payout to their members in the long term which implies higher fraction of portfolio invested in risk-free fixed income assets. On the other hand, pension plan members are interested in generous retirement benefits which implicitly assumes higher fraction of portfolio invested in risky assets, mainly in stocks. Hence, the asset allocation must be oriented towards high return financial classes to deliver enough funds to finance pension liabilities. High return asset classes, such as stocks and alternative financial classes provide higher rates of return than fixed income assets, but are more volatile. Also, fixed income classes provide safe, but moderate rates of return, which are generally not sufficient to finance adequate retirement benefits. The pension plan managers must maintain a delicate balance between these conflicting goals. This assignment becomes even more challenging in the volatile financial markets.

Keywords: Pension plans, Asset allocation, Risky assets, Risk-free assets.

INTRODUCTION

In terms of insurance, pension plans can be defined as a mechanism through which individuals accumulate funds during their working career to finance consumption in retirement. In terms of the investment process, pension plans collect, pool and invest funds contributed by sponsors and beneficiaries to provide for the future pension entitlements of beneficiaries (Davis, 2002, 5).

The investment objectives of pension plans should be shaped to reflect the maturity profile of pension liabilities and long-term investment horizon. Given that pension plans are long-term investors, optimal investment strategy for pension plans should incorporate the increased exposure to risk due to time diversification of stock investments. For pension plans, the return fluctuations are an opportunity rather than a risk. Relative stability and predictability in the pension plan members' contributions provide a considerable level of freedom in designing investment strategies (Blake, 2003, 321).

The financial position of occupational pension plans in the most developed countries was satisfactory until the end of the 20th century. However, pension plans' financial position around the world was seriously threatened in several occasions in the first two decades of the 21st century (dot. com crisis in 2001, Global financial crisis in 2008, prolonged period of low interest rates in the aftermath of the Global financial crisis, and the Covid-19 economic crisis). In 2008, private pension funds worldwide registered losses of nearly 20% of their assets. For example, Dutch pension funds that are traditionally regarded as the best in the world, experienced rapid decrease in the average funding level from outstanding 144% in 2007 to approximately 95% in 2008 (De Haan, 2018, 437). While the financial markets have already partially recovered in 2009, the funding levels of defined benefit pension plans have remained lower than the before crisis levels up to the present time. Also, low interest rates have

almost completely neutralized the stock market gains in 2010-2019. Finally, the Covid-19 in 2020 has emerged and put the pension plans under additional pressure of underfunding. In 2020, the further deterioration of funded status of occupational pension plans has occurred. For example, the estimated aggregate funding level of pension plans sponsored by S&P 1500 companies decreased to 84% from 88% at the end of 2019 (Mercer, 2021). Similar trend has been recorded in other countries in which pension plans are important financial market participants (Switzerland, United Kingdom, Australia, Canada, Ireland, Finland, Japan and others).

In the adverse environment of the increased volatility, the pension plans' asset allocation must be oriented towards the protection of adequate retirement benefits. However, the guarantee of the retirement benefit payment and the adequacy of the retirement income demand different portfolio structure in the long run. If the pension fund manager is focused primarily on the benefit payment guarantee, the stable and predictable cash flow stemming from investment activities is required. In this case, the risk free assets, such as government bonds and investment grade corporate bonds, should account for the large fraction of portfolio. If the pension fund manager is focused mainly on the retirement income adequacy, high investment returns are required. Exposure to equities and alternative asset classes (real estate, infrastructure, private equity, hedge funds, etc.) that deliver high, but volatile, returns is essential to provide pension plan members with adequate retirement standard. In practice, pension plans must simultaneously accomplish conflicting goals which poses the significant challenge for the portfolio allocation.

THE COMMON FEATURES OF THE ASSET ALLOCATION IN PENSION PLANS

The occupational pension plans' portfolio composition has been continuously changing in the last few decades, due to the combined impact of many factors, such as financial markets fluctuations, regulatory changes and demographic trends. Risk aversion and portfolio diversification have been imposed as two basic principles in the pension plan investment policy formulation. Accordingly, two basic trends in the long-term asset allocation of pension plans can be pointed out:

1. The reorientation of portfolio diversification from traditional asset classes to alternative asset classes;
2. Increasing geographical diversification, that is, a continuous increase in investments in international financial instruments.

For the sake of simplicity, the asset classes considered in this paper are bonds, stocks and the alternative classes. The cash instruments are not considered, given their minor importance in pension funds' portfolio. What are the main advantages that pension plans achieve by investing in each of the above asset classes?

Bonds have gained popularity in the pension plans after a sudden and considerable drop in the stock market at the beginning of the 21st century. Until that moment, the pension plans were oriented towards outperforming the stock indices or the asset class benchmarks. However, after a significant disruption of the financial position of pension plans in the first few years of the 21st century, the pension plan managers have become aware that it is not only important to outperform or replicate stock or bond indices, but it is also important to match the anticipated return on investment portfolio are matched with the future pension liabilities.

The most radical approach of the pension plan exposure to bonds is the dedication model. This model implies a 100-percent investment in bonds held to maturity and involves finding the most efficient set of bonds that generates cash flow in the long-term investment horizon (Ryan, 2013, 2). Investment strategies that generate cash flow that matches the duration of pension liabilities can be classified as strategies of partial or complete immunization. In all these approaches, bonds represent the most important element of the investment portfolio that hedges interest rate risk and inflation risks. Bearing in mind the maturity profile of pension liabilities, long-term inflation-linked bonds (for example, Treasury inflation-protected securities in the United States) can provide adequate protection against

the inflation risk. These bonds provide a predictable real return in the long term, which is particularly important for pension plans. Short term financial instruments, although risk-free, do not represent the appropriate solution for long-term investors, since there is reinvestment risk due to the unpredictable interest rates in the future. Corporate bonds, in terms of the inflation risk hedging, are also close to risk-free solution, if the inflation is low (Campbell, & Viceira, 2002, 73). However, corporate bonds do not provide protection against unexpected inflation changes. Hence, if pension plans want to hedge interest rate risk, they would invest in long-term bonds, and if they want to hedge against inflation, they would invest in the inflation-linked bonds (Bank for International Settlements, 2011, 11).

Regarding stock investments, the purchase of stocks "buys" the potential of their value growth in the future, with fluctuations in value reflecting the risk of these investments. Also, stocks can provide protection against inflation, if the condition of positive long-term correlation between the stock returns and inflation is met (Sutcliffe, 2005, 59). Since retirement benefits in many defined benefit pension plans are calculated as the percentage of the final salary in the year prior to retirement (or the average salary), the pension plan should achieve the return rate that is at least equal to the salary growth rate. Correlation between the stock returns and the wage growth may be low in the short run, but in the long run the correlation becomes significant (Chen, 2004, 9). In the long run, stocks can become safer investment than bonds due to time diversification, that is, investment risk decreases with the prolongation of the investment period, because returns from "good years" offset losses from "bad years". Also, the stock market is deep in the developed financial markets, which provides significant incentives for stock investments.

Occupational pension plans typically have large assets under management. This feature creates the possibility for the pension plans to actively seek high rates of return, achieve optimal portfolio diversification and benefit from the economies of scale. Traditionally, pension plans have invested in the aforementioned asset classes (bonds and equities). In the last decade, pension plans have further diversified their portfolios by successfully allocating to alternative asset classes. There are many alternative asset classes, but here only real estate, infrastructure and private equity are to be considered.

Real estate investments refer to the purchase of property consisting of land and buildings and the right to future cash flows by renting commercial real estate or buying shares in companies investing in real estate (Real Estate Investment Trust - REIT). The assessment of commercial real estate to be purchased can be done internally or externally. The internal assessment implies that pension plan managers perform the appraisal of real estate, while the external assessment involves the engagement of external managers specialized in real estate investing. Pension plans also gain real estate market exposure through the purchase of investment portfolio of other investment funds (Fund-of-funds) or investment managers. Rather than investing in a single fund, a portfolio of funds is built by pension plan manager and actively rebalanced over time. This removes the risk of being exposed to a single fund or investment manager, but at the expense of adding fees in recognition of the manager’s ability and costs.

Pension plans achieve several advantages by investing in real estate: 1) diversification and reduction of total portfolio risk; 2) protection against inflation risks; 3) a stable rental income cash flow (Andonov et al., 2013, 34). When it comes to diversification, real estate can contribute as a number of studies show a relatively low correlation between real estate prices, stock returns and bond returns (Ibbotson & Siegel, 1984; Case et al., 2012). Real estate prices, in addition to economic factors, also depend on non-economic factors, such as population growth or the development of information technologies making real estate more accessible. In addition, real estate prices are not adapting immediately to market movements, as they are determined by long-term factors. Hence, real estate investment can provide protection against inflation.

Investments in infrastructure are becoming increasingly important in pension plans, bearing in mind the long-term growth potential and low correlation with other asset classes. Infrastructure investments refer to the construction and management of facilities in order to conduct certain economic and social

activities (roads, airports, bridges, tunnels, power plants, education, health care and so on). The advantages of investing in infrastructure are reflected in a lower variance of value over time, given the continuously growing demand for these facilities, the predictable long-term cash flow, protection against inflation and a relatively low correlation with traditional asset classes (Moss, 2014, 4).

Generally, private equity refers to equity investments in assets not traded in the public market, such as stock exchange. This term includes a wide range of different types of corporate financing, ranging from venture capital to buyout. Venture capital refers to different investments in new companies, such as the financing of start-up companies or the bank loan refinancing. The buyout refers to transactions in which the buyer seeks to acquire a significant position in the decision-making of profitable companies. The buyout can be achieved through an MBO (Management buy-out) where funds are provided to enable current management to acquire business operations, or public to private buyout where the purchase of equity of publicly listed companies occurs and the company becomes private again (Trades Union Congress, 2007, 12). The advantage of private equity is reflected in an attractive cash inflow in the long run. Considering the long-term character of investments, private equity presents the appropriate investment option to pension plans, since a positive cash inflow can only be expected after 3 to 5 years. On the other hand, these investments are risky because they exclude the transparency of information of public markets. Also, private equity is an illiquid asset class, since it is not listed on stock exchange.

QUALITY AS AN IMPERATIVE FOR ACHIEVING COMPETITIVENESS

As the consequence of the adverse effects of financial market crises in the first decade of the 21st century (dot-com bubble in 2001 and the global financial crisis in 2008), occupational pension plans suffered huge losses. Due to the fall of stock prices and the decrease in interest rates caused by the counter measures of the Central Banks, pension plans experienced a significant decline in investment returns, as well as an increase in the present value of pension liabilities, leading to the deterioration of their financial position. In the United States, United Kingdom and Netherlands, the funding ratio of pension plans fell by an average of about 40% in the first decade of 21st century (Berkelaar & Kouwenberg, 2011, 352). Sharp investment losses damaged the long-term viability of pension plans and the safety of retirement benefits was put at risk. This sudden turnaround has created a clear need for better risk management in pension plans. The need for improvements has been further amplified by Covid-19 crisis.

The challenges that pension plans face in shaping investment portfolios are becoming more numerous and more complex. In the prolonged low interest rates environment in Europe and Japan, the financial position of pension plans has become jeopardized, due to increase in present value of pension liabilities. On the other hand, the decline in interest rates causes the rise of the bond prices, which improves the financial position of pension plans. In practice, the decline in interest rates affects more seriously liabilities than the assets, due to the longer average duration (International Monetary Fund, 2011, 75). In combination with an increase in life expectancy, this trend has significantly exacerbated the financial position of pension plans that have begun the process of adjusting investment policy and portfolio structure in emerging circumstances.

Since the rates of return in developed markets are insufficient, pension plans are increasingly investing in emerging markets, as well as in alternative assets with more attractive returns. In addition to the interest rate risk, pension plans will increasingly have to take into account the inflation risk. The prices of food, energy and oil products experienced fluctuations in the first two decades of the 21st century which poses additional challenges for pension plan managers. Given that in most pension plans the amount of future pension payments depends on the inflation rate (due to retirement benefit formula, indexation for costs of living, etc.), the unexpected inflation significantly increases pension liabilities. Investment managers are continuously exploring new opportunities to protect against inflation risks, in addition to investing in traditional financial instruments, such as inflation-linked government bonds. Real estate investments, commodities, and inflation swaps represent alternative sources of protection against inflationary risks that are increasingly gaining popularity.

