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INNOVATION FOR ORGANIZATIONAL PERFORMANCE: APPROACHES AND APPLICATIONS. EDITORIAL*

Dear readers,

with the aim of providing additional insights into creating and sustaining innovative business practices and sustainable development, this thematic issue of INDECS presents articles and research results on several issues related to information systems and technology, circular economy, ethical and corporate social practice as well as aspects of technological advancements, managerial and corporate performance that can help to sustain innovative business and long term organizational sustainability.

Some of the latest trends, approaches and research results in this field were presented at the 5th Enterprise Research Innovation Conference (ENTRENOVA) held in Split Croatia, from 6-8 September 2018. ENTRENOVA is an international scientific conference organized by IRENET, Society for Advancing Innovation and Research in Economy, in cooperation with the Faculty of Tourism and Hotel Management, Kotor, Montenegro and the University North, Varaždin, Croatia. It is a multi-disciplinary conference dedicated to examining, comprehending and discussing the art in the theory and application of innovation, knowledge management and R&D issues in the business settings, especially related to ICTs. At ENTRENOVA 2018 more than 160 authors, from 30 countries, participated with 85 abstracts and 60 papers.

Beside for participants of ENTRENOVA 2018, open call for this thematic issued of INDECS was for all other interested authors, researchers and practitioner from the field of economics, organization and management science, information technology and different managerial aspects in relation to innovative business practices and sustainability.

Nine submissions for thematic issue of INDECS were received, some of them being extended journal version of short articles from proceedings. Articles in this issue were accepted after review by guest editor and a blind review process by two independent reviewers. A short description and contribution of each article is provided in the following lines.

In their article, *Web 2.0 Technologies in Business: Why not?*, Mabić, Lasić and Zovko analyse barriers related to the insufficient use of Web 2.0 technology in companies. Results of their empirical research conducted among managers in companies in Bosnia and Herzegovina indicate that information technology infrastructure in terms of department size, technology implementation costs and computer illiteracy are seen as the main barriers to intensified use of Web 2.0 technology in business. Based on their research, authors indicate significant efforts are needed to promote the benefits that Web 2.0 technology brings, which would, eventually affect the perception of their disadvantages.

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Sokić and Horvat in their article *Examining the Role of Boldness in the Prediction of Emotional Intelligence in Men and Women* present the Triarchic model of psychopathy, and among its three components, specifically analyse boldness as an adaptive component of psychopathy. As they recognize that empathic deficit is present in psychopathy, they also analyse the concept of emotional intelligence (EI) and investigate the role of boldness in predicting dimensions of emotional intelligence. In addition, they also explore if relationships between psychopathy and dimensions of emotional intelligence vary between man and women. Their theoretical assumptions are tested on sample of 495 students. The results of hierarchical regression analysis indicated that boldness positively predicted all of the emotional intelligence dimensions and represent "successful" expressions of psychopathy, while disinhibition and meanness represent risk factors for adaptive interpersonal behaviour. However, relations did not vary between men and women.

Article *Fostering Eco-Innovation: Waste Tyre Rubber and Circular Economy in Croatia*, by Šandrk Nukić and Miličević, emphasises the importance of circular economy and eco-innovations, and specifically referring to its importance for Croatian waste tyres market. The empirical part of the study used the Strength-Weaknesses--Opportunities-Threats method in order to determine the perspective of the main market stakeholders. Data were collected through in-depth interview with managers of mechanical recycling company in Croatia and through on-line questionnaire on a sample of relevant market stakeholders. In addition, authors have provided a comparison with the European context. Results of their analysis indicate that Croatian legislation and practice follow European trends. However, situational analysis suggests that the full potential of produced raw material is not being achieved due to underdeveloped industrial production.

In the article *Identifying the Interdependence between Consumer Confidence and Macroeconomic Developments in Croatia*, Matošec and Obuljen Zoričić address the interrelationship between consumer confidence and macroeconomic trends in Croatia. In line with previous studies, authors in their research employ both subjective and objective variables including consumer confidence, consumption and gross domestic product, but also include variable savings as another important determinant in the households' economic decision making. The results of their research suggest that consumer confidence Granger-causes all selected macroeconomic variables and vice versa. Also, their results indicate that for understanding households' economic behavior, combining subjective and objective indicators is of great importance.

Article *Corporate Social Responsibility Strategy and Reporting: Overview of Practice in Selected European Countries*, by Markota Vukić, Omazić and Aleksić, emphasize the importance of corporate social responsibility (CSR), socially responsible strategy

and reporting. After theoretical background and insight into CSR strategy and reporting, with special emphasis on Global Reporting Initiative standards and guidelines for reporting, the article provides a deeper insight into corporate social responsibility practice of 154 organizations from ten European countries. Special emphasis is given on analysis of practices of corporate social responsibility and reporting, and influence of different stakeholders on them.

Business Process Management and Corporate Performance Management: Does Their Alignment Impact Organizational Performance, an article by Suša Vugec, Ivančić and Milanović Glavan explores the link between business process management (BPM) and corporate performance management (CPM), and how their maturities affect their alignment. Moreover, by addressing the impact of BPM-CPM alignment to organizational performance it is one of the first studies to investigate their combined impact in terms of an alignment empirically. Results of their empirical research on a sample of 159 medium and large sized organizations from Slovenia and Croatia indicate that the BPM-CPM alignment increases when both BPM and CPM maturities are higher. Analysed organizations were also segmented in two clusters, using k-means algorithm: low-performers and high-performers, revealing statistically significant differences between them for all observed variables. The Mann-Whitney U test revealed there are statistically significant differences between OP variables among low-performers and high-performance clusters, indicating the relationship of BPM-CPM alignment with OP.

Perović and Vučković, in their article *Success in Studying at the University of Montenegro: Is there Hyper-production of Diplomas?*, address the issues of the study success at the University of Montenegro. In their analysis among 4 517 students at 19 faculties, they have studied the relationship between the completed secondary school, regional characteristics and gender dimensions and the completion of bachelor studies in the foreseen time period, in the fields of study: natural and technical, social-humanistic and artistic. The results of research do not confirm the assumption of overproduction of diplomas. Based on their research authors emphasize the need to develop innovative approaches in the area of teaching and learning, but also monitoring and evaluation.

Travel and Accommodation Web Services: Usage in Selected European Countries by Marić and Zoroja investigate the current trends in usage of Web services for online accommodation reservation in selected European countries, and the habits and readiness of individual Croatian travellers regarding the usage of Web services for the accommodation reservation. Research results indicate that usage of Internet for tourism services is growing through years in European Union countries, but the

the option of booking accommodation through Web services and additional efforts need to be done in order to foster individuals to use the Internet and its advantages and possibilities in tourism services.

Article *Transparency in Public Relations: Evidence from Associations' Ethics Co*des by Kolić Stanić explores the issue of transparency in self-regulation of professionals in public relations. The aim of the article was to investigate the importance of transparency for public relations professionals, and how this issue is regulated. A method of qualitative content analysis was done and it was based on 13 ethical codes, delivered by 18 major associations of public relations professionals at national and international levels (United States, Great Britain, Germany, Austria, Italy, Spain and Croatia). In all ethical codes the value of transparency is articulated, however differences are present. The main finding, as the author suggests, is "the struggle" between the principle level and the operational level of transparency in public relations field.

Zagreb, 18th June 2019

Guest editor

Mirjana Pejić Bach

Interdisciplinary Description of Complex Systems 17(2-B), 304-314, 2019

WEB 2.0 TECHNOLOGIES IN BUSINESS: WHY NOT?

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ABSTRACT

The objective of the study was to explore the barriers or the reasons behind the insufficient use of Web 2.0 technology in companies. The empirical research was conducted among managers in companies in Bosnia and Herzegovina during 2015. The results indicate that managers see information technology infrastructure (department size, technology implementation costs) and computer illiteracy as the main barriers to intensified use of Web 2.0 technology in business. The least relevant obstacles are related to the lack of support from, and the inability to protect the data privacy and integrity in an adequate manner. The results indicate that significant efforts to promote the benefits that Web 2.0 technology brings to the business are needed, which would, in turn, significantly affect the perception of their disadvantages.

KEY WORDS

web 2.0, barrier, Bosnia and Herzegovina, technology, obstacles

CLASSIFICATION

JEL: L86, M29

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INTRODUCTION

Although Web technologies, and in particular generation 2.0, are initially created for data and information exchange, today they are imposed as a powerful, dynamic and robust platform that enables two-way interaction of different users, in different ways and at any time. The two-way interaction involves much more than ordinary communication. It involves search, storage and exchange of data and information and multimedia content, communication and cooperation (private and business), the realization of economic exchange of goods and services, conducting business activities, creating and sharing new knowledge, acquiring new skills, etc. The list of possibilities does not end here since everyday use increases their possibilities in new areas of use. Thanks to the wide range of Web 2.0 technologies, they became an integral part of the business and private life. In addition, the literature, even more, explores their use in business and educational purposes [1-15].

The application of Web 2.0 technologies in the business context has significantly increased in recent years. As a result of interactivity they ensure, companies and large global companies in particular, increasingly invest in Web 2.0 projects. The Web 2.0 technologies not only have brought a variety of business benefits but also have driven the development of new business models and strategies that affect the way of decision-making, linking and communicating with suppliers and clients in companies creating additional values to each participant. The use of Web 2.0 technology in business is considered a strategic integration of Web 2.0 technologies in Intranet, Extranet, and all business processes of companies. The implementation of Web 2.0 technologies in business significantly affects data searches from internal and external sources, encourages and strengthens cooperation within and outside the company, expansion of the existing range of business computer applications in a company, and their flexible and innovative integration and simpler administration.

Writing about enterprise social media, Khajeheian states that enterprise social media as a communication platform can reach higher the level of integration and spirit of team working in an organization and promote the sense of belonging to the organization [16]. Suša Vugec et al. stated social software, technologies, and concepts could empower business processes management (BPM) in an organisation that creates social BPM. Social BPM strengthens internal process performance through a more efficient task and role recommendation, implementation of knowledge management, and/or improvement of external cooperation with key stake-holders and customers [17]. Referring to the literature, Mabić et al. stated Web 2.0 technologies, especially social networks helps banks to conduct targeted marketing and reduce marketing costs, get more detailed information on their customers, foster commitment and loyalty of their customers, get feedback on their products and services, build and strengthen brand, act proactively to prevent negative connotations associated with the bank, to improve their services for sending money through different online platforms, and to humanize their brand [8, 11, 18].

Besides various advantages of Web 2.0 technology in business, the disadvantages of its use also have to be mentioned. Decreased security, primarily related to weak and inadequate protection of confidential data, is pointed as a significant disadvantage. “Attacks” of malicious programs, as viruses, worms, Trojan horses at important data are much simpler and often, due to intensive digitalization and use of information and communication technologies. All this makes data more “vulnerable” and accessible to unauthorized users that can cause significant consequences for a company. In addition, digitalization also relativizes the issue of ownership and data significance as public disclosure on the Internet makes data more visible and accessible to everyone that ensures different interpretations and misuse.

But, despite this, the experiences of companies using Web 2.0 technologies in their business show that advantages are the main ones. Usually, they are reflected in productivity, efficiency, and effectivity of business processes and better business results [14].

As far as barriers are concerned, they require special attention. In order to speak about the advantages and disadvantages based on experiences, it is necessary to implement Web 2.0 technologies in business. Precisely there barriers and reasons play a key role. Barriers to the use of Web 2.0 technology in business are described in works of Tebbutt, "Genie in a Bottle" [19], and Pauker Kreitzberg "Building a Web 2.0-Friendly Culture: Success on the Web is About People, not Technology" [20] (note: order of the following barriers, of the first and second author, does not represent the strength of the influence). Tebbutt mentions the following five obstacles [19]: (i) *Fear of control loss* – it starts from the presumption that excessive empowerment, freedom, and power that employees receive can negatively affect the power and control of managers. Namely, employees with excessive empowerment can reveal different business policies and procedures that management does not want employees to discover; (ii) *Lack of trust in employees* – this is strictly related to the previously described. As they get significant freedom and power, employees can also realize facts that should not be known according to managers' opinions. This develops fear at managers that the facts can be misused, e.g., they can reach people outside the company, direct competition, and others; (iii) *Already seen* – In the past, some companies made (un)successful attempts to implement different applications, that develop an aversion to new attempts at employees due to their results, (iv) *Fear of Social Networking* – linking to the personality traits of people, it is almost inevitable that there are people in companies who have the problem of leaving old habits and adopting new ones. From the other side, a constant mutual connection and responsibility for created content can be repulsive to employees because of their overwhelming exposure and responsibility, and (v) *Hierarchical Anarchy* – raising the level of employees' empowerment, there is a fear at management structures that employees will circumvent hierarchical structure and carry out unauthorized activities.

Pauker Kreitzberg points out the following [20]: security, compliance, public face, empowerment, transparency, generation gap, communication, and behaviour. Bradley has listed 25 barriers that business people mention as reasons for the insufficient use of Web 2.0 technology in business. Author, inter alia, mentions the following [21]: implementation of Web 2.0 technology in business is just a whim, it requires time, and business people have any time to waste, it is a risk because it can "fall", it represents threat because of different inappropriate contents, possibilities of unauthorized "intrusions" in system and disrupted security; it can affect negatively on efficiency of employees, it is unnecessary due to existing systems etc. Pejić Bach et al. (2013), in their research, concluded that internal factors in corporations are crucial for adopting and using ICT in order to increase business performance and competitiveness [22]. Since Web 2.0 technologies belong to ICT, it is easy to conclude that the same factors are key to their implementation.

The aim of the article is to research barriers, that are according to managers, barriers to intensive use (reasons of insufficient use) of Web 2.0 technologies in BH companies and compare views of managers whose companies already use the technologies and those in which this is not practice.

The introduction of the article addresses the use of Web 2.0 technologies in business, advantages and disadvantages and reasons or barriers why these technologies are not used more intensively. The methodology describes the sample, the research instrument, and the course and data processing methods. After that, the results of the empirical research are presented and discussed, and the work ends with a conclusion.

METHODOLOGY

The empirical research is conducted in companies in Bosnia and Herzegovina (BH) during 2015. The used questionnaire is originally prepared for empirical research as a part of writing the master thesis titled "Web 2.0 technologies in business" written by Mirela Mabić, 2015, Univesity of Mostar, Faculty of Economics. The questionnaire is structured in two parts.

The first part of the questionnaire included general questions on the company: time of establishment, number of employees, primary activity, company size, ownership, degree of formalization. Buble and Klepić state that, in the classification of businesses by their size, two major criteria should be considered: the number of employees and the yearly revenue/ yearly balance [23]. Accordingly, authors, depending on the size of the business, classify a business as micro, small, medium, and large. Micro business has up to 10 employees, and their yearly revenue/yearly balance does not exceed 200 000 €. Small business have anywhere between 10 to 50 employees, and their yearly revenue/yearly balance does not exceed 2 000 000 €. Medium businesses have up to 250 employees, and their yearly revenue/yearly balance does not exceed 30 000 000 €. According to Buble and Klepić there are three types of management: top (highest level), middle and lower or first-line management [24]. Top management consists of those managers that are responsible for a business as a whole (president, executive director, CEO). Their base responsibilities are as follows: setting goals, defining the strategy for achieving those goals, monitoring and interpreting the external environment, and making decisions that affect the business as a whole. Middle management consists of managers responsible for business units and main sections of the business (such as the head of the department, head of the sector, head of the development department, etc.). Their base responsibility is to execute the overall strategy set up by the top management. Lower management refers to managers that are directly responsible for the production of goods and services (supervisor, line manager, section chief, office manager). Their base assignments are to: apply the setup rules and procedures in order to ensure effective production, ensure technical assistance, and motivate their subordinates. In this article. the degree of formalization signifies the amount of freedom that the respondents had during the resolution of tasks, issues, and unplanned situations. In other words, it refers to the regulation, by internal acts, of the completion of tasks within the business. Three answers were given: a) complete formalization – no freedom in resolving a task; b) partial formalization – there is partial freedom in resolving a task; c) no formalization – there is complete freedom in resolving a task.

The second part of the questionnaire refers to the use of Web 2.0 technologies in the everyday business of companies, the advantages they ensure and barriers for their more intensive use. The barriers are given in Table 1, and besides the mentioned, respondents could identify other barriers as well that are considered to be significant for the use of Web 2.0 technologies in business.

Questions in the questionnaire are created as closed and opened. Likert five-point rating scale with the following interpretations of rates is used for evaluation of barriers/reasons for difficult acceptance and insufficient use of Web 2.0 technologies in business. 1 – no barrier, 2 – minor barrier, 3 – medium/moderate barrier, 4 – major barrier, and 5 – significant barrier.

An online survey has been conducted, a link to access the survey was sent to 317 e-mail addresses. In total, 135 questionnaires were collected, and after a logical analysis, 127 of them were accepted for further analysis, so the sample consisted of 127 top and middle managers. The return rate is 40,1 %, and the rate of utilization of questionnaires completed 94,1 %. The sample included 14 owners, 32 managers, and 81 department, branch, or sector managers (employee that executes their managerial tasks). The characteristics of the enterprises in which the respondents are working are presented in Table 2.

Table 1. Possible barriers (reasons) for difficult acceptance and insufficient use of Web 2.0 technologies in business. Source: authors' work.

Code	Barrier
P1	Lack of management support
P2	Poor computer literacy of management
P3	Size of IT department in the company
P4	Costs of use/implementation
P5	It is hard to measure the benefits of Web 2 technologies use
P6	Poor computer literacy of employees
P7	Demanding infrastructure
P8	Existence of Intranet or another system that provides the same functionalities as Web 2.0 technology
P9	Impossible adequate data protection
P10	Security issues
P11	Problems related to business control
P12	Level of business activities formalization

Table 2. The characteristics of the enterprises. Source: authors' work.

Characteristics		Percentage (n = 127)	Characteristics		Percentage (n = 127)
Company size	large	39,4	**Time of establishment**	before 1990	27,6
	medium	23,6		1990-2000	40,9
	small and micro	37,0		after 2000	31,5
Number of employees	< 50	44,9	**Ownership**	domestic	78,0
	50-250	19,7		foreign	17,3
	> 250	35,4		both	4,7
Primary activity	service	61,4	**Degree of formalization**	full	18,1
	manufacturing	23,6		partial	70,1
	both	15,0		no formalization	11,8

Results are presented as proportion in the total number of responses (relative frequency) and mean (M), and standard deviation (SD). The student t-test for independent samples test was used for testing of statistical significance. All statistical associations were evaluated using a significance criterion of 0,05.

RESULTS

Average rates on the importance of a barrier to more intensive use of Web 2.0 technologies in business are shown in Figure 1, while Figure 2 shows the distribution of rates at certain barriers/reasons based on respondents' answers. All barriers that the respondents have rated as either 1 or 2 have been considered as small barriers, barriers that got a rating of 3 were considered medium, while all barriers rated 4 or 5 were considered as large barriers.

When asked if Web 2.0 technologies are used in your company, 58 (45,7 %) respondents answered that they use the technology, 53 (41,7 %) do not use, while 16 respondents answered that they do not know, so they are excluded from the comparative analyses of opinions. The results of the comparison of the average rates of "users" and "non-users" of Web 2.0 technologies are shown in Table 3.

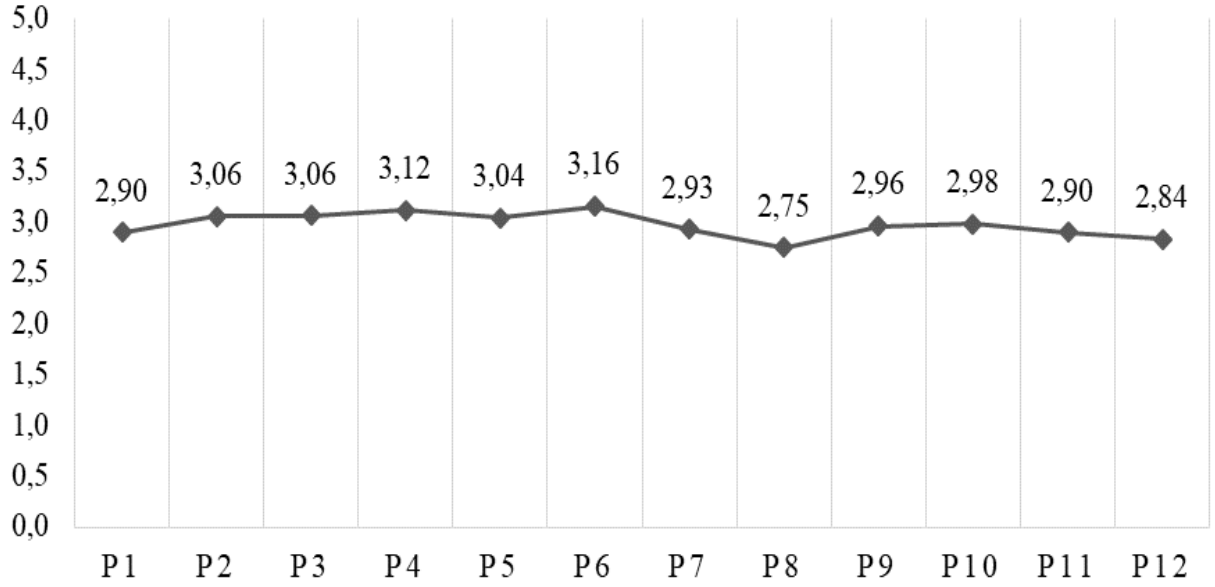

Figure 1. Average rates of possible reasons (barriers) for difficult acceptance of Web 2.0 technologies in business. Source: authors' work.