At the beginning of the 21st century, the common portfolio structure for pension plans included a combination of investments in domestic equities and bonds. In general, the most important decision pension plan manager had to make concerning asset allocation had been related to the equity exposure. The fraction of portfolio invested in stocks in pension plans in the most developed countries (Australia, Canada, Japan, Netherlands, Switzerland, United Kingdom and United States) had gradually decreased in the period from 1997 to 2016, while the importance of alternative assets had increased (investments in infrastructure, real estate, private capital, hedge funds, commodities and commodity derivatives). Also, the portfolio fraction invested in bonds has remained relatively stable in the observed period. The same applies to the cash instruments (Willis Towers Watson, 2017, 25). According to CEM Benchmarking (2016), pension plans in the United States in 1998 invested approximately 48% of the total portfolio in domestic equities, and about 14% of portfolio in non-domestic equities. As for investments in bonds, on average, pension plans invested around 29% of the total portfolio in domestic bonds, and 2.5% in non-domestic bonds. The remaining 6.5% of portfolio was invested in alternative assets.

A drastic reorientation in the process of portfolio shaping in the pension plans in the United States occurred after 1998. Geographical diversification is becoming crucial in order to mitigate country or regional risks. Traditionally, pension plans have focused strongly on domestic markets, but this is changing as more and more pension plans are investing abroad and diversifying portfolio across different geographic regions in order to reduce the overall risk and improve returns. In 2014, on average, pension plans invested only 22% of the portfolio in domestic equities, but about 21% of the portfolio was invested in international equities. As regards the fixed income assets, the share of investment in bonds increased to approximately 33%, while the share of investments in international bonds remained at about the same level as in 1998. Investments in alternative assets achieved significant growth in the same period, as the aggregate share of these investments in the portfolio increased to approximately 21% (CEM Benchmarking, 2016, 26).

The downward trend in the stock exposure of pension plans is even more noticeable in the United Kingdom, where, in the early 1990s, pension plans invested, on average, 75% of portfolios in equity, and only 13% in fixed income assets. The portfolio composition remained unchanged until the end of the century. However, in the first decade of the 21st century, a sharp decline in stock exposure is evident. In 2011 UK pension plans on average invested 43% of portfolio in stocks, and 39% in bonds. It should be said that this decline is caused mainly by the decrease of the fraction of portfolio invested in domestic equities, while the exposure to non-domestic equities remained relatively stable. The fraction of portfolio invested in alternative assets in the period between 1998 and 2016 increased from 12% to 17% (UBS, 2017, 12).

Based on previously presented data, the basic trends in the pension plans' portfolio can be identified:
- Domestic stock exposure has decreased after the Global financial crisis;
- Emerging markets equity exposure has increased over the last decade;
- Portfolio fraction invested in bonds has remained relatively stable;
- Alternative assets are gaining an increasing importance.

Pension plans in developed financial markets invest mostly in long-term financial instruments, such as stocks and bonds, in order to match their long-term liabilities duration and meet their financial obligations, with the remainder going to alternative assets, which include private equity, real estate, unlisted infrastructure, hedge funds, etc. The constraint that seriously affects portfolio diversification in pension plans in the least developed countries is the scarcity of appropriate investment alternatives. Asset availability is driven by a number of factors, including the pension system's regulatory environment, design, and performance. Even in a pension system with many assets available for investments, the governance, regulation, and supervision of pension plans can restrict those plans' ability to actually invest in available assets. If such constraints are eliminated, then pension plans need to consider the risks of investment projects and demand a transparent and predictable policy framework to invest. Once this problem is solved, pension plans will need adequate financial and capital market instruments to implement their investment decisions.

CONCLUSION

Occupational pension plans in developed countries are continuously exploring new investment alternatives in order to realize higher rates of return. In addition to the increasing exposure to alternative assets, the asset allocation of pension plans is characterized by the use of geographical diversification. In this way, pension plans manage to exploit the possibility that economic cycles in different regions are not synchronized. This range of investment alternatives is available only to large pension plans from the most developed countries that hold substantial assets under management, have access to the global financial market and can fully benefit from the economies of scale. Pension plans in developing countries have limited access to alternative asset classes, given the underdevelopment of national financial markets. In addition, the access of these pension plans to financial instruments from other geographical areas is limited, which further hampers the possibilities for portfolio diversification.

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COMPETITIVENESS OF THE WESTERN BALKAN COUNTRIES IN ATTRACTING FDI

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ABSTRACT

The competitiveness of the economy represents the degree of success of its positioning within global business flows. One of the key factors in increasing competitiveness, and consequently productivity in the business environment, is the inflow of foreign direct investment. A precondition for the inflow of foreign direct investments, which bring with them new technologies and knowledge, as well as the possibility of easier access to foreign markets, is certainly the growth of competitiveness. Foreign direct investment is one of the important factors of sustainable economic development and increasing the competitiveness of each country. The main goal of this paper is to analyze the inflow of foreign direct investment in the Western Balkans and to point out the activities that have led to certain countries attracting more foreign direct investment (per capita) than others in the Western Balkans. The methodology used was based on a quantitative approach, while secondary UNCTAD database data for the period 2010-2019 were used in the analysis. The results indicate that the competitiveness of the Serbian economy, compared to other economies in the Western Balkans, is at a very high level. The countries of the Western Balkans in the coming period, with their overall policy, ensure an environment in which there are stable conditions for smooth and profitable operations will attract foreign direct investment faster and easier than those countries where the investment environment is not sufficiently stable and favorable.

Keywords: Competitiveness, Foreign direct investment, WB countries, Economic growth.

INTRODUCTION

In today's global environment, the competitiveness of the economy is of interest to many economists. As such, it can be viewed through two concepts: micro-competitiveness, which refers to the competitiveness of a company, i.e. their relative advantage over other companies and macro-competitiveness, which implies the competitiveness of one national economy as a whole. The level of competitiveness expresses the capacity of the national economy to, in the medium term, generate sustainable economic growth at the current level of development. The end result of competitiveness is considered to be stable and sustainable economic growth, social development and an increase in standard of living. In order to raise the competitiveness of an economy, it is necessary to improve the general factors of competitiveness. This primarily refers to macroeconomic stability, adequately conducted economic policy, involvement in global processes, the quality of the rule of law and legislation, the development of financial sector institutions and others. Attracting foreign capital plays a key role in increasing the rate of economic growth as well as improving competitiveness. Therefore, it is very important for the state to direct its activities towards creating a favorable investment environment that will contribute to attracting foreign direct investment. This will take advantage of the positive effects that FDI has on economic growth, competitiveness, as well as business and export performance and the economy as a whole. One of the significant factors that can greatly affect the competitiveness of an economy is an adequate tax environment. In order to increase foreign investments, a stimulating tax environment is considered one of the important instruments that countries use to achieve this goal (Marjanović, 2018). Depending on the goals of the economic policy it pursues, the country has an interest in attracting precisely defined investments that contribute to the

achievement of the set goals. Economic growth and development is the goal of almost every country, and they are interested in attracting investments that guarantee that growth.

LITERATURE REVIEW

From a global point of view, it is typical for countries to compete with each other in order to attract as many foreign direct investments as possible. Paren (2017) in his research examines the interdependence of competitiveness and the value of FDI, and concludes that there is a relationship between these variables, i.e. that increasing national competitiveness will increase FDI per capita in the analyzed economies. Foreign direct investment is considered an effective way to raise a country's comparative advantages (Marjanović, & Domazet, 2021). The host country has certain advantages when it attracts foreign direct investment, which is reflected in the growth of competitiveness, as well as its more intensive development. Given that the Western Balkans region is dominated by horizontal FDI, it is to be expected that the competitiveness and economic development of these countries will increase. In order for a country to attract foreign direct investment, it is very important to be competitive in the market. It can achieve this if it implements the necessary reforms and adopts an adequate strategy to attract FDI (Domazet, & Marjanović, 2017b). Higher FDI inflows are expected in those countries where corruption is at lower level. Brada et al. (2019) point out that multinational companies effectively manage to develop skills that can significantly resist corruption in the host country, and thus contribute to these skills becoming a competitive advantage over other countries. The most common form of state intervention in the function of creating competitiveness are fiscal measures, within which various tax incentives stand out. Therefore, in the process of attracting foreign direct investment, it is very important to ensure greater competitiveness in the capital market using tax policy measures (Domazet, & Marjanović, 2017a; Domazet, & Marjanović, 2018). Contractor et al. (2020) in their research deal with the issue of multinational companies, i.e. the conditions that are important for their investment in a particular country. The results obtained clearly indicate that more foreign direct investment attracts countries based on stronger contract enforcement as well as more efficient trade regulations. Each host country seeks to highlight the channels through which foreign direct investment has an impact on its economic development (Roy et al., 2020). Hlavacek and Bal-Domanska (2016) analyzed the impact of foreign direct investment on the economic growth of Central and Eastern European countries and concluded that FDI and the level of GDP are interdependent.

In the last twenty years, there has been a gradual turnaround when it comes to global foreign direct investment. The reason for this lies in the fact that emerging market economies have become an increasingly important factor whether they are source or destination countries (Carril-Caccia, & Pavlova, 2018). The countries of the Western Balkans have integration into the European Union as one of their main goals. In order to achieve this, it is important that they adapt their business strategy to the global market, which will contribute to achieving competitive advantages over the countries in the immediate vicinity (Radović, & Marković, 2019; Marjanović, & Domazet, 2018). In the years to come, the countries of the Western Balkans will be of particular interest to Chinese companies. The reason for that is in the fact that this region is very important for China, considering that it represents one of the main corridors within the global Belt and Road Initiative. One of China's goals is to take a leading role in international economic governance and the process of globalization (Li & Taube, 2018). For this reason, through the implementation of this project, China seeks to expand and build a new infrastructure network that will connect it with European countries and countries from Asia and Africa involved in the global project "Belt and Road" (Cai, 2017). There is no doubt that the Belt and Road Initiative will contribute to the economic growth of these countries, and thus to the faster development of the Western Balkan countries (Huang, 2016). Therefore, it can be concluded that the Western Balkans region will play an important role in connecting China with the European market. For that reason, it is expected that Chinese investments in these countries will increase in the coming period (Zuokui, 2016). However, one must note that the geographical location is not in itself crucial for attracting investments, but that these countries have an obligation to adjust their investment policy to investors. In this way, they will be in a position to be competitive with some other regions, which will reflect through an increasing inflow of foreign investment.

DATA ANALYSIS AND FINDINGS

Foreign direct investment can significantly contribute to the economic growth of the Western Balkans. Based on this, it can be concluded that FDI has a great impact on the development of these economies. The main goal of this paper was to determine the competitiveness of the Western Balkan countries through the analysis of foreign direct investment inflows. When choosing a database, it was very important that the data came from one source in order to be comparable. Secondary data from the UNCTAD database were used in the analysis, as it represents one of the largest information, knowledge and experience databases in international economics and trade. The time period covered by this analysis is from 2010 to 2019.

In a situation where it is very important for developing countries to attract as much foreign direct investment as possible, almost all of them have liberalized the regulations that determine the framework of foreign investment. It is for this reason that countries seek to develop strategies and programs that will enable them to attract foreign companies and their capital. When it comes to the motives of the host countries, they primarily focus on companies and their investment, given that this is one of the ways to increase employment and exports, but also to introduce new technologies. Foreign direct investment in the host country market can usually produce two effects. The effect of competition manifests through the substitution of domestic final products and the strengthening of competition in the market, while the effect of ties leads to the complementarity of foreign and domestic companies in the market. If a country aims to attract as much foreign direct investment as possible, it is very important to provide a favorable investment climate. Such conditions can be provided if there is political and social stability in the country, stable business conditions, access to raw materials, but also cheap labor.

In the past ten years, large companies have been looking for a market that can provide them with good business conditions. On the one hand, countries are obliged to prepare an investment environment that will benefit foreign companies, while on the other hand they expect significant investments, especially in those industries / activities that are not sufficiently developed. Since they are not members of the European Union, the countries of the Western Balkans have a special interest and motive to attract foreign companies to their territory.

However, the goal is not only to attract foreign companies, but also to adapt the market to their needs so that they continue to invest in the future as well as to send a positive image of the country as an investment destination. Table 1 shows the inflow of foreign direct investments in the countries of the Western Balkans in the period from 2010 to 2019.

Table 1: FDI inflows in WB countries (millions of dollars)

Economy / Year	Albania	Bosnia and Herzegovina	Montenegro	North Macedonia	Serbia
2010	1,050.7	406.1	760.4	212.5	1,686.1
2011	876.3	496.5	558.1	478.8	4,932.3
2012	855.4	394.9	619.8	142.9	1,298.6
2013	1265.9	276.4	447.5	335.0	2,053.1
2014	1111.4	550.2	497.7	272.5	1,998.8
2015	945.7	361.1	699.4	240.5	2,347.6
2016	1,100.7	349.8	226.4	374.6	2,352.0
2017	1,148.9	449.9	558.6	205.3	2,878.3
2018	1,289.7	472.8	489.8	725.2	4,127.5
2019	1,281.3	528.4	452.8	365.2	4,280.7
Total	10,926	4,286.1	5,310.5	3,352.5	27,955

(Source: Authors - based on the UNCTAD data)

Based on the presented data, Serbia annually received significantly more FDI compared to other countries in the Western Balkans. Most FDI entered Serbia in 2011 (about $ 5 billion), 2018 (about $ 4.1 billion) and 2019 (about $ 4.3 billion). In the observed period, the other analyzed countries had about or less than $ 1 billion per year. The reason for such a thing is in the fact that those countries of the Western Balkans have not yet fully adjusted their development and investment policy to the needs of foreign investors. Certainly, slow reforms, primarily in the fiscal sector, are the reason for a smaller amount of FDI.

Despite the fact that in 2018 there was a negative trend at the global level when it comes to foreign direct investment, the Western Balkans region recorded a growth of these investments for about 30%. The largest growth of the observed countries was recorded in Northern Macedonia, where the inflow of FDI increased by about 260 percent (from $ 205 million in 2017 to $ 725 million in 2018). Serbia, which has the largest inflow of foreign direct investment in the Western Balkans region, recorded a growth of about 44 percent (from $ 2,878 million in 2017 to $ 4,125 million in 2018). Montenegro recorded a negative trend, given that in the period from 2017 to 2019 there was a decrease in FDI.

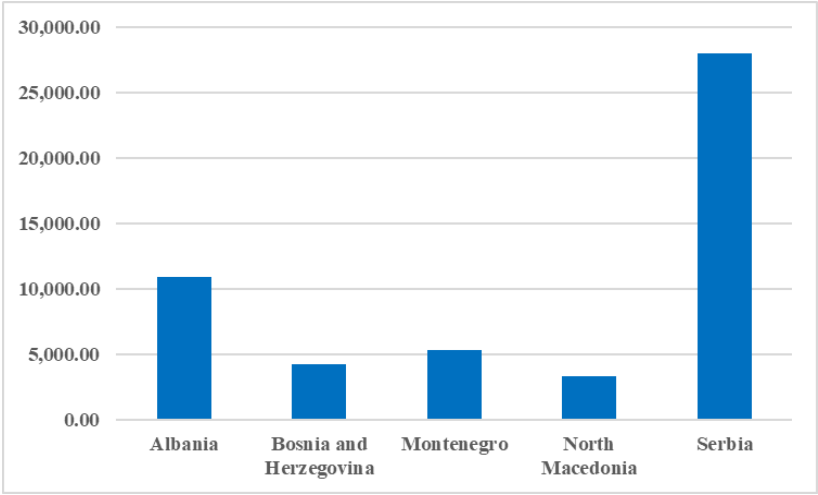

Figure 1: Total FDI inflows in WB countries, 2010-2019 (millions of dollars)
(Source: Authors - based on the UNCTAD data)

Looking at the total inflow of FDI to the countries of the Western Balkans in the period 2010-2019, Figure 1 clearly shows that the largest recipient of these investments is Serbia. In the observed period, investors placed about $ 27.955 million in Serbia, which is significantly more than in other Western Balkan countries. Serbia is followed by Albania, in which $ 10.926 million has been invested, while other countries receive significantly less FDI. The total amount of foreign direct investment in the Western Balkans in the period 2010-2019 was $ 51.829 million. If we compare the inflow of FDI in the Western Balkans region with the inflow of FDI to EU countries, which amounts to about $ 4,522,822 million, we conclude that only slightly more than 1% of total FDI in that period ended up in the Western Balkans. This is a clear indication that there is a significant amount of free investment globally, but it is crucial that the countries of the Western Balkans continue to adjust their investment policies to market demands, but also to implement reforms efficiently and quickly, which can be a precondition for higher FDI inflows.

Figure 2 shows the extent to which Serbia has adjusted its market to the needs of foreign companies. Looking through the percentages, of the total amount of FDI in the period 2010-2019, more than ½ ended up in Serbia (54%). Albania follows with about 21% of total FDI, while foreign investment in other Western Balkan countries accounts for about 10% or less. In a situation when countries create optimal conditions for foreign investments, the development of the domestic economy occurs as a consequence of the inflow of foreign direct investments. Locating its business in the Western Balkans offers foreign investors significant competitive advantages over some other countries, primarily Central and Eastern Europe. Competitive advantages relate to geographical location, low tax burden, cheap labor as well as availability of natural resources. Therefore, it is very important that these countries respond appropriately to improve the overall business climate by improving business procedures as well as undertaking

comprehensive structural reforms, primarily in the area of legislation while reducing the fiscal burden on businesses. Foreign direct investments accelerate the privatization process but also strengthen the competitiveness of the domestic economy. In addition, they are very important because of their development effects, which relate, inter alia, to export growth, technology and knowledge transfer, GDP growth and lower inflation.

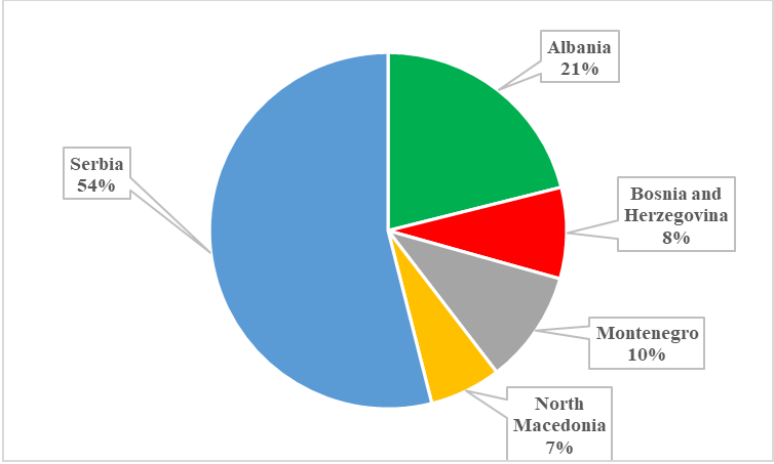

Figure 2: Total FDI share in WB countries, 2010-2019 (percentage)
(Source: Authors - based on the UNCTAD data)

The positive impact of foreign direct investment in the Western Balkans is most pronounced in industry, service market development, trade, business relations and the transfer of new technologies. Industries into which foreign capital has entered usually achieve good business results and act as a stimulus for the overall economic recovery of the country. The negative impact of foreign direct investment most often refers to the growth of unemployment due to layoffs, crowding out of domestic investments, outdated technology and the creation of local monopolies. Achieving sustainable growth requires an economic environment that favors high rates of savings and investments, encourages foreign investors, and enables profitable investments. The experiences of countries that have gone through all stages of economic development and today have become stable and attractive economies for investment can be a good guide for the countries of the Western Balkans. In the past few years, foreign direct investment in the Western Balkans has been largely stable. If attention is focused on Serbia as the country that receives the most foreign direct investments and which is the first in the region in that regard, large investments are primarily the result of the construction of factories that employ relatively cheap and low-skilled labor. However, the advantage of the Western Balkan countries over other regions is that they offer lower wages, lower taxes as well as generous support packages to foreign companies. It is for this reason that the competitiveness of the Western Balkan countries is at a high level, which is reflected in the inflow of foreign direct investments.

CONCLUSION

The strategy towards membership in the European Union, as one of the main goals for the countries of the Western Balkans in the last ten years, implies the necessary fiscal and monetary reforms. In order to attract the attention of foreign investors, it is necessary to provide adequate conditions. Therefore, one of the most important goals of economic policy makers in these countries is to create an investment climate conducive to attracting FDI. In a situation where the globalization of the world economy is taking place, FDI has a very important role for the economic growth and development of the countries of the Western Balkans. In addition, one of the effective ways for a country to create certain competitive advantages over comparative economies is certainly a higher inflow of foreign direct investment. In the last ten years, there has been an increase in FDI in the countries of the Western Balkans, which has automatically reflected on domestic economies. Until the end of the first quarter of 2020, these countries generally recorded significant economic growth. However, the covid-

19 pandemic that hit the whole world also affected the countries of the Western Balkans, which, in addition to the decline in economic activities, are facing declining inflows of foreign direct investment. In the coming period, the countries of the Western Balkans should pay special attention to creating the most favorable economic environment that will be a condition for new investments. More favorable conditions for investment can be provided if the institutional and legal environment is improved, the business of foreign companies is facilitated, the work of the tax and local government is improved and made more transparent, as well as better protection of investors' rights. All this will undoubtedly influence the countries of the Western Balkans to raise their competitiveness to a higher level, which will be reflected through a greater inflow of foreign direct investment.

ACKNOWLEDGEMENT

This paper is financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

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ANALYSIS OF VALUE ADDED ACTIVITY OF SMEs IN SERBIA

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ABSTRACT

Considering the structure of enterprises by size in the Serbian economy it is evident that the economy is based on SMEs. Taking into account the total number of companies which operate in Serbia, about 86% are micro enterprises, about 11% are small enterprises, about 2.5% are medium enterprises and about 0.5% are large enterprises. The aim of this paper is to determine whether there is a significant difference between values added by micro, small, medium sized or large enterprises in the industry with the highest value added using ANOVA. We use data retrieved from the Statistical Office of the Republic of Serbia for the period from 2011 to 2019.

Keywords: SME, value added, analysis of variances.

INTRODUCTION

Small and medium-sized enterprises are in the largest number present in relation to large companies in all sectors in every economy (Ivkovic, Karavidic, & Vujicic, 2012). Small and medium sized enterprises are the key determinants of the development, regardless of the size or development of the considered economy (Berry, 2002; Hu, 2010; Lukács, 2005; Robu & Maximilian, 2013). After turning to market based economy, Serbia developed a favorable environment for the growth and development of the small and medium sized enterprises and entrepreneurs. The SME enterprises have variety of available sources for financing (Milenković, Mirović, & Andrašić, 2018). Besides, there are state owned and international fund where SMEs can apply for funding or loans under better conditions then bank loans. In the last year the state issued a law on alternative funds of financing, which is a first step for encourage venture capital and private equity financing in Serbia using funds based in Serbia. This novelty will create in the future better conditions for the growth of venture capital and private equity investments in Serbia and along with it for the growth and development of SMEs. This is very important for young enterprises and entrepreneurs who have good ideas for starting a business but they lack of financial sources.

Considering the Serbian economy, it is mostly based on micro, small and medium sized enterprises. The classification of legal entities and entrepreneurs is Serbia is in accordance with the criteria and limited values defined in the Law on Accounting (Službeni glasnik RS, No. 73/2019).

Table 1: Criteria of the classification of the enterprises in Serbia (Source: Authors bases on data from Law of Accounting)

Criteria	Micro	Small	Medium	Large
Average number of employees	< 10	10–49	50–250	250<
Operating income*	< 86.431	86.431–1.086.555	1.086.556–4.321.531	4.321.531<
Average value of business assets*	< 43.215	43.215–543.277	543.278–2.160.765	2.160.765<

* in 000 RSD.

The aim of this paper is to analyse the structure of the Serbian economy regarding the size of the enterprises, their revenues and value added. According to that the results of the analyses are composed of three parts. One addresses the structure of the economy in contest of the size of the enterprises operating in all industries. The second part analyses the revenues of the enterprise and in the end the third part analyses the value added using the analysis of variances (ANOVA).

DATA AND METODOLOGY

In this paper we use data retrieved from the Statistical Office of the Republic of Serbia for the time period from 2011 to 2019. We analyse the size of the enterprises, their revenues for the whole industry in Serbia. In the last part we focus on the industry with the highest value added in the considered period and we determinate whether there are differences between values added by micro, small, medium sized or large enterprises using ANOVA.

RESULTS OF THE ANALYSIS

Analysis of the enterprises size in the economy

The first part of the results of the analysis shows the percentage of the enterprises in Serbian economy by size as shown on the figure below.

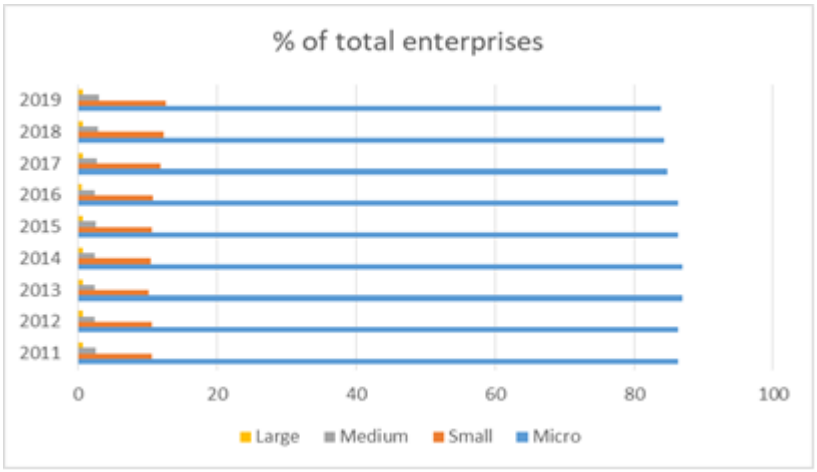

Figure 1: Structure of the enterprises by size (Source: Authors)

Considering the size of the enterprises operating in the Serbian economy around 85% is operating as micro, nearly 11% is operating as small, around 3% is operating as medium and almost 1% is operating as large companies. These structure shows that the economy relays on micro and small enterprises. In the considered period of time from 2011 to 2019 the percentage of micro enterprises has slightly decreased, but instead of that the percentage of the small enterprises increased. The share of medium-sizes and large enterprises remained unchanged.