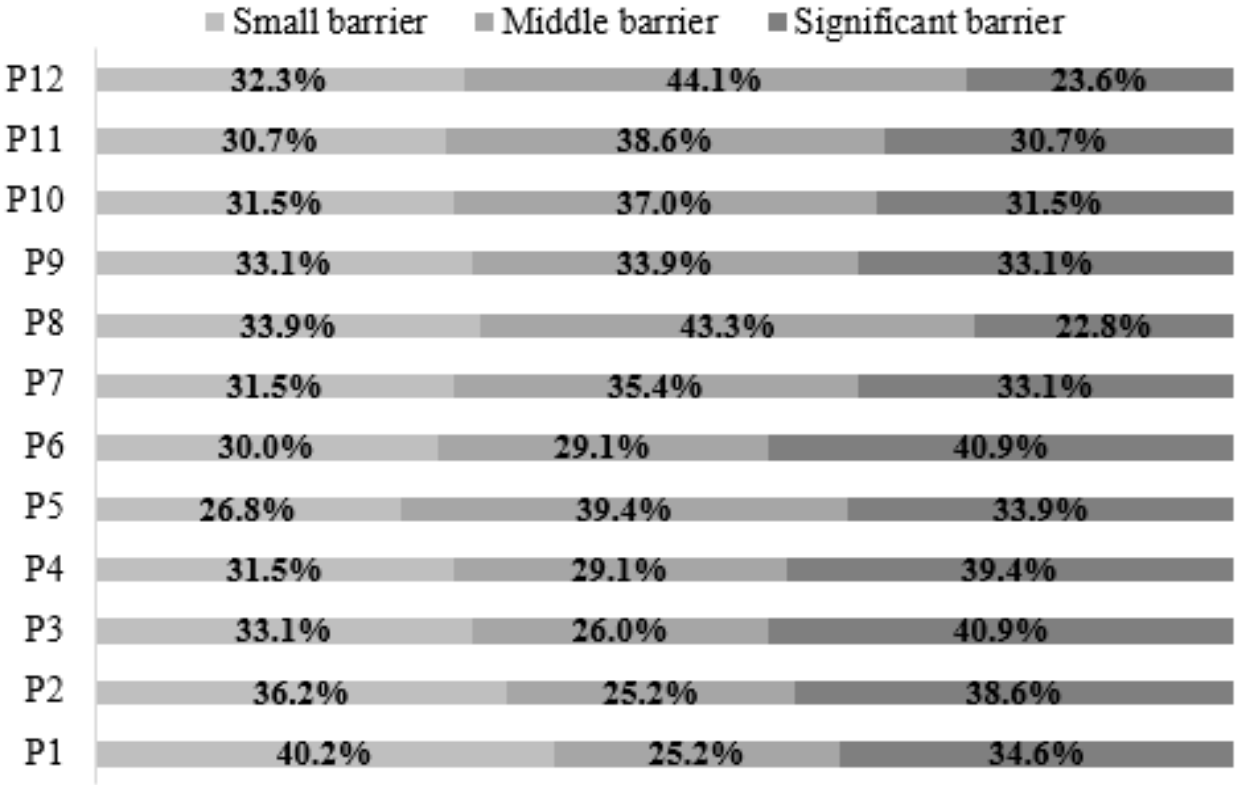

Figure 2. Distribution of rates at given reasons (barriers) for difficult acceptance of Web 2.0 technologies in business. Source: authors' work.

DISCUSSION

The results show that respondents see all mentioned reasons for the insufficient use of Web 2.0 technologies in business in BH companies, to a certain extent, as a barrier. All given barriers get at least one rate 1 and at least one rate 5. The dominant rate at all barriers except at the barrier *Lack of management support* (P1) is rate 3 "Size of IT department in the company". This shows that respondents consider given reasons as moderately significant or

Table 3. Importance of possible barriers for acceptance of Web 2.0 technologies (users vs. non-users). Source: authors' work.

Barrier	Web 2.0 users		Web 2.0 non-users		p
	M	SD	M	SD	
P1	**2.86**	1.54	**2.92**	1.45	>0.05
P2	**3**	1.49	**3.13**	1.48	>0.05
P3	**2.79**	1.23	**3.38**	1.43	**<0.05**
P4	**3.05**	1.32	**3.11**	1.25	>0.05
P5	**2.79**	1.2	**3.23**	1.1	**0.05**
P6	**3.21**	1.2	**3.08**	1.39	>0.05
P7	**2.74**	1.12	**3.08**	1.24	>0.05
P8	**2.66**	1.12	**2.83**	1.24	>0.05
P9	**3.14**	1.3	**2.83**	1.22	>0.05
P10	**3.1**	1.27	**2.91**	1.2	>0.05
P11	**2.95**	1.19	**2.87**	1.09	>0.05
P12	**2.9**	1.18	**2.75**	1.09	>0.05

M - mean; SD - standard deviation;
*Student t-test for independent samples

moderate barriers. At the mentioned barrier, the dominant rate is 1 that can lead to the conclusion that managers consider themselves, or management, the least problem in innovation and improvement of business processes, or business in general. An overview of average rates leads to the same conclusion. The mentioned barrier has a lower average rate, but the differences between a few of them are very small. Here it is necessary to mention that managers of different levels have rated eventual reasons for the insufficient use of Web 2.0 technologies in business. Therefore, it is expected that they will not point themselves as the biggest problem or the biggest barrier, and the obtained results have to be considered with caution. In order to get the real picture on managers as initiators or barriers to innovation, the managers' opinions should be "corrected" by employees' opinions (their subordinates), i.e., taken into account in the context of answers of all employees of questioned companies.

Results show that, according to respondents' opinions, the main barriers to more intensive use of Web 2.0 technology in business are *Size of IT department in the company* (P3) and *Computer literacy of employees* (P6). 40,9 % of respondents rated the mentioned barriers with 4 or 5, e.g. they considered them as major and significant barriers. If we analyse this results together with results for barriers *Costs of use/implementation* (P4) and *Demanding IT infrastructure* (P7), we can get a better image on how many respondents are familiar with Web 2.0 technologies. As an important feature of Web 2.0 technologies is mentioned the fact that they can be put into a function without IT experts and demanding technology and their use, at least part of them, does not require IT knowledge of expert level. One more thing that has to be pointed here is the fact that people competence to use some technology is not always conditioned by their precognition and the current computer illiteracy of employees cannot be considered as a significant barrier, even though respondents do not share this

opinion. Quality training, practical examples and instructive classes, those "Web 2.0 illiterate" as well as computer illiterate in general can become literate for Web 2.0 technologies. Some people, when becoming aware of benefits for them, get the will to master new knowledge and acquire new skills. The same is applicable to Web 2.0 technology. Particularly, it should be emphasized that the desire to facilitate work can positively influence the acceptance of innovation.

The following barriers are considered as the least significant *Impossible adequate data protection* (P8) and *Level of business activities formalization* (P12), that is understandable. The business activities formalization represents the exact definition of activities in resolving individual tasks, what Web 2.0 technologies would not change. They can just ease data and information availability and cooperation with others (communication and teamwork on the same things, documents, etc.) Likewise, as a result of improvements in the field of IT protection and security, the level of data protection is raising every day that leads to a higher level of security.

When comparing to reasons that authors mention in literature, opinions of questioned managers partially depart. The most reasons according to Tebbutt [19] and Pauker Kreitzberg [20] are related to people and not technical components since Web 2.0 technology, or any application within this group does not require complex nor expensive technology. People are the one who has to change their awareness and accept innovations for their own and companies' benefits. Ideal ground for fruitful "breeding" of technologies is an open organizational structure and high motivation of employees to exchange their own experiences and to acquire new knowledge. Unfortunately, contrary to the mentioned, practice has shown that the lack of employees' interest for further training, cooperation and exchange of information and knowledge with others, not perceiving organizational success as their own and necessity for additional incentives and stimulations are basic barriers for implementation of a new paradigm (no matter which) in business of a company. Compared to people, all other barriers become minor.

Regarding differences in opinions of respondents with the practice of using Web 2.0 technologies in business and one without the practice, results show that respondents significantly differ at barriers *Size of IT department in the company* (P3) and *It is hard to measure benefits of Web 2.0 technologies use* (P5). Respondents in companies that use Web 2.0 technologies have rated those barriers with lower rates than the ones who do not use Web 2.0 technologies in their business. This can lead to the conclusion that, according to their opinion, the mentioned is not such a large brake to more intensive use of Web 2.0 technologies in business. The mentioned is also expected because they, in the position of Web 2.0 users, have already realized that the size of the IT department does not condition the use and that it is possible to rate the benefits they bring. Respondents with no experience with Web 2.0 technologies in business think the opposite, i.e.; they consider the size of IT departments and measurability of benefits as major barriers.

Observing average rates of barriers of these two sub-groups of respondents within the range of set rates (1-5), it can be seen that both groups agree that major barriers are not *Lack of management support* (P1), *Existence of Intranet or another system that provides the same functionalities as Web 2.0 technologies* (P8), *Problems related to business control* (P11) and *Level of business activities formalization* (P12). The mentioned claims have average rates of less than 3. As for the comments on obtained results, the presumption is that both groups of respondents already have a situation of introducing new solutions and innovations in organization and they are aware of factors that can be adapted more easily. On the first sight, it may seem that "to have their opinions and hardly depart from them" can be a major barrier for any innovation, but by appropriate approach, presenting examples of good practice and pointing out good sides without concealing the bad ones, people can change their opinions.