The percentage mean of the enterprises size for the considered period by every industry is given in the next figure 2.

The distribution by industries shows a lower share than average of micro-enterprises in the mining industry (B), manufacturing industry (C) and water supply; wastewater management, control of waste disposal processes and similar activities (E). In the same industries is the share of small and medium sized enterprises higher, especially in the industry of water supply; wastewater management, control of waste disposal processes and similar activities (E).

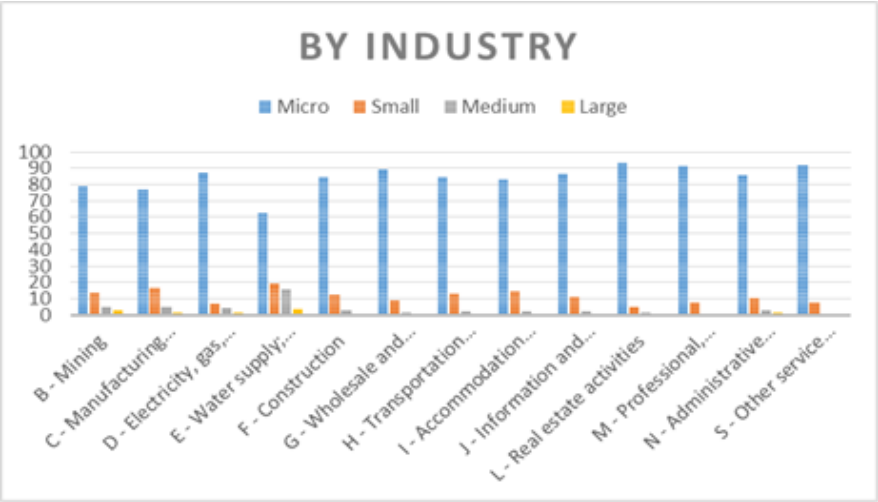

Figure 2: Distribution of enterprises by size in various industries (Source: Authors)

Analysis of the enterprises revenue

Relevant to the analysis besides the share of enterprises by size is the revenue achieved by all size enterprises operating in all industries in the Serbian economy. The figure below shows the mean of the revenues for the considered period from 2011 to 2019 for all industries regardless to the size of the enterprises.

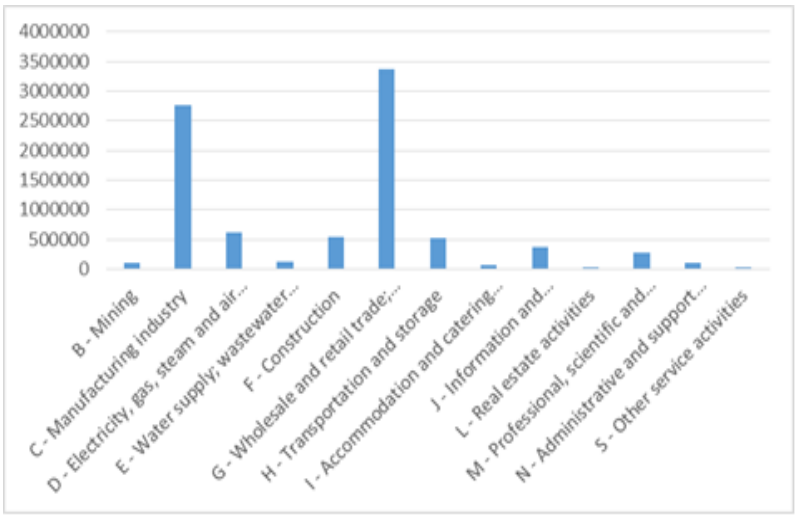

Figure 3: Revenue of the enterprises (Source: Authors)

The highest revenues in the whole industry were achieved in the following industries: wholesale and retail trade; repair of motor vehicles and motorcycles (G), manufacturing industry (C) and on third place is the industry of electricity, gas, steam and air conditioning supply (D).

The next figure shows which enterprises have contributed the most to the revenues by size in the period from 2011 to 2019.

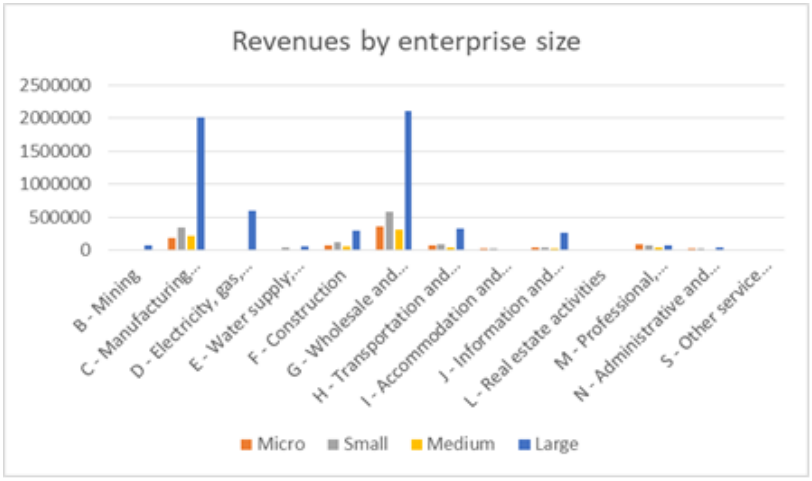

Figure 4: Revenues by industries according to the size of the enterprises (Source: Authors)

The highest revenue value of the micro, small and medium sized enterprises for the nine years period was achieved is in the wholesale and retail trade; repair of motor vehicles and motorcycles industry.

Analysis of the value added

The next figure shows the mean values of the value added by each industry for the considered period.

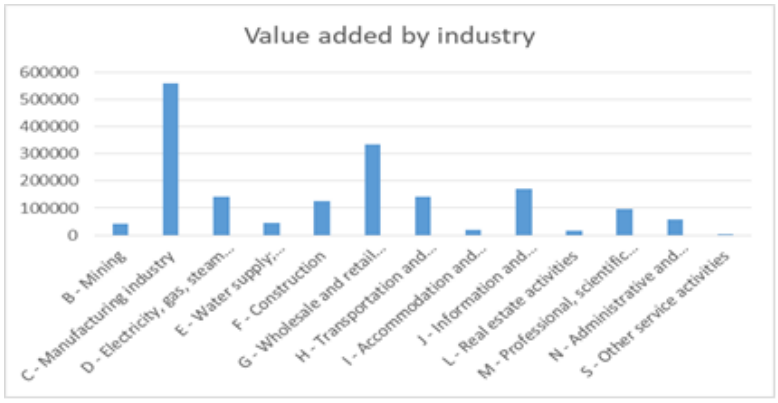

Figure 5: Value added by industry (Source: Authors)

The manufacturing industry has shown the highest level of value added. For that reason we have chosen this industry to test whether there are significant differences in value added regarding the size of the companies using the analysis of variances.

Table 1: One way ANOVA (Source: Authors' calculation)

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	9	6232	692,4444	287455,3		
Column 2	9	-366	-40,6667	2020256		
Column 3	9	35414	3934,889	1077085		
Column 4	9	344499	38277,67	2,25E+08		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	9,2E+09	3	3,07E+09	53,70944	0,0000	2,90112
Within Groups	1,83E+09	32	57074129			
Total	1,1E+10	35				

The results of the ANOVA shows that there is a significant difference in variances for the value added by micro, small, medium sized and large enterprises. While *P*-value is significant, post hoc T-tests were performed to determine the differences between each group. In order to counteract the problem of multiple comparisons a Bonferroni correction was made on α.

Table 2: Post hoc T-tests results summarized

micro-small	P(T<=t) two-tail	0,166991768	0,0083
micro-medium	P(T<=t) two-tail	0,0000003284	0,0083
micro-large	P(T<=t) two-tail	0,00000124	0,0083
small-medium	P(T<=t) two-tail	0,00000444597	0,0083
small-large	P(T<=t) two-tail	0,0000010177	0,0083
medium-large	P(T<=t) two-tail	0,00000388	0,0083

The post hoc T-tests have shown that only between micro and small sized enterprises are no significant differences by adding value, all other differences are significant.

CONCLUSION

The analysis of the number of companies operating in the Serbian economy showed that micro, small and medium enterprises are dominant. In the further course of the analysis, it was determined that three sectors are distinguished according to the realized revenues: wholesale and retail trade; repair of motor vehicles and motorcycles (G), manufacturing industry (C) and on third place is the industry of electricity, gas, steam and air conditioning supply (D).

Due to the significant contribution to the growth and development of enterprises, values added by industries were analyzed in more detail. Value added was found to be highest in the manufacturing industry. The analysis of variances revealed that there are significant differences in value added by micro, medium and large enterprises in the manufacturing industry. Post hoc tests analyzed individual relationships between groups and found that only in the case of micro and small enterprises there are no significant differences.

The recommendation for further research is to group micro, small and medium-sized enterprises and thus perform an analysis across all industries, to determine whether there is a significant difference in the contribution of SMEs and large enterprises in any of the industries.

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THE PROCESS OF SCALE DEVELOPMENT

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ABSTRACT

Measuring is an activity that is performed every day, in all activities. In marketing, it has a special place, because of its direct impact on data quality. In this way, measurement directly affects the decision making process, as well. Many phenomena that are drawing the attention of marketing researchers, such as quality service, consumer behavior, or consumer attitudes, are not so simple to measure. For this purpose, they can use various measurement scales. As their design can affect the research results in a large extent, specific procedures related to scale development process have been created. More than a four decades ago, the first, traditional approach, based on Churchill's paradigm, appeared. It was followed by the contemporary method that occurred with the development of C-OAR-SE procedure. In this paper, the attention is dedicated to those two approaches, whereby in addition to their characteristics, several potential issues regarding their applications have been presented.

Keywords: Measurement, Scales, Development, Traditional approach, C-OAR-SE.

INTRODUCTION

Almost every day, measurement happens all around us (Albano, 2016). For example, when looking for a sweet, or something to drink, people can choose between different sizes of a chocolate or a juice. Thus, while the measures of a chocolate are usually expressed in grams, juices are measured in liters. Moreover, the distance from home to job, the length of a movie, or an outdoor temperature, are just some of the things that are often measured.

Besides all these everyday issues, measurement is very important in the marketing research process. Through this activity, researchers can obtain data, significant for making business decisions. According to Proctor (2005, p. 166), measurement is defined as "the process by which scores or numbers are assigned to the attributes of people or objects". Hereby, when assigning the numbers, there are certain procedures that need to be followed.

For measuring purposes, there are numerous instruments that can be used. In marketing research, special place belongs to scales, i.e. measurement instruments which represent "collections of items combined into a composite score, and intended to reveal levels of theoretical variables not readily observable by direct means" (DeVellis, 2003, p. 8-9). Therefore, scales are implemented in situations when researchers are interested in phenomena that cannot be assessed directly (DeVellis, 2003). Because of their importance in marketing research, especially when measuring consumers' attitudes and behaviors, in this paper, the attention is dedicated to scale development process, and its main approaches.

TRADITIONAL APPROACH

When it comes to scale development, there are two main approaches, traditional and contemporary (Gilmore, & McMullan, 2009). The traditional approach includes several stages, whereby the focus is on generating the initial pool of items, and its reduction through reliability and factor analysis (Gilmore, & McMullan, 2009). Churchill (1979), as one of the proponents of this approach, suggested the procedure for scale development, which consists of eight different steps (Figure 1).