The sub-group of questioned managers who use Web 2.0 technologies in their business gave higher rates to part of barriers than the respondents not using it, i.e., they characterized it as significant barriers to insufficient use of Web 2.0 technologies in business. It is about the following barriers: P6 – *Poor computer literacy of employees*, P9 – *Impossible adequate data protection*, P10 – *Security issues*, P11 – *Problems related to business control* and P12 – *Level of business activities formalization*. However, it has to point out that the difference between average rates is not so large, especially at two last barriers. The reason for this can be just experienced in the implementation and use of Web 2.0 technologies in business. Respondents using the technologies have probably already met with certain problems in their implementation, and they are aware that computer illiteracy of employees in addition to fear of new and unknown is a significant problem because people are the ones who need to use mentioned technologies. Of course, this problem is not insoluble, but beside efforts that go "regularly" with innovation (implementation of new solutions), additional efforts have to be done to educate employees and gain their trust.

CONCLUSION

In the opinion of almost half of the respondents, the main barriers to the more intense use of Web 2.0 technology in business are the barriers of "IT nature" or the size of IT departments and the computer illiteracy of employees. In addition to these obstacles, they point out the costs of the use/implementation of Web 2.0 technologies and their demanding infrastructure. Among the less significant barriers are the level of business activities formalization and the existence of Intranet or another system that provides the same functionality as Web 2.0 technology. Managers see themselves, i.e. management of the company as the least barriers.

The use of Web 2.0 technologies in BH companies is still on the beginning. As the research has shown, Web 2.0 technologies are not used enough, and users based on a limited group of technologies. Compared to literature, opinions of managers in BH companies on reasons to insufficient use of Web 2.0 technologies partially depart. Differences are seen in the fact that managers point out IT infrastructure as a major barrier and management support as a minor barrier. The literature points out that the lack of management support in companies is a major barrier, while most of Web 2.0 technologies require very small or no investments in infrastructure.

The results obtained are the starting point for further research and cannot be the basis for making general conclusions. Such opinions of managers in BH companies require significant efforts in eliminating the wrong perception on Web 2.0 technologies that would also intensify their use in business activities.

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EXAMINING THE ROLE OF BOLDNESS IN THE PREDICTION OF EMOTIONAL INTELLIGENCE IN MEN AND WOMEN

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ABSTRACT

The Triarchic model of psychopathy includes three components: boldness, meanness, and disinhibition. The model proposed that boldness is an adaptive component of psychopathy. Considering the empathic deficit present in psychopathy, emotional intelligence (EI) is an important construct for investigation of psychopathy. The major aim of this study was to investigate the role of boldness in predicting dimensions of emotional intelligence. The second aim of the present study was to explore whether associations between psychopathic components and dimensions of emotional intelligence vary across sex. Four-hundred-and-ninety-five students (51 % men) completed the Triarchic Psychopathy Measure (TriPM), and Wong and Law Emotional Intelligence Scale (WLEIS). The results of hierarchical regression analysis indicated that boldness shows adaptive features and represent a "successful" expressions of psychopathy, while disinhibition and meanness represent risk factors for adaptive interpersonal behaviour. Furthermore, results indicated that the relationship between TriPM and WLEIS did not vary across sex.

KEY WORDS

psychopathy, boldness, meanness, disinhibition, emotional intelligence

CLASSIFICATION

APA: 3120, 3230
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INTRODUCTION

Psychopathy is a constellation of different features including empathy deficit, shallow emotions, insensitivity, fearlessness, manipulation, aggressiveness and exploitation of others, often related to antisocial outcomes[1, 2]. In the theoretical and clinical descriptions of psychopathy [3, 4], the presence of empathic dysfunction is strongly emphasized. Psychopathy is considered a disorder associated with empathic dysfunction which is an integral part of the diagnostic criterion of psychopathy. Non-clinical psychopathy encompasses personality traits of callousness, manipulation, deception, egocentricity, superficial charm and exploitation, emotional coldness and low empathy. Despite various definitions and conceptualisations of psychopathy, psychopathy is considered harmful and dangerous for the societies, thus capturing the attention of researchers. The triarchic model of psychopathy [5] attempts to reconcile these different psychopathy conceptualisations by including three different but intersecting components, i.e., boldness, meanness, and disinhibition. According to the triarchic model, psychopathy includes three distinct elements, i.e., boldness, meanness, and disinhibition. Meanness and disinhibition capture different sets of emotional-interpersonal deficits. Meanness captures "deficient empathy, lack of affiliative capacity, predatory exploitativeness, empowerment through cruelty or destructiveness" [6], while disinhibition captures lack of inhibitory control, impulsiveness, difficulties in regulating emotions, hostility and mistrust [7]. The boldness component of psychopathy is underrepresented in other psychopathy measures, but it is a component, which is conceptually thought to underlie superficial psychological health in psychopaths known as "mask" features. Namely, boldness captures social assertiveness, venturesomeness, and stress resistance [7].

Psychopathy includes some deficits in the emotional area [8] such as reduced selective recognition expressions of fear, sadness and happiness [9], suggesting the lack of insight into these emotional states in others. Neurobiologically oriented psychopathic models assume that psychopaths have different emotional and cognitive deficits [10, 11]. Most of these models emphasize that the negative emotional reactivity observed in psychopathy results in a lack of anxiety or a weak reaction to fear [12]. There is reduced reactivity of the amygdala to aversive stimuli in persons with psychopathic characteristics [13]. Deficiency in emotional area, which is characteristic for psychopathy, suggests underlying impairment in emotional intelligence in individuals with psychopathic traits.

Emotional intelligence (EI) is "ability to perceive, manage and reason about oneself's and other's emotions and to use this information for adaptive behaviour" [14]. Furthermore, the regulation of emotion promotes the emotional and intellectual growth of an individual [15]. EI links the affective and cognitive aspects of mental functioning and may be conceptualized as ability or as a trait. EI as ability is measured as individuals' abilities on emotional tasks [16], and EI as a trait is measured with self-report measures assessing emotional abilities [17]. In practical terms, it means being aware of our own emotions and the ways they affect our behaviour, especially in interaction with other people. Research shows that people with marked psychopathic features show the inability to function effectively despite good intelligence. The relationship between psychopathy and EI is not explored. Considering the empathic deficit present in psychopathy, EI is particularly important for examining an affective features of psychopathy. In undergraduate students, secondary psychopathy encompassing neurotic, emotionally disturbed psychopaths, measured by LSRP [18], was negatively associated with EI [19, 20], while primary psychopathy (i.e. emotionally stable

psychopaths) manifested intact EI [21]. Psychopathy in incarcerated men, measured by Psychopathy Checklist-Revised [22] was found to be associated with low EI measured as ability [23]. Thus, results suggested that in non-clinical samples only secondary psychopathy is related to low EI. However, there is no study investigating triarchically conceptualized psychopathy and EI. This is especially important since triarchic concept of psychopathy includes boldness, which is considered an adaptive component of psychopathy and therefore should be differently (positively) associated with EI.

Successful psychopaths can be accepted in the corporate (business) world, due to the preserved executive function.

THE ADAPTIVE ROLE OF BOLDNESS IN PSYCHOPATHY CONSTRUCT

Boldness as a psychopathic component existed in the earliest conceptualizations of psychopathy [3, 12]. In Cleckley's descriptions of clinical cases of psychopathy, high social effectiveness, the absence of fear, the absence of neurotic symptoms, insensibility to penalty, inability to learn from experience and low suicidal rate. As Cleckley suggested, boldness can be adaptive for individuals [24]. According to Lilienfeld et al. [2], Cleckley considered that psychopaths are "individuals characterized by the appearance of robust mental health that masks a serious emotional disturbance characterized by egocentricity and irresponsibility". Theoretically, boldness is based on biologically driven fearlessness and associated with self-confidence, optimism, resilience, tolerance for uncertainty, and social assurance [5].

One of the most important features of the triarchic model is its delineation of boldness as a distinct facet of psychopathy. Although represented in some influential accounts of the disorder, boldness is either not included or is underrepresented in other models [25]. According to triarchic model, boldness includes phenotypic features such as the ability to keep up in pressures or threats, fast recovery from stress, high self-assurance, and tolerance towards unknown and dangerous, while behavioural manifestations of courage are coldness, assertiveness, persuasiveness, and courage [5]. Recent research shows that boldness is related to indicators of adaptive behaviour as well as to maladaptive tendencies. Boldness is associated with low stress reactivity, conventional value orientation, well-being, immunity to anxiety/distress, fearlessness, low hostility, high extraversion and emotional stability/low neuroticism [26-30]. However, boldness is also related to grandiosity, verbal aggression, low agreeableness, narcissism, thrill-seeking, lack of empathy, risk-taking, dishonesty, guiltlessness, lack of altruism, erratic lifestyle and emotional insensitivity [27, 30-34]. A recent study [35] shows that boldness is uniquely contributing explaining the variance of some antisocial criteria such as non-physical punishment, impulsiveness and risk behaviour, but at the same time adds uniquely to the explanation variants of prosociality and social and emotional functioning. Further studies are needed to help resolve empirical contradictions and help relieve controversy over the significance and role of boldness in the construct of psychopathy.

CURRENT STUDY AND HYPOTHESES

The aim of this study was to tested the role of boldness in predicting dimensions of emotional intelligence. Also, the aim of the current study was to investigate whether associations between triarchic psychopathic components and dimensions of emotional intelligence vary across sex.

> **Hypothesis 1:** Consistent with the notion that boldness indexes adaptive traits such as emotional resilience, the absence of anxiety or neurotic symptoms [5, 32], we expect that boldness would be related to high self-emotion appraisal.

Hypothesis 2: Based on the triarchic model of psychopathy and previous findings of the negative association between boldness and impulsiveness [35, 36], we hypothesize that boldness would be positively associated with high regulation of emotion.

Hypothesis 3: Based on the theory that boldness entails high self-assurance and tolerance towards unknown and dangerous [5, 7], and in line with findings that psychopathy is positively related to grandiosity, Machiavellism and manipulation [27], we assume that boldness would be positively associated with the use of emotion.

Hypothesis 4: Based on positive relationships between boldness and adaptive traits [29, 30, 37], we predict that boldness significantly contributes to the explanation dimensions of EI.