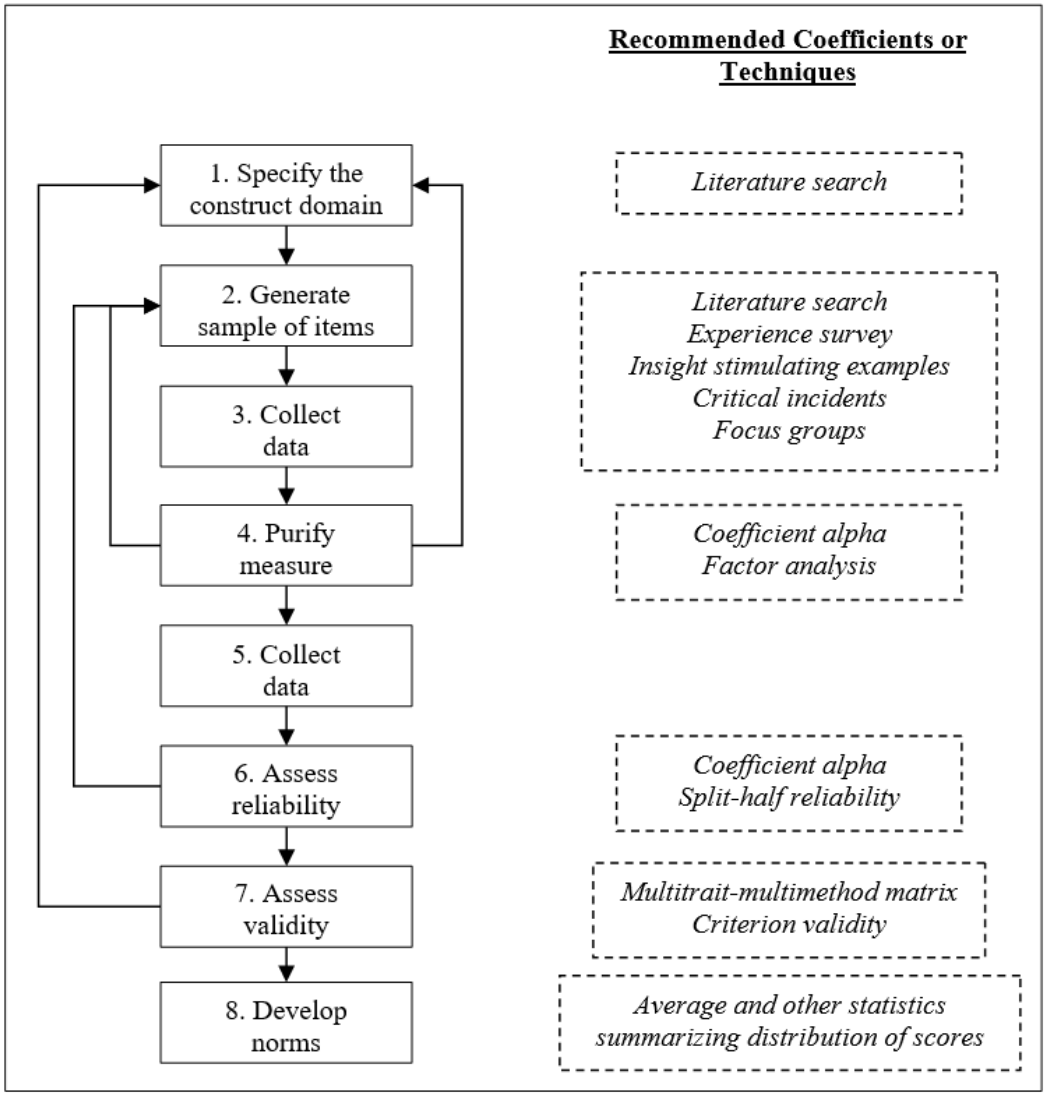

Figure 1. Procedure for scale development (Churchill, 1979, p. 66)

At the beginning, the researcher needs to specify the domain of the construct; in this step, it should be delineated what is included, and what is excluded from the definition of a construct. After domain specification, the next step refers to generating the sample of items. For this purpose, several approaches can be used, such as experience surveys, literature reviews, focus groups, etc. The edited pool of items needs to be purified; the refinement process should be based on actual data, including methods such as Coefficient alpha and Factor analysis. Further steps are related to the assessment of reliability and validity. Similar, as in the case of item pool purification, before performing these analysis, new data should be collected. The process ends with the norm development step; when it comes to marketing investigations, the position of the respondent considering the attribute being measured, can be assessed through comparation of his/her score with other people's score (Churchill, 1979, p. 67-72). This approach has been used for developing scales in various researches. On the principles of Churchill's paradigm, Negra and Mzoughi (2012) have developed the Online Consumer

Procrastination Scale (OCPS). From the initial pool of 77 items, obtained from 27 interviews, after certain checks and a pilot study with a factor analysis, the final scale was reduced to five items. Following the same paradigm, Walsh and Beatty (2007) developed scales for measuring dimensions of customer based corporate reputation. The whole procedure is summarized in Figure 2.

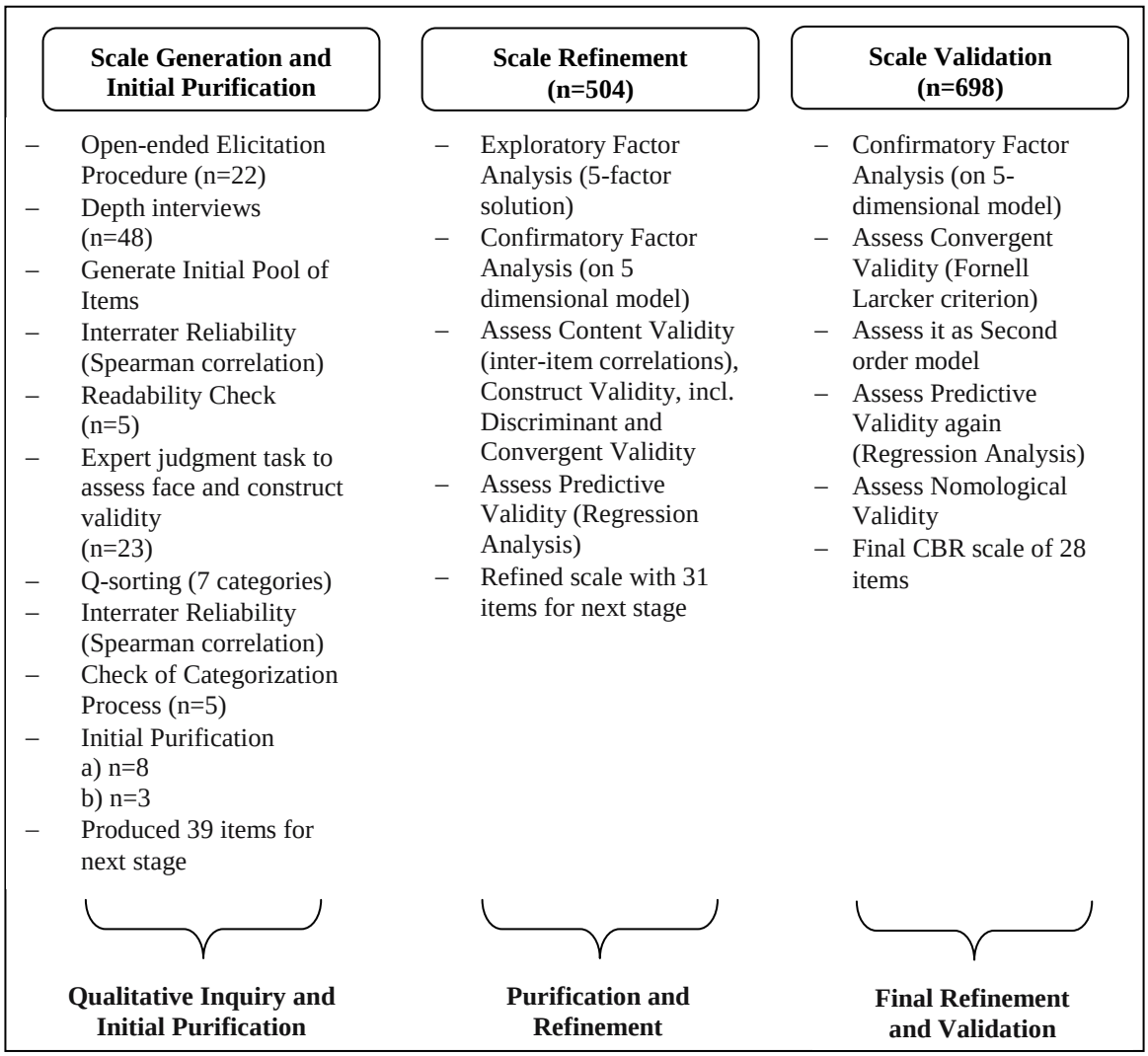

Figure 2. Scale development process (Walsh and Beatty, 2007, p. 131)

Although the traditional approach has wide application among researchers, Smith (1999) pointed to certain problems when implementing Churchill's paradigm in the context of service quality management. As mentioned in her study, while some of them "are endemic to the paradigm itself, other problems "arise through researchers' adaptations of the recommended stages" (Smith, 1999, p. 109). The findings of this study indicated the following (Smith, 1999, p. 118):

- high reliability levels (supported by high values of alpha coefficient) may point to measure's deficiencies, whereby, they do not necessarily represent the proof of an underlying factor construct;
- the emphasize on internal consistency within the process of scale purification, may lead to the deletion of items, that are important for consumers, and, thus, for service management, as well; in addition, the obtained item content may differ in accordance to both, the measure applied in the process of scale development and sample's nature;
- scale integrity cannot be proven by its ability to predict customer responses in relation to other variables;
- validity assessments are impeded by the impact of measurement error on correlation coefficients.

Despite previously mentioned, and other critics of traditional approach to scale development procedure, it has had an enormous impact on marketing theory. After more than two decades, the new, contemporary approach has occurred.

CONTEMPORARY APPROACH

Contemporary approach refers to the C-OAR-SE procedure; it was established by John Rossiter as "an alternative and a departure from the traditional approach" considering its bounding in "rationalism rather than empiricism" (Gilmore and McMullan, 2009, p. 642). The name of the procedure is actually an acronym: C (Construct definition) – OAR (Object classification, Attribute classification, Rater identification) – SE (Scale formation, Enumeration and reporting) (Rossiter, 2002). Its six steps are presented in Figure 3.

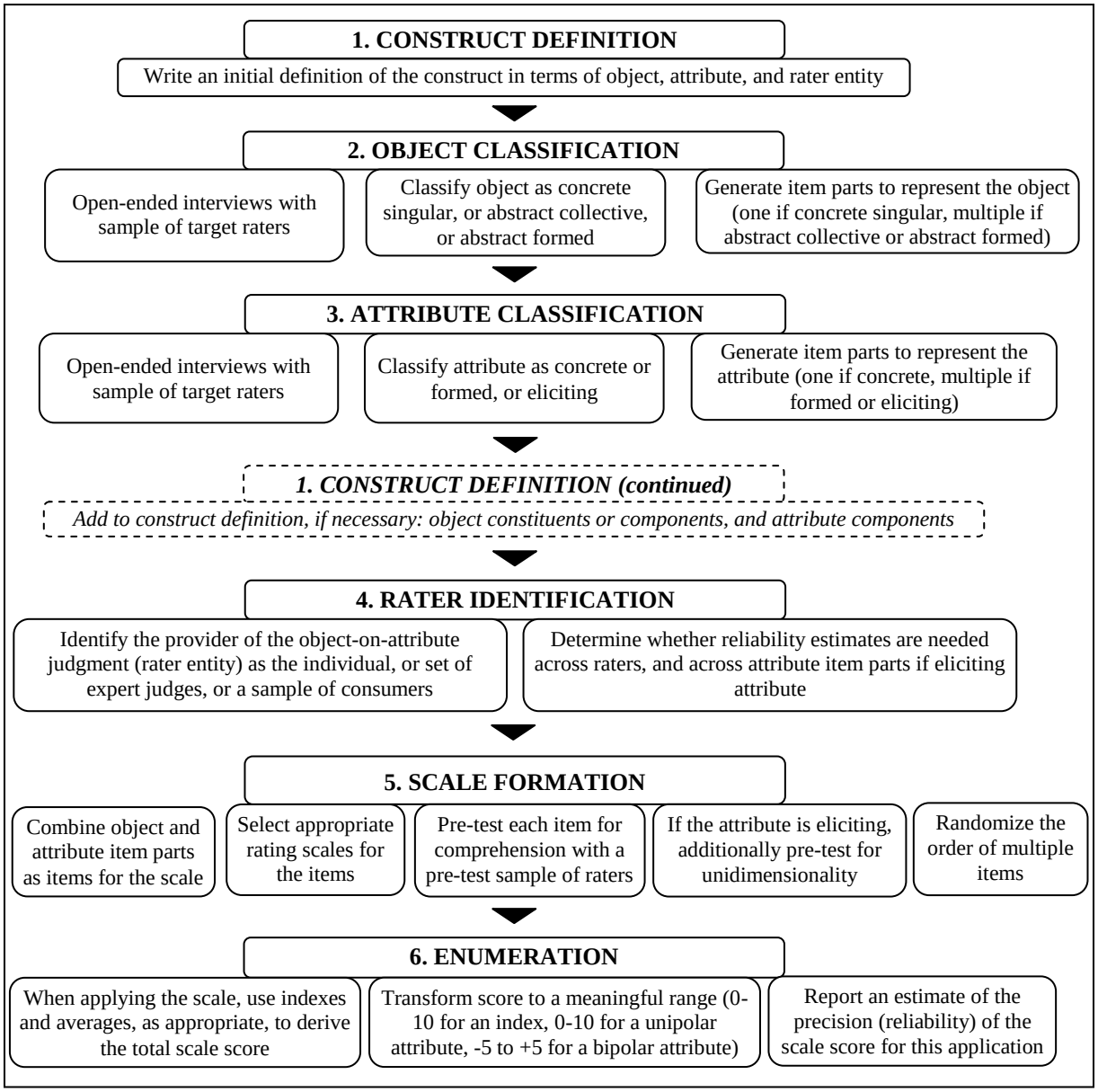

Figure 3. Steps in the C-OAR-SE procedure (adapted to Rossiter, 2002)

According to Rossiter (2002), the traditional procedure represents only a part (one out of six elements) of a much more complex C-OAR-SE approach. In addition, there are several more differences

between these two methods; following Rossiter (2011), opposite to Churchill's method, the C-OAR-SE approach argues for:

- total focus on accomplishing high content validity of the items and answer scale;
- the application of single-item measures for both, "basic" and "abstract" constructs, whereas in the case of the later, these measures can be used for their first-order components;
- leaving the "reflective" measurement model, with the emphasis that all abstract constructs have to be measured as formative;
- leaving the external validation methods, notably MTMM (multitrait-multimethod analysis) and SEM (structural equation modeling), and their replacement with internal content-validation of the measure itself.