Hypothesis 5: Previous research has shown that the relationship between boldness and adaptive traits did not differ by gender, so we expect similar results in this study.

METHODOLOGY

PARTICIPANTS AND PROCEDURE

The sample consisted of 495 students (252 men, 243 women), M_{age} = 21,78, *SD* = 4,57 from various Zagreb faculties. Most of them (86 %) were from financing and law, and 14 % were from engineering and computing. Participants completed all questionnaires during regular classes. All of them participated on a voluntary basis.

MEASURES

The Triarchic Psychopathy Measure (TriPM) [38] is a self-report measure of psychopathy, which consist of 58 items. The measure consists of three subscales: Boldness, Meanness, and Disinhibition. All items were scored on a 4-point Likert scale ranging from 0 (False) to 3 (True). The internal consistency (alpha) reliabilities for boldness, meanness and disinhibition subscales were 0,79, 0,86 and 0,83.

Wong and Law Emotional Intelligence Scale (WLEIS) [17] is a self-report measure of emotional intelligence. It consists of four scales: Self-emotion appraisal (SEA; e. g. I really understand what I feel), Others' emotion appraisal (OEA; e.g., I am a good observer of others' emotions), Use of emotion (UOE; e.g., I would always encourage myself to try my best), and Regulation of emotion (ROE, e.g. I am quite capable of controlling my own emotions). All items were scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A higher mean score indicates a higher degree of EI. The internal consistency (alpha) reliabilities were 0,85 for SEA, 0,78 for OEA, 0,86 for UOE and 0,87 for ROE.

DATA ANALYSES

Zero-order correlations (Pearson's *r*) were used to quantify basic bivariate relationships between TriPM scale variables and EI subscales (Table 2). Also, to test for sex differences in associations between TriPM scales and EI subscales, analyses were run with Gender *x* Psychopathy Facet interaction terms for the three TriPM facet scales entered separately in a second step. However, the increase in R2 at Step 2 did not emerge as significant for any of EI subscales, thus indicating that the relationship between TriPM and EI did not vary across gender (Table 4). Given this, we report findings for regression analyses combining across men and women. In order to assess for unique (incremental) variance in different aspects of EI explained by the individual TriPM component, we performed hierarchical regression analyses. In these regression model, boldness was entered in Step 2 of the analysis, after controlling for age, gender and the two other TriPM components (meanness and disinhibition) at Step 1 (Table 5).

RESULTS

DESCRIPTIVE STATISTIC

Descriptive statistics including means and standard deviations are presented in Table 1. All scales and subscales showed an adequate reliability. Cronbach alphas for TriPM and WLEIS were all higher than 0,70, indicating adequate internal consistency.

Sex differences in TriPM and WLEIS scores, evaluated using analysis of variance showed that men reported higher scores than women in boldness and meanness. Regarding EI dimensions, women reported higher scores than men in Other's Emotion Appraisal (see Table 1).

Table 1. Descriptive statistics, gender differences and internal consistency values for all variables (N_{men} = 252, N_{women} = 243). TriPM – Triarchic Psychopathy Measure, WLEIS – Wong and Law Emotional Intelligence Scale, SEA – Self-Emotion Appraisal, OEA – Other's Emotion Appraisal, UOE – Use of Emotion, ROE – Regulation of Emotion, α – Cronbach's α.

		Total sample		**Men**		**Women**		
	α	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(1,493)
TriPM Total	0,86	124,81	16,45	129,58	16,32	119,88	15,11	46,98**
Boldness	0,79	52,01	7,64	53,42	7,02	50,55	8,00	18,00**
Meanness	0,86	35,59	8,40	38,37	8,19	32,72	7,63	62,95**
Disinhibition	0,83	37,21	8,06	37,79	8,25	36,60	7,83	2,68
WLEIS Total	0,87	84,20	12,79	84,04	12,82	84,36	12,78	0,08
SEA	0,85	21,35	4,51	21,34	4,08	21,36	4,92	0,00
OEA	0,78	20,64	4,08	19,75	4,05	21,55	3,92	25,15**
UOE	0,86	21,90	4,59	22,14	4,45	21,64	4,73	1,50
ROE	0,87	20,32	5,02	20,80	4,93	19,81	5,08	4,85

**statistically significant at 0,1 %

With regard to correlations between TriPM and WLEIS scores, tested via Fisher *r*-to-*z* transformation, there were no significant sex differences (Table 2).

Table 2. Zero-order Pearson correlations between the TriPM and WLEIS in men (*N* = 252) and woman (*N* = 243).

	Boldness		**Meanness**		**Disinhibition**	
	Men	Woman	Men	Woman	Men	Woman
Self-Emotion Appraisal	0,26**	0,29**	–0,16*	–0,07	–0,38**	–0,31**
Other's Emotion Appraisal	0,11	–0,03	–0,36**	–0,42**	–0,17*	–0,15
Use of Emotion	0,40**	0,48**	–0,02	0,04	–0,27**	–0,33**
Regulation of Emotion	0,22**	0,41**	–0,13	–0,04	–0,47**	–0,37**

*statistically significant at 1 %
**statistically significant at 0,1 %

RELATIONS BETWEEN PSYCHOPATHY AND EMOTIONAL INTELLIGENCE

Bivariate correlations (Table 3) are similar for both sexes and showed that boldness correlated high with UOE, ROE, and SEA, but boldness was not related to OEA. Unlike boldness, disinhibition showed moderate to the large negative association with most WLEIS dimensions (e.g., UOE, ROE, and SEA). Furthermore, meanness was negatively associated only with OEA.

Results of hierarchical regressions analyses showed that sex was not moderated relations between TriPM and WLEIS subscales (Table 4).

Therefore we present standardized beta regressions from regression analyses for participants across the whole sample. To assess the extent to which psychopathy predicted EI, we

conducted hierarchical regression analyses (Table 4). Results of these analyses showed that high boldness and low disinhibition predicted SEA, UOE and ROE, while high boldness and low disinhibition significantly predicted UOE.

Moreover, the multiple regression analysis has shown that all three TriPM scales explained 18 % of the variance in SEA (R = 0,42, F[5,489] = 21,41, p < 0,001), 21 % of OEA variance (R = 0,46, F[5,489] = 25,84 p < 0,001), 26 % of variance in UOE (R = 0,51, F[5,489] = 34,41, p < 0,001), and 25 % of ROE variance (R = 0,50, F[5,489] = 33,01, p < 0,001).

Table 3. Differences between correlation coefficients across sex: z values.

	Boldness		**Meanness**		**Disinhibition**	
	z	*p*	*z*	*p*	*z*	*p*
Self-Emotion Appraisal	–0,36	0,7188	–1,01	0,3125	–0,88	0,3789
Other's Emotion Appraisal	1,55	0,1211	0,78	0,4354	–0,23	0,8181
Use of Emotion	–1,10	0,2713	–0,66	0,5093	0,73	0,4654
Regulation of Emotion	–2,34	0,0193	–1,00	0,3173	–1,34	0,1802

Table 4. Hierarchical multiple regression analyses predicting emotional intelligence from psychopathy components, N = 495.

	Self-Emotion Appraisal	**Other's Emotion Appraisal**	**Use of Emotion**	**Regulation of Emotion**
Predictors	*β*	*β*	*β*	*β*
Step 1				
Age	0,10	0,04	0,07	0,00
Gender	0,01	0,10	0,01	–0,07
Boldness	0,24**	0,14*	0,40**	0,26**
Meanness	–0,03	–0,45**	0,05	0,03
Disinhibition	–0,029**	0,05	–0,26**	–0,39**
R^2	0,18**	0,21**	0,26**	0,25**
Step 2				
Age	0,11	0,04	0,08	0,00
Gender	–0,13	0,85	–0,07	–0,87
Boldness	0,23	0,45*	0,38*	0,00
Meanness	–0,14	–0,46*	–0,11	0,10
Disinhibition	–0,26	0,11	–0,14	–0,59**
Gender × Boldness	0,03	–0,69	0,04	0,59
Gender × Meanness	0,16	0,01	0,23	–0,09
Gender × Disinhibition	–0,06	–0,11	–0,21	0,37
R^2	0,18**	0,22**	0,26**	0,26**
ΔF	0,22	1,82	0,55	1,80
ΔR^2	0,00	0,01	0,00	0,01

Note: β – standardised beta coefficient, ΔR^2 – R change.
*statistically significant at 1 %
**statistically significant at 0,1 %

INCREMENTAL EFFECT OF BOLDNESS IN PREDICTING EMOTIONAL INTELLIGENCE

Results from hierarchical regression analyses are presented in Table 5. Because there were statistically significant correlations between the TriPM scales, we tested multicollinearity by estimating variance inflation factors (VIF). The VIF value was 1,18 for boldness, 1,59 for meanness and 1,35 for disinhibition.

As predicted, results from hierarchical regression analyses showed that boldness predicted UOE (β = 0,40, p < 0,001), ROE (β = 0,26, p < 0,001), and SEA (β = 0,24, p < 0,001). Also, these results showed that the relationships of boldness and OEA grow to significance when controlling for meanness and disinhibition.

Furthermore, results showed that boldness unique contributed to the explanation of variance in WLEIS total (ΔR^2 = 0,12, F[1,489] = 46,72, p < 0,001), SEA (ΔR^2 = 0,05, F[1,489] = 21,42, p < 0,001), OEA (ΔR^2 = 0,02, F[1,489] = 25,84, p < 0,01), UOE (ΔR^2 = 0,14, F[1,489] = 34,41, p < 0,001) and ROE (ΔR^2 = 0,06, F[1,489] = 33,01, p < 0,001).

Table 5. Hierarchical regression investigating incremental value of boldness in understanding emotional intelligence. N = 495 (252 male and 243 female). Step 1 of the hierarchical regression includes age and gender as control. Standardized regression coefficients (β) and R^2 (squared multiple R) are from regression models including three TriPM subscales as predictors. ΔR^2 – R change for the Boldness entered in separate step after controlling two Meanness and Disinhibition, WLEIS – Wong and Law Emotional Intelligence Scale, SEA – Self-Emotion Appraisal, OEA – Other's Emotion Appraisal, UOE – Use of Emotion and ROE – Regulation of Emotion.