In the study from 2007, Rossiter critiqued Collier and Bienstock's approach for measuring e-retailing service quality, whereby he presented how all steps related to scale development process should be performed in accordance to C-OAR-SE procedure. For example, when classifying service quality, Collier and Bienstock considered it as a second-order formed attribute, whereas, it should be conceptualized as a fourth-order formed attribute; moreover, Rossiter (2007) illustrated its complex structure, including all necessary components.

However, as in the case of the traditional paradigm, the C-OAR-SE procedure is not without problematic issues, as well. Following Diamantopoulos (2005, p. 8-9), potentially problematic areas associated to this approach include: potential confusion of connotative and denotative meaning during the process of object classification and construct definition; the implementation of single-item measures and the development of formed attribute scales; the inclusion of the rater entity as an element of the focal construct; and the solitary emphasis on the validity of a content.

CONCLUSION

In changeable market conditions, decision making process largely depends on the quality of the available data. Thus, in marketing research, special attention should be dedicated to measuring process, which has an important role in obtaining necessary information. Besides many characteristics that can be measured directly, there are certain phenomena which measuring is not so simple. For those purposes, relatively common in marketing, researches may use the existing, or develop new scales.

When it comes to scale development process, two main approaches can be distinguished, traditional and contemporary. Among the others, the former relies on Churchill's paradigm, according to which, the starting set of items is reduced through factor analysis and reliability evaluation. This, and similar procedures have been applied in various studies for decades. Hereby, its steps have been modified and adjusted, depending on the sector, and attribute that was measured.

Contemporary approach is based on a C-OAR-SE procedure which initial version included six different steps, from construct definition to enumeration. This method focuses on high content validity, its internal validation, and on the use of formative measurement model and single-item measures. C-OAR-SE procedure, as well as the traditional approach, have been critically analyzed in a number of studies, whereby several potential issues related to their application have been presented. Some of them can be used as a basis for future researches, and potential improvements in scale development process.

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STATE AND PROSPECTS OF THE INSURANCE INDUSTRY IN THE REPUBLIC OF SERBIA

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ABSTRACT

Insurance companies as institutions mobilize a large number of risks of companies and individuals through insurance contracts, which reduces the risk exposure of the entire national economy. Taking into account the fact that the key activity of insurance companies is the mobilization of companies and organizations based on the system of association and diversification, the insurance sector establishes strong links with other sectors of the economy that promote growth and stability of the national economy. Accordingly, the insurance sector plays a significant role in the economic growth of each country, representing an important segment of the financial sector with its roles as a savings mobilizer, intermediary, financial market stabilizer and risk assessor in the overall economy. The insurance market in the Republic of Serbia is significantly less developed compared to the developed insurance market in the European Union. The subject of this paper is the analysis of the business of insurance companies in the Republic of Serbia that deal with life and non-life insurance. The aim of this paper is to consider the level of development of the insurance market in Serbia through the analysis of the amount of total insurance premium in relation to GDP, the share of life insurance premium in total premium and the amount of life insurance premium per capita.

Keywords: Insurance, Serbia, Life insurance, Non-life insurance.

INTRODUCTION

Due to the effects of the global financial crisis of 2008, many institutions encountered serious difficulties in their operations, including insurance companies. However, compared to other institutions and their business results, insurance companies have withstood the effects of the global financial crisis relatively well. The reason for the relatively good performance of insurance companies lies in the fact that these institutional investors placed available funds in safe, conservative placements on the financial market (Kašćelan, 2008).

The insurance market in Serbia faces a number of challenges which are reflected in attracting new clients, retaining existing clients, providing innovative insurance services and in more efficient distribution of insurance products. Also, in addition to the above challenges, one of the key challenges of insurance companies in Serbia is to improve all performance in order to achieve the highest possible profitability of all insurance companies in the insurance market. Special attention should be paid to financial performance, which is most important for survival, as well as for further growth and development of insurance companies. (Pjanić, Milenković, Kalaš & Mirović, 2018).

The level of insurance development in a country depends on the economic situation in the country, the living standard of the population, the development and application of the regulatory framework, the development of public awareness of the importance of insurance, as well as the willingness of insurance companies to create adequate portfolios. (Pjanić, Kalaš, & Vasić, 2016).

The insurance market in Serbia has great potential and is an important instrument of economic development, but it is still underdeveloped and below the average of the European Union countries. The domestic insurance market has been dominant for years, depending on the trends in the motor third party liability insurance segment. The key factors of insufficient development of the Serbian insurance market are the low standard of living of the population, the still high illiquidity rate of the economy and the underdeveloped awareness of a large number of the population about the importance of the insurance business. (Jovanović, 2018).

In Serbia, there is enough space for the growth and development of insurance business, primarily through a more aggressive approach of insurance companies in promoting activities, which would increase competition between them, which would significantly affect the expansion of the market. Also, the support of the state is very important for the development of the domestic insurance business, in terms of the introduction of tax relief for all insurance companies that invest in the economy. In addition to the unknown, it is very important that insurance companies themselves work more intensively on raising awareness and educating the population about the importance of insurance while creating adequate insurance products that are acceptable to the living standards of the population in Serbia (Bradić, 2019).

The amount of income of the population is a kind of measure that expresses the purchasing power of the population in insurance. In doing so, the size of income can be a significant indicator for insurance companies when setting prices for services they offer in the insurance market. The level of education and culture of the population is important, since in the sale of insurance in general, and especially in the sale of life insurance, a general awareness of the importance of life insurance is important, as well as savings, which can also be achieved by certain types of life insurance. According to official indicators, Serbia is becoming more and more a country of older people, and in that sense we should permanently work on educating the population by pointing out the importance of life insurance and its benefits in old age (Olević, 2016).

The analysis of relevant general indicators, as well as the analysis of detailed indicators of the volume and structure of the market and their applications over time, looks at the current level of development of a particular insurance market. Percentage share of premium in gross domestic product and level of insurance premium per capita are general indicators of the degree of development of the insurance market (Kočović, & Jovović, 2016).

The insurance market in Serbia, despite the negative impact of the global economic crisis, is recording slower growth and a slight improvement in the structure of insurance premiums in favor of life insurance. Per capita premium per capita and the share of total realized premium in gross domestic product (penetration) is gradually increasing from year to year (Balaban, 2015).

GENERAL INDICATORS OF THE FINANCIAL SECTOR OF SERBIA

SMEs Analyzing the financial sector of Serbia, it is noticeable that after the banking sector, the most important role is played by the insurance sector (Mitrašević, & Pjanić, 2019). The insurance sector occupies 6.6% in the entire financial sector measured by the balance sheet total criterion, while the banking sector has a share of over 90%.

Based on the Table 1, it can be noticed that insurance companies do not have a significant share in the financial system of Serbia measured by the criterion of balance sheet total and capital in relation to banks, and it is noticeable that the insurance sector employs a significant number of people. The economic crisis, which has affected almost the entire world, has also affected the insurance sector in Serbia. The market as a whole has preserved financial stability, but it has also highlighted the problems that have been present in this area for many years (Tošić, 2017).

Table 1: Structure of the Financial system of Serbia (%)

	Banks			Leasing companies			Insurance		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Balance total	90,7	90,3	90,1	2,0	2,1	2,3	6,3	6,7	6,6
Capital	91,3	90,5	89,7	1,3	1,3	1,2	7,4	8,2	9,1
Number of employees	67,1	67,4	66,5	1,1	1,1	1	31,5	31,2	32,1

(Source: National Bank of Serbia, 2019)

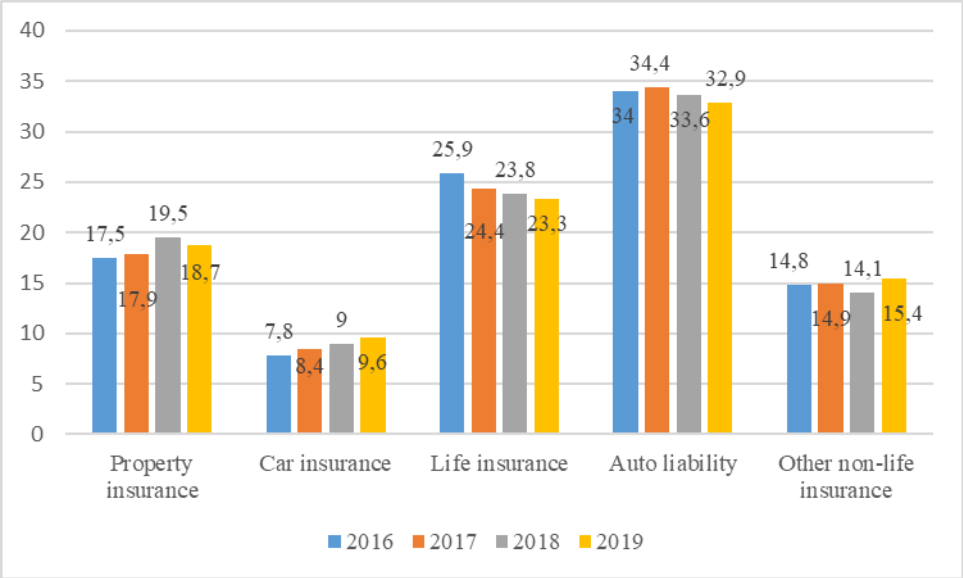

Figure 1:Total premium by type of insurance in Serbia (%)
Source: National Bank of Serbia

The key characteristic of the insurance sector in Serbia is the dominant share of non-life insurance, with over 70% in the entire observed period. However, the largest share in the structure of non-life insurance falls on compulsory motor third party liability insurance with as much as 34%. In the observed period, comprehensive insurance recorded an increase in premiums from 7.8% in 2016 to 9.6% in 2019. Life insurance in the observed period recorded a decline from 25.9% in 2016 to 23.3% in 2019, which is only one of the indicators of the underdevelopment of the domestic insurance market. Property insurance in the observed period has a variable amount of premium, which was 17.5% in 2016, and in the next two years there will be an increase in premiums for this type of insurance to 19.5%, and in 2019 there will be a decrease in premiums at 18.7%. Other non-life insurance in the given period has variable trends in total premiums, which in 2016 was 14.8%, in the following year it recorded a minimal growth to 14.9%, and in 2018 it will fall to 14.1% and re-growth in 2019 to 15.4% (Narodna Banka Srbije, 2019).

ANALYSIS OF INSURANCE MARKET DEVELOPMENT IN SERBIA

In the Republic of Serbia, the insurance market is relatively stable. Taking into account the fact that the insurance sector records a slight growth, compared to neighboring countries, the domestic insurance market is still underdeveloped and far below the average of the European Union (Munitlak, Ivanović, Mitić, & Raspopović, 2014). Table 2 shows the total premium for selected countries.

Based on Table 2, it can be seen that among the selected countries, Serbia is ranked the worst and with the lowest amount of premium. Serbia ranks 80th in the world, while neighboring countries such as Hungary occupy 53rd position, which is next to Slovenia, which is 55th, and Romania, which is 58th, the best position in the world in relation to the observed neighboring countries. The best ranked country in relation to the observed ones is Turkey, which occupies the 39th position. Of the neighboring countries, the largest amount of premium is recorded by Hungary with 3790 million

dollars, followed by Slovenia with 2765 million dollars and Romania with 2515 million dollars. By far the largest amount of premium from the observed countries has Turkey with 10452 million dollars, taking into account the fact that Turkey is a country with a convincingly larger population compared to other observed countries. Also, it is necessary to point out that the total insurance premium in 2018 in the countries of the European Union was 1,495,793 million dollars, which is a share of 28.8% on the world insurance market.

Table 2: Total premium volume in 2018.