	Step 1		**Step 2**	**Model statistics**	
	Meanness	Disinhibition	Boldness	Step 1 R^2	Step 2 ΔR^2
	r/β	r/β	r/β		
WLEIS					
Total	–0,18**/0,02	–0,44**/–0,45**	0,39**/0,38**	0,20**	0,12**
SEA	–0,11/0,06	–0,34**/–0,37**	0,27**/0,24**	0,12**	0,05**
OEA	–0,43**/–0,39**	–0,17**/0,01	0,00/0,14*	0,19**	0,02*
UOE	0,03/0,20**	–0,30**/–0,38**	0,45**/0,40**	0,12**	0,14**
ROE	–0,05/0,13*	–0,41**/–0,47**	0,33**/0,26**	0,19**	0,06**

Note: r – Pearson's correlation, β – standardised beta coefficient.
*statistically significant at 1 %
**statistically significant at 0,1 %

DISCUSSION

The major aim of current study was to investigate the role of boldness in predicting dimensions of emotional intelligence (e.g., SEA, OEA, UOE, ROE). Also, the aim of the present study was to investigate does sex moderate relationships between psychopathy and dimensions of emotional intelligence. In general, the results supported the hypotheses and showed that boldness positively predicted all of EI dimensions. As expected, boldness positively predicted WLEIS total, SEA, UOE, and ROE. This is consistent with the Triarchic model of psychopathy which proposed that boldness encompass social effectiveness, stress resistance imperturbability, and social assertiveness [7]. Also, these results are in line with previous studies showing that boldness was negatively associated with impulsivity [35, 36].

As predicted, the adaptive role of boldness was pronounced in both men and women. In line with previous studies, men showed significantly higher scores on boldness and meanness but not on disinhibition [30, 36].

Despite some gender differences in TriPM and WLEIS, results indicated that the relationship between TriPM and WLEIS did not vary across sex. In line with the Triarchic model of psychopathy [5], the results showed that disinhibition was independently negatively associated with SEA, UOE, and ROE. Our results are similar to the previous studies showing that disinhibition was associated with low self-control, high impulsivity and high stress reactivity [30, 34], and that disinhibition entails difficulties in regulating emotion [7]. The

reliability demonstrated in this study via internal consistency, of TriPM and WLEIS scales were adequate and in line with previous studies [29, 34, 39].

The results showed that meanness uniquely predicted low OEA. This is consistent with the triarchic conceptualization of psychopathy which proposed that meanness encompass deficient affect, particularly deficient empathy [5]. Boldness was found to be the positive predictor in explaining OEA, which relates the ability to observe and understand people's emotions. This results are in line with the neurobiological model of successful and unsuccessful psychopathy, which proposed that successful psychopaths "have normal or even superior cognitive functioning" [40].

Our findings are coherent with previous studies showing that boldness was related to emotional stability [27, 30]. Our findings support previous findings that boldness was related to low anxiety/distress and emotional stability [27, 30]. One possible explanation is that boldness leads to lower levels of neuroticism which is associated with low personal distress [29, 30].

These results confirm that boldness indexes adaptive traits such as emotional resilience, absence of anxiety or neurotic symptoms [32], and therefore can be considered as an expression of 'successful' psychopathy [7, 21]. This is consistent with the Triarchic conceptualization of psychopathy, which proposed that boldness encompass social effectiveness, stress resistance imperturbability and social assertiveness [7]. Our results are consistent with earlier findings that shown positively association between boldness and Machiavellian tendencies [27].

Overall, the present study showed that boldness added incrementally to our understanding of some successful interpersonal behaviors, such as the ability of an individual to understand and regulate one's own emotions, and the ability to use emotions in a constructive manner.

This study has several limitations. Namely, our study is correlational and, therefore, cannot provide conclusive information about causal relationships among variables. Second, the samples used are undergraduate students, which limits external validity. Therefore, it would be necessary to conduct this research on a sample of the general population. Third, the use of self-report measures is also a limitation given the impact of shared method variance.

CONCLUSION

The results of this research have shown that boldness has a positive effect on the development and maintenance of successful relationships with others. Boldness is associated with good emotional regulation that can help in achieving stability and success. On the other hand, this study showed that disinhibition was associated with poor regulation of emotions which leads to impulsive behaviour. Finally, it has been shown that meanness solely predicted low Other's Emotion Appraisal, which confirms that empathic deficit is a key feature of psychopathy.

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FOSTERING ECO-INNOVATION: WASTE TYRE RUBBER AND CIRCULAR ECONOMY IN CROATIA

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ABSTRACT

The aim of this article has been to provide an insight into Croatian waste tyres market, which is assumed to be the source of significant eco-innovation. At the outset, the analysis of relevant literature has been done regarding the circular economy and eco-innovations. The empirical part of the study used the Strength-Weaknesses-Opportunities-Threats method in order to determine the perspective of the main market stakeholders. In the course of the SWOT method conducting, an in-depth interview was organized with managers of the only authorized mechanical recycling company in Croatia and an on-line questionnaire was used to learn about thinking and attitudes of other ELT market stakeholders in Croatia – representatives of the Ministry of Environmental Protection and Energy, Environmental Protection and Energy Efficiency Fund, Agency for the Environment and the Nature, authorized ELT collectors, Croatian scholars involved in previous waste rubber scientific studies as well as representatives of companies either using or selling rubber recyclate. Additionally, comparison to the European context has been conducted. Findings suggest that Croatian legislation and practice follow European trends: collection rate of waste tyres is near 100 %, and the total collected amount is being recycled – 83 % as the secondary raw material and 17 % as energy recovery. However, situational analysis detected that underdeveloped industrial production hinders seizing the full potential of produced raw material, thus missing the opportunity of generating the higher added value for the domestic economy. Consequently, Croatia's Eco Innovation Index was by 28 % lower than the EU average in 2017.

KEY WORDS

waste tyre rubber, eco-innovation, circular economy, Croatia

CLASSIFICATION

JEL: O52, P27, Q56

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INTRODUCTION

Circular economy initiatives aim to keep the value of products and materials as long as possible in the economy while minimizing the generation of the waste. The ultimate goal of promoting a circular economy is the decoupling of environmental pressure from economic growth [1]. In the same time, conceptualizing on circular economy and striving to implement different initiatives, represents a major contribution to the development of a sustainable economy, in which resources are being exploited efficiently, and new competitive advantages are being created.

One of the significant circular economy initiatives, i.e., opportunities is the use of waste tyres, also called the end-of-life tyres (ELT). But, this opportunity is not straightforward, so although it is intensively researched, especially during the last five years [2], exploitation of innovative ideas and solutions is still limited with obstacles to bring innovation into commercial success [3]. However, ELT does represent an eco-innovation source, important in terms of business as well as for policy development.

Literature research conducted for the purpose of this study has indicated that there are no recent scientific papers regarding available quantities of ELT rubber residues as well as their management system in Croatia. Beside scientific sources, not even official European records contain data on ELT resources availability in Croatia nor studies regarding their potentials (ETRMA). Additionally, the environmental and economic sustainability of circular economy framework is very site specific, so beside the type of the material being researched, it depends on several other factors like transport distances, economic and political context [2]. Therefore, research within particular countries is needed, as it builds to the existing body of knowledge. Therefore, the intent of the study has been to fulfil that research gap, providing the answer to the initial research question: What are the characteristics and potentials of Croatian waste tyres market?

The stated research question has led to the following two research propositions.

> **RP1**: Although smaller, Croatian waste tyres market is in compliance with characteristics of the European waste tyres market in terms of legislation, collection rate, and recovery structure.
>
> **RP2**: Waste tyre market is a significant source of eco-innovations in Croatia since it provides opportunities for recycling, re-use, and new business models development, thus contributing to circular economy initiatives.

The propostitions has been investigated using qualitative research methods, and the article itself has been organized in six sections. Immediately after the Introduction, a section providing the literature review is being presented. It has been divided into three subsections, in order to provide necesarry framework regarding legislation and financing models, eco-innovations as well as recycling methods and possible uses of used tyres. The third section, called Data and methods presents details regarding the sample characteristics and scientific methods applied. The fourth section displays the empirical part of the Croatian waste tyre market study whilst the fifth section reflects on the results. The final section brings concluding remarks. Important acknowledgement, as well as references used, are given at the very end of the manuscript.

This article results from the study which is part of the research being done in the course of the scientific project called Development of Reinforced Concrete Elements and Systems with Waste Tyre Powder, financed by Croatian Science Foundation. It belongs to the first research

phase, putting emphasis on the analysis of the rubber compound of ELT and its potentials, especially in terms of its availability in the Republic of Croatia, ELT market functioning and the related situation in that country.

LITERATURE REVIEW

REGULATION AND FINANCING OF TYRE WASTE

The global population is becoming increasingly aware of the scarceness of resources, but at the same time, we are facing the growth of the population and its ever greater demand for access to wellbeing. The only possible response to such a situation is the attempt of improving the efficiency and effectiveness of resources use, including their re-use. Consequently, resource scarcity is the driver behind the circular economy. The recovery of materials and energy can add significant new value streams and improve cost recovery [4].

The circular economy is an economic model that encourages the so called 3R principle: reduce, reuse, and recycle. As such, circular economy model, in fact, implies a mind-set change that considers waste as a potentially useful resource and not as a problem to manage and dispose of in landfills, as in linear economy [5].

Throughout history, there have always been attempts of re-use, but from the time of the industrial revolution, after men had discovered how to produce quickly and cheaply and we evolved into an increasingly throwaway society, the concept of the circular economy became more important than ever. It became an alternative to the dominant economic development model, so called “take, make and dispose of” [6].

In December 2015 European Commission adopted the ambitious Circular Economy Package, including legislative proposals on waste, to stimulate Europe’s transition towards a circular economy which will boost global competitiveness, foster sustainable economic growth and generate new jobs. Later, as part of its continuous effort to transform Europe's economy into a more sustainable one, the Circular Economy Action Plan was introduced, establishing a specific programme of action, with measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials [7].

The proposed measures have aimed to contribute to “closing the loop” of product lifecycles through greater recycling and re-use, thus generating benefits for both the environment and the economy. By promoting the adoption of closing-the-loop production patterns within an economic system, a circular economy aims to increase the efficiency of resource use, with special focus on urban and industrial waste, to achieve a better balance between economy, environment, and society [1].

Regarding waste tyres, it should be emphasized that, if discarded into the environment, ELT become a problematic waste due to their volume and durability. They are very slowly degradated under the influence of solar radiation, and the products of this degradation gradually pollute soil and underground water. Additionally, thrown ELT are an ideal habitat for mosquitos and rodent reproduction [8]. In consequence, collection and recycling of waste tyres are extremely important in order to prevent their harmful impact on human health and the environment, but also in order to use them as an economically valuable resource.