Country	Ranking	Total premium (in millions of USD)	Udeo na svetskom tržištu (%)
Serbia	80	978	0,02
Hungary	53	3.790	0,07
Croatia	64	1.570	0,03
Slovenia	55	2.765	0,05
Romania	58	2.515	0,05
Turkey	39	10.452	0,20
Bulgaria	67	1.492	0,03
EU		1.495.793	28,8

(Source: Swiss Re, Sigma No3/2019)

Table 3: Insurance penetration: premiums as a % of GDP in 2018.

Country	Ranking	Insurance premium as % GDP
Serbia	65	1,92
Hungary	53	2,42
Croatia	49	2,59
Slovenia	30	4,94
Romania	79	1,09
Turkey	75	1,33
Bulgaria	57	2,29
EU		7,26

(Source: Swiss Re, Sigma No3/2019)

It can be seen from Table 3 that the penetration of insurance, which represents the share of insurance premiums in relation to GDP, is the highest in Slovenia with 4.94%, which also represents the 30th position in the world in terms of insurance penetration. Our country is ranked 65th with 1.92% insurance penetration. Croatia and Hungary occupy 49 and 53 positions respectively in the world with a penetration of 2.59% and 2.42%, respectively. Besides Serbia, Turkey has the worst insurance penetration with 1.33% and is ranked as 75 countries in the world according to this criterion. At the level of European Union countries, insurance penetration is 7.26%.

Table 4: Insurance density: premiums per capita in 2018. (in USD)

Country	Ranking	Total premium	Life premium	Non–life premium
Serbia	63	140	32	108
Hungary	46	388	180	208
Croatia	48	383	122	261
Slovenia	29	1.336	409	927
Romania	64	129	26	104
Turkey	65	127	17	110
Bulgaria	59	213	29	183
EU		2.655	1.592	1.063

(Source: Swiss Re, Sigma No3/2019)

Table 4 presents the insurance density which shows the amount of premium per capita. Based on the presented data, it can be seen that Slovenia has the highest premium per capita with 1336 dollars and occupies the 29th position. Slovenia also has the highest life insurance premium per capita at $ 409, as well as the largest non-life insurance premium per capita at $ 927. Our country has a total premium per capita of $ 140 and life and non-life insurance premium per capita is $ 32 and $ 108, respectively,

and is ranked as 63 countries. The position below our country is occupied by neighboring Romania with 129 dollars of total premium per capita and with a premium of 26 and 104 dollars of life and non-life insurance per capita. Approximately the same results are recorded by Croatia and Hungary, which have a total premium of 383 dollars and 388 dollars per capita. Their life and non-life insurance premiums per capita are $ 180 and $ 208, and $ 122 and $ 261, respectively. Of the observed countries, Turkey is ranked the worst on the 65th position, which has the lowest amount of premium per capita with 127 dollars, while the premium for life and non-life insurance per capita is only 17 and 110 dollars.

Table 5: Share of life insurance premium in total premium in 2018. (in %)

Country	Ranking	Share of total business (in %)
Serbia	73	23,2
Hungary	50	46,3
Croatia	64	31,8
Slovenia	56	30,6
Romania	63	20,0
Turkey	51	13,6
Bulgaria	75	13,8
EU		31,59

(Source: Swiss Re, Sigma No3/2019)

Analyzing the share of life insurance premiums in the total premium based on Table 5, it is noticeable that Hungary has the largest share with 46.5%, which is by far the highest in relation to all observed countries. Our country has a share of 23.2%, which ranks it 73rd in the world. Of the observed countries, Croatia and Slovenia stand out, which have a share of life insurance premiums in the total premium of 31.8% and 30.6%, respectively. Countries such as Turkey and Bulgaria have approximately the same share of life insurance premiums in total premiums with 13.6% and 13.8%, which also ranks them among the countries with the lowest share of life insurance premiums in total insurance premiums compared to all other countries observed. Looking at the countries of the European Union, it can be seen that their share of life insurance premiums in total insurance premiums is 31.59%, which is almost a third of the total share of life insurance premiums in total insurance premiums in the world.

Table 6: Total life insurance premium in 2018. (in USD)

Country	Ranking	Premium (in millions of USD)
Serbia	73	227
Hungary	50	1754
Croatia	64	499
Slovenia	56	847
Romania	63	504
Turkey	51	1417
Bulgaria	75	206
EU		891 026

(Source: Swiss Re, Sigma No3/2019)

Looking at the total amount of life insurance premiums, Hungary has the highest premium of all observed countries in the amount of 1754 million dollars. Besides Hungary, Turkey is the second country to observe a large amount of life insurance premium of 1417 million dollars. Serbia occupies the penultimate position of 227 million dollars, Bulgaria the last position with a life insurance premium of 206 million dollars. Slovenia stands out as the country with the smallest population of the other observed countries, but a fairly high life insurance premium of 847 million dollars. Countries such as Romania and Croatia receive approximately the same life insurance premiums of $ 504 million and $ 499 million, respectively. The total amount of life insurance premiums at the level of all European Union countries is 891,026 million dollars.

CONCLUSION

Analyzing the values of general and special indicators, it can be concluded that the insurance market of Serbia is at a relatively low level of development not only at the global, but also at the regional level. This largely limits the potential of the insurance business to contribute to overall national growth and economic development. Regardless of the effective measures of regulatory bodies in establishing market stability and restoring citizens' trust in insurance institutions, there is still room for further progress. Also, one of the problems that are still present is the insufficiently developed awareness of a large part of the population about the importance of the insurance business. What is encouraging is the fact that the insurance market in Serbia has the potential for further growth and development. Successful overcoming of the transition process, along with achieving a higher employment rate and growth of living standards, will increase the potential for the development of the entire insurance market, with special potential for growth and development of life insurance in our country.

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ANALYSIS OF FORMS OF FINANCING OF THE EUROPEAN INVESTMENT BANK

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ABSTRACT

Rapid and successful growth and development of the economy, as well as mutual cooperation between the countries of the Western Balkans are one of the important goals of the European Union and its regional policy. These countries are able to use EU capacities through financial support and technical assistance programs. The European Union, through its institutions, contributes to the stability of the region.. Support programs aim to improve the regional and local infrastructure network, as well as social aspects, and to support the private sector, with a special emphasis on investment in health and education. In this way, sustainable development is fostered in the Western Balkans. In this paper, we will analyze the financing operations of the European Investment Bank, as one of the most important institutions of the European Union. Special focus was placed on Republic of Serbia's cooperation with this institution and the importance of the EU support program for its growth and development.

Keywords: European Investment Bank, financing operations, Republic of Serbia, Western Balkans.

INTRODUCTION

The European Investment Bank (hereinafter referred to as the EIB) was established in Brussels by the Treaty of Rome in 1957, and began operations in 1958 at the same time as the European Economic Community, to address financing issues related to the common market and common development policies. The EIB lends on a non-profit basis and contributes to the balanced development of the Community by financing projects of common interest to several Member States and projects that ensure the modernization of the economy. Since 1963, the EIB has especially expanded its activity to the countries of the Mediterranean basin, and also finances projects in 57 countries in Africa, Latin America, the Caribbean and the Pacific, and more recently to the countries of Central Europe. EU member states are automatically members of the EIB. EIB is becoming one of the largest creditors and debtors in the international financial market. The bank is headquartered in Luxembourg, and has offices in several cities in Europe and outside Europe.

The EIB is an international organization specializing in the banking sector, whose mission and organization are within the European Union. The legal position of the EIB gives the right to dispose of its own capital and assets, to have its own authorities, agents representing it, as well as to have its own privileges and immunities. The EIB's activity is aimed at solving the problem of financing related to the creation of a common market and joint development of the countries of the European Economic Community. In 2000, a decision was made to establish a European Investment Fund, which together with the EIB forms the EIB Group (Stakić, 2012). The European Investment Bank, has been active in the field of the financing of the Western Balkans, and within that, it provides cooperation and support programs to the Republic of Serbia on the way to its integration into the European Union.

THE ROLE OF EUROPEAN INVESTMENT BANK

The EIB is the world's largest multilateral borrower and lender. It improves finances and expertise for sustainable investment projects that contribute to EU policy objectives. More than 90% of the activities are in Europe, but the Bank is also a major investor worldwide. The European Investment Bank provides: lending - the vast majority of financing is related to debts, but also offers guarantees, microfinance, capital investments; participation - support unlocking of funding from other sources, especially from the EU budget: consulting - lack of finance is often the only barrier to investment and then the EIB assists with administrative and project management. The EIB has the following seven financing objectives (Milenković, 2011): cohesion and convergence (support for less developed regions, especially with a view to enlarging the EU); support to small and medium enterprises (support for investments of small and medium enterprises); sustainable environmental development; improving access to quality education and training; support for research, development and innovation; support for information and communication technologies; and development of a trans-European transport and energy network. Typical examples of EIB-financed projects are the construction and improvement of transport infrastructure, energy production, including its distribution, as well as projects for more efficient use of energy and alternative energy sources (wind power, solar energy), telecommunication infrastructure, natural and urban environmental protection schemes (water, waste, clean air, urban transport), investment in human capital (schools, universities, laboratories, research centers, hospitals), industrial projects in production (motor vehicles, pharmaceutical industry, aviation industry, chemical industry).

The EIB's shareholders are 28 EU member states. They are fully qualified for financial operations. Each EIB's shareholding in the EIB is based on its economic importance within the EU (expressed in terms of GDP) at the time of their accession. The basic mission of the European Investment Bank is to fund infrastructure projects in Europe, both when investing within the European Union and when supporting various investment projects outside the European Union. This has enabled the Union's budgetary resources available to external regions to be complemented by the financial strength of the European Investment Bank in favor of targeted third countries. Through such financing operations, the EIB contributes to the general principles and objectives of Union policy. Research is emerging as another mission of the European Investment Bank, so the European Investment Bank invests in research and innovation of small and medium-sized enterprises to support regional and local development. Also, the assistance of the European Investment Bank is directed towards health, education, ecology, and infrastructure, especially in regions that are less developed compared to other regions. That is why the European Investment Bank has a very important role in providing assistance to countries that are in the process of joining the European Union. This bank provides assistance in the form of foreign direct investments, especially in the areas of technology, knowledge, ecology, and the like.

Further missions of the European Investment Bank are related to the support of foreign policies, which should be implemented in accordance with the principles of good banking practice. They should be further managed in accordance with the rules and procedures of the European Investment Bank, including appropriate control measures, and compliance with the European Investment Bank's statement on social and environmental standards, and relevant rules on the Court of Auditors and the European Anti-Fraud Office (Kapor, 2005).

The main task of the European Investment Bank is to contribute to the balanced development of the European Union by ensuring the state and social cohesion of the member states. Thus, it can be said that the European Investment Bank is a non-profit entity, which is collectively owned by the member states and given the possibility of autonomy through its decision-making bodies. More precisely, the European Investment Bank is an international organization specializing in the banking sector, whose mission and organization are within the European Union. The legal position gives it the right to dispose of its own capital and property, to have its own authorities, agents representing it, as well as to have its own privileges and immunities (Jovanović, 2000).

FORMS OF FINANCING OF THE EUROPEAN INVESTMENT BANK

EIB clients are public and private individuals and organizations. All projects must be in line with the basic goals of the bank, both economically and socially. The EIB's finance committees distribute the received requests to the various economic sectors. As a rule, credit lines and loans up to 50% of the investment costs of the project are approved. Loans are approved in both euros and US dollars, Swiss francs, as well as in other EU currencies. The EIB has two basic forms of financing (Milenković, 2011):

1. Individual loans, which realized in accordance with the objectives of the EIB amount to more than €25 million. Fixed interest rates and convertible interest rates are envisaged for this type of project. The EIB does not normally charge fees for this service, except in special cases. Repayment of loans is semi-annual or annual, and the grace period for capital investments is approved only for the project development phase.
2. Medium-term loans or credit lines to banks and other financial institutions to help co-finance small and medium-sized enterprises with a qualified investment program or project costing less than €25 million, including microcredit. Such credit lines are guaranteed by local banks or other financial institutions of the country in which the project will be implemented. If a small or medium-sized company qualifies as eligible for such loans, it must have less than 250 employees and less than 50 million euros. The repayment period of these loans is usually 5-12 years.

Unlike other banking and financial institutions, the EIB does not manage financial resources on the basis of collecting deposits or current accounts, but collects financial resources on the world capital market, and operates as a non-profit organization. The basis of the bank's credit potential consists of: subscribed capital of member countries and income from bonds placed on the international capital market (Hadžić, 2009). The EIB respects the following principles (Babić, 2006):

- The Bank is prohibited from acquiring a stake in companies and assuming part or all of the responsibility for management, unless it is for the purpose of recovering or securing the return of its assets;
- The bank must not transfer its receivables;
- The European Investment Bank must not impose any conditions under which the amount of the loan granted would be used exclusively within one Member State;
- The European Investment Bank may issue an international auction;
- It is forbidden to finance and support projects if the state in whose territory the project is implemented opposes it.