Therefore, two significant directives have been introduced: the Waste Directive [9], setting the basic concepts related to waste management, such as recycling and recovery as well as the Landfill Directive [10], which outlawed ELT as well as shredded tyres to be deposited on landfills. Additional legislation has driven the sector towards recovery and recycling, with the collection rates near 100 % in much of Europe.

However, the EU's official opinion is that Croatia still needs to prioritise its national strategies. The scope of policy measures that support eco-innovations for the circular economy needs to be both more comprehensive and more focused in order to cover all relevant segments of the economy and regulations, such as regulatory instruments, economic instruments, R&D funding as well as information, networking support and voluntary measures [11; p.15].

Pragmatically, the starting point for ensuring efficient recycling and circular economy in general, as well as in the context of end-of-life tyres, is every government's responsibility at aligning policies and creating an efficient legal framework. Today, there are three different ELT management schemes in Europe [3].

The first scheme is extended producer responsibility (EPR), in which the original manufacturer has a duty of care to ensure that the waste from the products it has created is disposed of responsibly, in an environment sound manner. This makes the producer (defined as a manufacturer or an importer) responsible for the waste that the consumer generates. These companies are mandated by law to collect and organize the treatment of an equivalent amount of the volumes of tyres sold on the same year. The process is financed through an environmental contribution charged by ELT companies to tyre manufacturers and importers. Furthermore, the fee is passed on by those producers to the end users, clearly indicated on the invoices, ensuring so transparency of costs. Clear and reliable traceability is additionally fostered through a reporting obligation of the ELT management companies towards the national authorities. Currently, EPR is the most widespread system in Europe with 21 EU member countries as well as Norway and Turkey practicing it.

The second scheme is a liberal system, also called the free market system, represents the legislation that sets the objectives to be met but does not designate those responsible. In this way, all the subjects of the recovery chain contract under free market conditions, meaning that their voluntary cooperation is the platform for promoting the best practice and acting in compliance with the legislation. Such system is present in Austria, Switzerland, Germany, and the UK, wherein the UK operates a "managed free market," having the ELT collectors and treatment operators obligatory to report to national authorities.

The third scheme is a tax system, which represents a system in which a government is responsible for the management of ELT. It is financed by a tax levied on tyre producers and subsequently passed on to the consumer. The tax system is applied in Denmark and Croatia. Croatian market shall be analysed in more details in this article.

ECO-INNOVATION IN THE CONTEXT OF CIRCULAR ECONOMY

According to the Oslo manual [12; p.70], the international reference guide for collecting and using data on innovation, there are four basic types of innovation: (i) product innovation – a good or service that is new or significantly improved. This includes significant improvements in technical specifications, components, and materials, software in the product, user friendliness, or other functional characteristics, (ii) process innovation – a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment, and/or software, (iii) marketing innovation – a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing, and (iv) organisational innovation – a new organisational method in business practices, workplace organisation, or external relations.

There are also other typologies of innovation. Authors of this article find interesting the stand of Eco-Innovation Observatory (EIO), a platform for the structured collection and analysis of an extensive range of eco-innovation information, gathered from across the European Union and key economic regions around the globe. It adapts the above stated types and emphasizes

so called eco – innovations, as innovations that take place and have effects in different dimensions (types) [13; p.9].

As reported by EIO, in order to foster the resource-efficient green economy and sustainable growth, economic growth must be decoupled from primary resource consumption by finding the growth opportunities in resource efficiency, recycling, re-use and other new business models [14; p.6].

This is where eco-innovations step in, since they have been defined as any new or significantly improved product (goods or services), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water, and land) and decreases the release of harmful substances across life-cycle [13; p.8]. As such, eco-innovations refer to all forms of innovation – technological and non-technological, new products and services and new business practices – that create business opportunities and benefit the environment by preventing or reducing their impact, or by optimising the use of resources [15].

Factors like external government pressures, financial subsidies, technological capabilities, environmental, organisational capabilities, a market-based instrument, competitive pressures, and demand for greener products can act as drivers for the development of eco-innovation. In Croatia, external government pressures and financial subsidies have been recognised as the main incentivising factors for the expansion of the circular economy and eco-innovation [11].

But there are also more or less influential barriers to circular economy and eco-innovations. Generally, cultural, technological, market, and regulatory barriers exist. To be more specific, several issues have been listed in Croatia's Eco-innovation Profile [11; p.12] as the biggest barriers: (i) limited Green Public Procurement (GPP) funding/support, (ii) a lack of awareness and/or willingness to engage in circular economy principles from the general population, (iii) Croatia's territorial disparity (e.g., number of islands shape of the country) and territorial organisation (number of municipalities/counties), (iv) the significant lack of investments in R&D. In 2016, R&D expenditure in Croatia represented only 0,84 % of GDP; and (v) the lack of quality solutions and examples of good practices for connecting the private and public sector. Croatia is still insufficient when it comes to investment in recycling and recovery infrastructure, as well as circular product eco-design and 3R production (re-use, recycle, and repair).

Since the focus of this article is on ELT, the empirical part of this research pays attention primarily to the last listed barrier, although others have been detected through SWOT analysis as well.

USED TYRES RECYCLING METHODS AND POSSIBLE USES

The discourse on ELT as raw material should mention that tyres are made from several components, being rubber, steel, and textile. Rubber makes up some 70-80 % of the tyre mass and the rest are steel belts and textile overlays [16]. Such a compound makes tyres a demanding resource, due to their highly complex structure, the diverse composition of the raw material, and the structure of the rubber from which the tyre was made [8]. Nevertheless, efficient separation of components and recycling is feasible due to modern technology. Their recycling requires a high time and energy outlay and is based solely on the mechanical, thermal or chemical destruction of the rubber product; recovery of the raw materials used to produce them is impossible [17].

Feasibility of recycling in the ELT market sector is based on two main facts: used tyres are clearly identifiable products, and their collection is distinct from all other waste streams. Additionally, even regular maintenance of tyres during their initial use phase is in compliance

with the circular economy, by extending their life span and mitigating the demand on natural resources. The relevant literature [8] however states that, from the aspect of circular economy concerning used tyres management, there are several options that are being practiced: retreading, energy recovery, pyrolysis, product recycling, and material recycling. The main difference among those procedures is that retreading happens in the usage phase of tyres whilst all the others are applied on ELT.

Retreading is described as a process for extending the lifetime of tyres based on the reconstruction of the tread pattern of the used tyre by removing the worn tread and placing a new layer of a rubber compound [18, 19].

Regarding energy recovery, it should be said that it is a widely practiced procedure because the calorific value of used tyres is higher than many others, especially coal's, which makes them competitive with other energy sources. Such tyre derived fuel is mainly used in the cement industry, which uses them as an alternative fuel co-combusted with coal [20]. Additionally, economic aspects of energy recovery from used tyres are very appealing, too [21].

The pyrolysis of tyres, meaning heating them to temperatures of 400-700 °C, in the absence of oxygen, yields a series of valuable chemical compounds in solid, liquid or gaseous form, which after suitable processing could be used in the petrochemical, energy or iron and steel industries [22]. However, equipment and its servicing needed for the process generates high costs, resulting in uncompetitive prices of created products. Therefore, the pyrolysis of used tyres is, in fact, very rarely used on an industrial scale [8].

Product recycling is based on the recycling of entire used tyres, in their original form, without any physical or chemical treatment. As such, it is rarely used and is of marginal importance for the circular economy, but there are examples of waste tyres being used as protective barriers along roads or waterfront banks, like fenders, as insulation in building foundations, etc [8].

Finally, material recycling is the most common means of managing used tyres, and it decomposes ELT into their constituent elements: steel, textile, and rubber. Steel component from all tyres is of extremely high quality, so there is a demand for that feedstock for the production of new steel by the European steel industry. As for the textile, there has always been a question of usage. Unlike the other two components, production of the clean textile from ELT remains a challenge since it is usually contaminated with rubber fragments. In the same time, it's separation is a hazard in the workplace as it creates dust and fibres on and in the machinery and in the atmosphere. However, the textile component is being used for new insulation products, as a source of energy, and experimentally as reinforcement in concrete [3].

Material recycling of the rubber ELT component is realized as mechanical grinding of tyres, which creates rubber materials of different degrees of fragmentation, or as devulcanization, which produces rubber regenerates [23]. Rubber regeneration play an important role in the rubber industry, while products of mechanical grinding have many different applications, mostly depending on their size. In the EU, used tyres material recycling market has been standardized by the European Committee for Standardization (CEN) [24], by classification of those products after their size, as presented in Table 1.

Table 1. Types of rubber products by standardized size. Source: authors' work, based on [24].

Type of recyclate	Size, mm
Cut tyres	> 300
Shreds	20 – 400
Chips	10 – 50
Rubber granulate	0,8 – 20
Rubber dust	< 0,8

Different stages of size reduction will create an end product with different properties, therefore recycled rubber is already being used in different industries, for different purposes: in rubberized asphalt [25], in production of athletic tracks as well as in noise reduction and anti-vibration solutions. But the most obvious market that is sure to grow is different uses of tyre derived rubber in concrete [3].

The size of the European concrete market is huge – its volume is in excess of 39,4 Mm^3 of concrete being produced in the 16 European countries represented at the European Ready Mixed Concrete Organization [26] plus Norway, Switzerland, Israel, and Turkey. Both research and commercial applications of rubber in concrete already exist. So far, the aim of rubber incorporation has been mostly to lighten the concrete and increase its performances, primarily increased resistance to cracking and the capacity for deformation. Adding rubber from ELT provides the concrete with increased durability and a greater aptitude for absorbing mechanical vibrations [27-29]. Due to good thermo-insulating and waterproof properties together with its resistance to environmental factors, rubber recyclate in concrete is ideal as filling material in tunnels and underground passages as well as material for drainage layers of embankments and drainage ditches [8].

However, the commercial use of recycled material from ELT is still threatened by the idea that goods produced from waste will be of lesser quality, or they will be cheaper. Neither is necessarily true, though both can be correct. Yet, the implementation of the circular economy still seems in the early stages, mainly focused on recycling rather than reuse [1].