In its operations, the European Investment Bank is guided and respects the usual banking principles regarding the granting of loans and cooperation with other financial institutions. However, the European Investment Bank is not a classic bank as it is a financial institution whose main goal is not to make a profit, because it operates on a non-profit basis. The bank assist, gives loans, and guarantees to clients. That is why this Bank is the largest non-governmental lender in the world, larger and more important than the European Bank for Reconstruction and Development (Petković, 2012).

In addition to the main instruments of regional policy, the European Union is introducing special programs in order to improve the financing conditions for entrepreneurs and some regions of the European Union. In October 2005, the European Commission and the European Investment Bank presented to Member States and countries in the process of accession to the European Union, special programs called Community Initiatives. These programs are financed partly from the Structural Funds and partly from international financial institutions. These are the following initiatives: JASPERS, JEREMIE, JESSICA, JASMINE.

FINANCING OF THE EUROPEAN INVESTMENT BANK IN THE REPUBLIC OF SERBIA

The EIB is the leading international financier in the Western Balkans. In 2016, it signed financial contracts in the amount of 427 million euros, with the total payment amounting to 592 million euros. While continuing its support for the reconstruction and improvement of regional and municipal infrastructure networks (transport, energy, environment), the EIB plans to increase its assistance to the private sector and to lend more to the health and education sectors in the coming years. The EIB co-finances major projects in the region with other international financial institutions, in particular the European Bank for Reconstruction and Development (EBRD), the World Bank and the Development Bank of Europe, as well as bilateral donors. Since 2009, the EIB, the European Commission, the Development Bank of Europe and the EBRD have been cooperating within the Western Balkans Investment Framework (WBIF). The aim is to simplify access to credit by grouping and coordinating different sources of funding and technical assistance, with a focus on infrastructure sectors. In the late 1990s, the EIB focused its financing in the region on the urgent reconstruction and repair of damaged infrastructure: bridges, railways, ports, airports and roads, in line with the priorities of the countries at the time. Since 2010, the EIB has diversified its lending activities to include new sectors, such as healthcare, education, research and development and foreign direct investment. The EIB opened a regional office in Belgrade in 2010 to facilitate and accelerate the development of its activities in the region, emphasizing the strong commitment of European institutions to support candidate and potential candidate countries in the region on their journey to the European Union (EIB, 2017).

Serbia has been using European Investment Bank loans since 1976. By the end of 1991, the total loan amounted to about 670 million euros, of which about 390 million were used. The share of loans from our country at that time in the total approved loans was less than 1%. The loans were mainly intended for the construction of roads, railways, and connecting Serbia with other European countries. At the end of October 2000, the total liabilities of the FR of Yugoslavia to the European Investment Bank amounted to EUR 207.3 million, together with interest and penalties. In October 2001, Serbia removed all obstacles allowing European Investment Bank to resume all operations in the country. Debt write-off by the Paris Club significantly reduced Serbia's foreign debt and thus raised its credit potential. The Paris Club paid 66% of the debt to the former Yugoslavia, which totaled about 4 billion 563 million US dollars. After that, Serbia has made good progress in structural reforms, and this is particularly pronounced in the area of public finances as well as in the development of the financial and private sectors. However, according to all indicators, Serbia is one of the middle developed countries in the world, but it is one of the poorest in comparison with the countries - members of the European Union. That is why further implementation of structural reforms is necessary, especially in the area of the pension and health care system, in order to maintain macroeconomic stability in the long run.

Due to the poor conditions in Serbia, the European Investment Bank financed five very important projects at the end of 2001, immediately after the renewal of cooperation and relations with Serbia. The projects were of an infrastructural nature. For the urgent reconstruction of roads and railways, 246 million euros were funded, 70 million euros for electrical infrastructure and 20 million euros for the development of the private sector. Investment in the reconstruction of Serbia continued in the following years. Various loans were approved that served the further progress of the Serbian economy, the loans were mainly intended for the reconstruction of roads, railways, bridges, the reconstruction of which was especially necessary after the bombing by NATO. Also, the projects involving the development of small and medium enterprises were very important. In that, the European Investment Bank and the National Bank of Serbia signed, AREH - a global loan, which referred to long-term financing of small and medium enterprises, in the amount of 20 million euros (Stakić, 2012). As this credit line was successfully realized, in 2007 a new credit line was signed in twice the amount of as much as 45 million euros. By the end of 2008, the European Investment Bank had approved 42 loans to Serbia, the total amount of which amounted to 1,486 million euros, half of which was utilized.

In the period from 2000 to 2011, the European Investment Bank financed as many as 61 projects in Serbia, the total value of which amounted to 3 billion and 760 million euros. From this amount, our

country withdrew about 1.7 billion euros. Key projects in strategic infrastructure sectors are: loans of approved in 2009 and 2010 for the Belgrade bridge on Ada of 160 million euros, Corridor 10 - a loan of 579 million euros, Research and development in the public sector - loan of EUR 200 million, Loan for municipal and regional infrastructure of 75 million euros in the signed in 2009, loans for improvement of Judicial facilities of 41 million euros and Clinical Centers of 200 million euros (EIB, 2017). In strategic economic sectors EIB has also provided, in 2011, a loan for Fiat Automobile Serbia. This is shown in Table 1.

The EIB is also reviewing all project impacts on the environment. Before receiving the funds, the European Investment Bank required Putevi Srbije to undertake all preparations, design and preparation of documents related to environmental protection, all in accordance with the standards and rules that apply in Serbia and the European Union (Rakić, & Andrejević, 2009).

Table 1: Top 5 projects financed by EIB in Serbia

Name	Date of signing	Amount in euros
Corridor X (E-75)	23.10.2009.	314.000.000,00
Corridor X (E-80)	29.11.2010.	265.000.000,00
Apex for SMEs	11.05.2009.	250.000.000,00
Research and development - public sector	04.03.2010.	200.000.000,00
FIAT - Serbia	16.05.2011.	500.000.000,00

Since 2009, the Bank has approved € 1.17 billion in loans to banks and leasing companies in Serbia, thus supporting 2,810 subproject investments made by SMEs, mid-cap companies and local governments totaling 1.5 billion euros. These operations included the largest banking groups in the country, such as Raiffeisen, Erste, Unicredit, Intesa San Paolo, Société Générale, Credit Agricole and ProCredit Bank in the Republic of Serbia through APEX loans. They have been implemented with great success and have provided significant support to the SME sector, which is affected by the current economic and financial crisis. Since 2013, the EIB has concluded and signed lending agreements in the total amount of EUR 775 million with banks and leasing companies in Serbia, and from these funds 2,903 investments in subprojects supported by small and medium-sized enterprises, medium-sized enterprises and local governments, worth a total of 1.2 billion euros. These credit operations were implemented with a high degree of success, which provided significant support to the SME sector, which is suffering the consequences of the financial and economic crisis in 2009. The total amount of loans signed and disbursements in the period 2013-2017 in Serbia is shown in Figure 1.

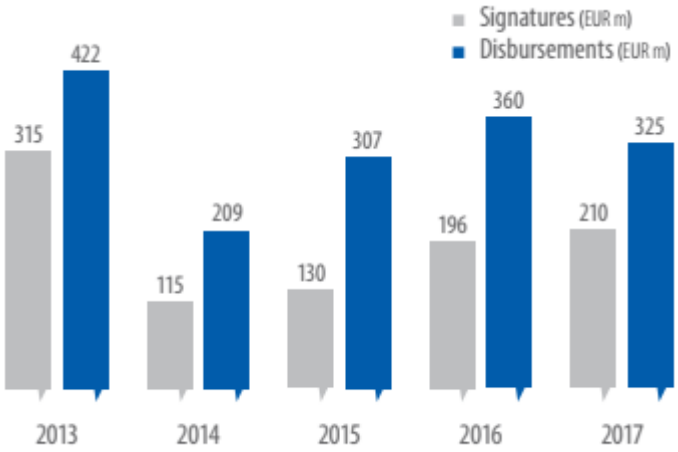

Figure 1: Loans signed and disbursements in the period 2013-2017 in Serbia (in millions of euros)
(Source: EIB, 2017)

On May 26th, 2020, the EIB Group created a European Guarantee Fund (EGF), a 25 billion-euro fund, in response to COVID-19 (EIB, 2020). This guarantee fund enables the EIB Group - in partnership

with local lenders and national promotional institutions - to increase its support to small and medium-sized enterprises (SMEs) and others in the real economy by mobilizing up to €200 billion, in addition to the already announced support package. The European guarantee fund of 25 billion euros will help companies recover from the pandemic, hire employees and grow.

CONCLUSION

The support programs of the European Investment Bank should lead to the improvement of institutional capacities both in the Republic of Serbia and in the countries of the Western Balkans, resulting in stronger and more stable mutual cooperation between these countries. This process actually means that the rules that apply to countries that are members of the European Union must be respected. This type of cooperation is of great interest for both the EU and the countries of the Western Balkans. This is a key factor in establishing political stability, security and economic prosperity in the region and opens the perspective of the integration of the Western Balkan countries into the EU. However we look at the EU's regional approach to the Western Balkans, it is a socio-economic concept that plays a significant role in the sustainable development of this region, as well as national economies, individually. For all countries in the Western Balkans region, it is necessary to emphasize that Brussels is not the only address for the EU. Good cooperation with member states and candidates is very important, but certainly most of all with neighbors. In addition, recommendations for creating a favorable environment for the development of the Western Balkans region include: improving the legal framework, improving the institutional framework, developing mechanisms for financial incentives and support, increasing available capacities, creating an information system, creating regional infrastructure, improving knowledge transfer, and developing mechanisms support for regional initiatives (Ristanović, & Tošović-Stevanović, 2016).

The assistance of the European Investment Bank to our country is not negligible. EIB funding programs to the Republic of Serbia on the way to its integration into the European Union are very significant. Small businesses are also supported in these countries by indirect loans and microfinance managed through a network of partner banks. Guarantees help mobilize resources from other sources. Technical assistance helps partners to use funds efficiently. By providing financial assistance, and supporting various projects, the progress and development of Serbia has been enabled. It can be said that the European Investment Bank is the most active international financial institution that has provided assistance to Serbia in various areas - economy, energy, health, education, transport, to strengthen the private sector.

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Session E: ABSTRACTS

Abstracts (pp. 267-268):

MEASURING CORPORATION'S PERFORMANCE IN THE BALKAN'S BY USING DEA

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ABSTRACT

Performance measurement gives a crystal picture of whether a corporation is achieving the set of performance indicators. In case it lags behind the set performance indicators, it should take appropriate corrective actions that will lead to their improvement in the period to come. More than four decades ago, the benchmarking methodology Data Envelopment Analysis (DEA) was introduced in the literature, which enables to measure the performance of decision-making units (DMUs) based on selected inputs and outputs. DEA is a leading non-parametric methodology that provides efficiency score and targets for improvement for inefficient DMUs. This paper aims to measure the performance of corporations in the Balkans by using DEA. The data is extracted from the BankFocus database, and it uses the output-oriented BCC DEA model. The identified outliers are removed using the super-efficiency model, after which the BCC model is applied again. The sources and amounts of inefficiency are identified and the targets for improving the efficiency (decreasing inputs and/or increasing outputs) of several inefficient corporations are presented. By following these projections, inefficient corporations will be able to improve their efficiency in the future. The results are shown in tabular form and visualized by using charts. Besides, special attention is paid to the issue of managerial ability in the analyzed corporations and its measurement. The results are extremely important for the corporation's management because they give valuable information about the relative efficiency of the corporation, but also how can the efficiency be improved if the corporation is identified as inefficient in order to operate successfully in a market where competition is becoming more aggressive.

Keywords: Performance, Corporations, DEA, Managerial ability.

FACTORS INFLUENCING INSURANCE FOR YOUNG PEOPLE

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ABSTRACT

Today's times are changing rapidly, people are becoming more and more active, so we often find ourselves in a situation over which we have no control. Nowadays we know many types of insurance with which we can take care of our financial security. It is important for individuals to chooses the most appropriate type of insurance according to their needs and life span. It is extremely important for young people to start saving for their future as soon as possible in the type of life insurance. The main objective of this paper is what proportion of young people already have insurance or are already thinking about it and why not. We were also interested in what are the decisive factors that make young people decide to buy insurance and why not. Research has shown that young people are aware the importance of insurance, but most of them don't have adequate financial resources and are insufficiently informed about the types of insurance.

Keywords: Insurance, Life insurance, Influencing factors, Young people.

Full paper was published in Journal of Engineering Management and Competitiveness (JEMC) Vol. 11, No. 1, 2021.

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EMC2021

11th International Symposium "Engineering Management and Competitiveness" 2021

ISBN 978-86-7672-345-4