METHODOLOGY

A literature review of a circular economy approach to the construction sector done by Ghisellini, Ripa and Ulgiati [2] suggested that the life cycle assessment method has been the most often used scientific form, applied in 40 % of case studies. It is followed by the literature research as the primary method in 19 % of studies, while other methods like financial analysis, questionnaire surveys, multi-criteria analysis, and others are used in the rest of the cases.

The study presented in this article is considered a preliminary investigation of the Croatian ELT market. In regard to methodology, it combined relevant literature research in its first phase with situational analysis using the SWOT method after that.

In the course of the literature research presented in the previous section, the content analysis method was applied to learn on circular economy and innovation principles as well as state of the art studies in the field. Synthesis method was used to summarize the previous findings, in order to notice relevant causalities and implications that might be important for both scholars and professionals.

The empirical part of the research aimed to perform the situational analysis identifying strengths, weaknesses, opportunities, and threats of Croatian ELT market. SWOT method statements have been constructed drawing on the survey responses gathered from interviews and an on-line questionnaire.

In-Depth interviews were conducted with managers of the only authorized mechanical recycling company in Croatia. Interviews have been semi-structured, administered separately with both technical manager and sales manager of the company. Interviews have been conducted in person, at the interviewees' headquarters in Varaždin, Croatia. Only questions regarding annualy processed quantites of ELT uses of recyclate practiced as well as realized income have been pre-determined. Additional questions have been spontaneously asked during interviews to clarify and/or further expand issues regarding problems and potentials

present at the Croatian ELT market. Interview with the technical manager has been conducted at first in his office, and then continued in the form of a recycling plant tour, which gave the authors a chance of insigth into the applied technology, too.

An anonimuous on-line questionnaire was used to grasp the attitudes of other ELT market stakeholders in Croatia – representatives of the Ministry of Environmental Protection and Energy, Environmental Protection and Energy Efficiency Fund, Agency for the Environment and the Nature, authorized ELT collectors, Croatian scholars involved in previous and current waste rubber scientific studies as well as representatives of a company using and selling rubber recyclate. Since there have been only 3 scientific projects in Croatia regarding waste tyres, there are in total 15 companies which are authorized as collectors of ELT [30] and there is only one company that is a significant user and seller of rubber recyclate, the link to the on-line questionnaire has been e-mailed to heads of each of the projects, i.e. to a chosen manager in all listed public institutions and all mentioned companies. This resulted in the size of the sample measured as 22 possible responses. Due to the expertise of all respondents, the questionnaire consisted of open-ended questions regarding strenghts, weaknesess, opportunities, and threats of the waste tyre market in Croatia. The questionnaire responses have been automatically gathered in an on-line data base. In total, 14 questionnaires have been completed: all questioned public institutions and scientists, the recyclate using the company and 7 collecting companies responded.

Inductive and deductive reasoning principles have been applied in order to draw conclusions from the conducted survey and to invesetigate research propositions. Details regarding the empirical part of the study and discussion on results are presented in subsequent sections.

RESULTS

WASTE TYRES MARKET IN EUROPE

Significance of the circular tyre economy could be backed up by up to date waste tyres statistics because over the period of the last 15 years, there has been an overall growth in tyre arisings and ELT recovery [3]. Although the rise has not been constant due to the economic crisis, the trend is upwards, and it is likely to remain so as the transport and the automotive market continues to develop.

The most accurate available data on European ELT recovery is estimated by European Tyre and Rubber Manufacturer's Association (ETRMA), using national statistics reports issued by public authorities as well as annual reports released by ELT management companies. The Association represents 7800 companies in the EU and as such promotes the principle that end-of-life tyres are a valuable resource with growing potential. It advocates development, competitiveness, and growth of the tyre and rubber industry in terms of their contribution to all initiatives in favour of health, safety, and environment protection [3].

According to ETRMA's data, global recovery rates for ELT have increased significantly, but with the recovery rate of 92 %, Europe remains one of the most advanced regions in terms of treating ELT [31]. Taking into account that ELT arising in Europe amounts almost 3 million tons annualy [3], the size and the potential of those resources become obvious.

On the European ELT market, only 5 % of the total collection figure is considered as residual waste, whereas 35 % is used for energy recovery and 58 % for recycling, with approximately 2 % of ELT with the unknown end [31]. Turning tyres into secondary raw material that goes into different new products makes ELT an enabler for several other industries and an important catalyst of the circular economy.

However, although the above stated volumes and ratios have been calculated based on national authorities' data from 28 EU member countries (including the UK) plus Norway and Turkey, the official report does not contain numbers for Croatian ELT quantities. Therefore, among other goals, the research presented in this article aimed to fill that knowledge gap, too.

WASTE TYRES MARKET IN CROATIA

In Croatia, collection and recycling of ELT are done in accordance with the Law on Sustainable Waste Management [32] as well as Decree on Waste Tyres Management [33].

Pursuant to those regulations, tyre producers/importers are obliged to cover the ELT management costs by paying the prescribed fee to the public body called Environmental Protection and Energy Efficiency Fund. Since the aforesaid fee gives entirely financial character to producers' responsibility, such a management scheme is generally characterized as the tax system.

The fee is payed only for the tyres marketed in Croatia, not for those intended for export. However, since there are no domestic producers of car and other vehicles' tyres, all tyres are imported. Of course, the fee is included in the sales price of tyres and is thus prevalent to the end users.

At the end of the tyres' life span, tyre owners are compelled to separate the ELT from other waste and hand them over to a company authorized as a collector. Currently, there are 15 companies that are authorized as collectors of ELT on the entire territory of the Republic of Croatia [30].

The collectors are obliged to pass the whole collected amount of ELT to authorized processors. At the moment, there are three authorized recovery and recycling companies [34]. Out of those three, two companies are authorized as energy recovery subjects (both of them are big cement plants using so recovered energy in the course of their own production), whilst only one company is authorized for mechanical recycling, producing the secondary raw material.

The processing companies report to the Environmental Protection and Energy Efficiency Fund on a monthly basis, stating quantities of accepted and recycled waste tyres along with the amount of remaining, disposed waste. After those reports, the Fund reimburses processing companies for their ELT recycling/recovery costs, using funds coming from the importers' fee on new tyres.

Authorization of collectors and processors is declared by the Ministry of Environmental Protection and Energy and realized upon the contract with Environmental Protection and Energy Efficiency Fund. Since the Republic of Croatia is a full member of the European Union, all waste tyres management activities have to apply modern technologies and follow European environmental standards and regulations. Primarily this implies Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) [35] as well as standards from the ISO 14000 Series [36] for the Environmental Management System.

The Republic of Croatia joined the European Union as the full member state in 2013, but systematic and organized waste tyres management begun in Croatia in 2007. In the period from 2007 till 2016, an average annual quantity of marketed new tyres of 21 542,32 tons has been recorded, as shown in Table 2 [37]. In the same period, the average annual quantity of collected and recycled ELT totals 19 267,07 tons.

When analyzing separate annual records, the growing trend can be noticed – only in the last year amount of marketed new tyres grew at the rate of 28 %. The quantity of collected and recycled tyres grew at a rate of 1,8 % in 2016 in comparison to 2015.

Croatia's national goal recommended by the Decree on Waste Tyres Management [33] is to recycle/recover at least 80 % of collected waste tyres annually. Figure 1 demonstrates that the last available records show the accomplishment of that goal.

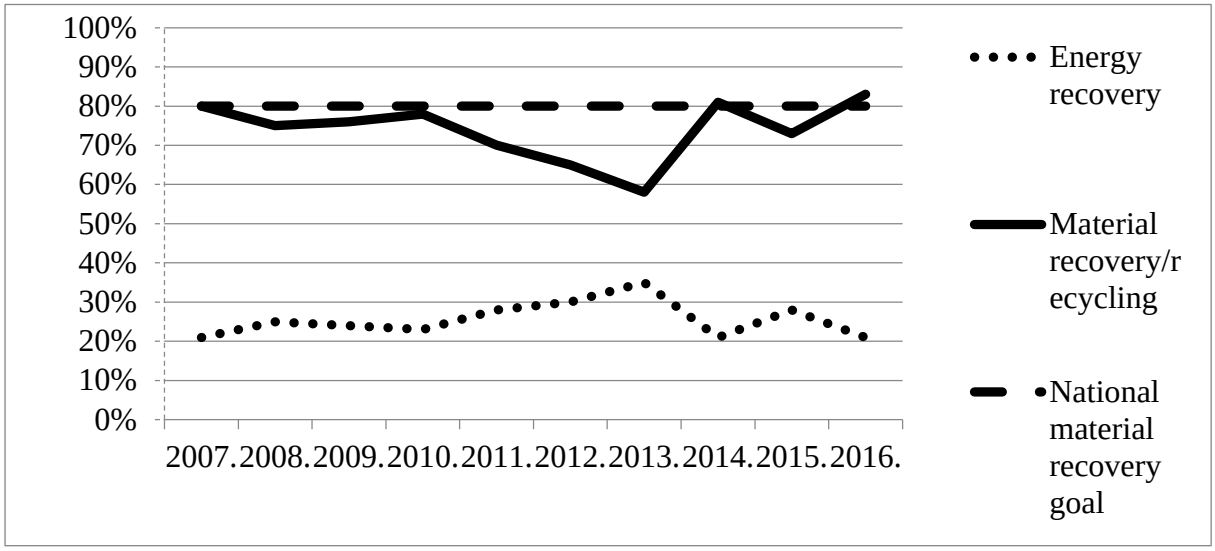

Figure 1. Accomplishment of the recommended goal for recovery/recycling of ELT in the Republic of Croatia. Source: authors' work, based on [37; p.25].

Of course, the total European quantity of retreated ELT is higher than those collected and processed in Croatia. Additionally, also, the structure of processing is somewhat different, as presented in Table 2 and Figure 2.

Evidently, material recovery in Europe has a growing trend, but on average, it reaches approximately 50 %. In Croatia, 83 % of collected tyres were recycled in terms of secondary raw material production and 17 % as energy recovery.

Another fact visible from Figure 2 is that until 2003, ELT in the European Union was allowed to landfill, which was definitely outlawed in 2006 by already mentioned Landfill Directive [10]. Therefore, the graph shows a significant fall of landfill quantities in those years, with minimum remained ratio due to non-EU-member countries.

Table 2. Quantities of marketed new tyres as well as collected and processed waste tyres. Source: Authors' work, based on [37].

Year	New tyres marketed in Republic of Croatia, t	Collected waste tyres passed for recovery/recycling, t	Mechanically recycled waste tyres resulting in secondary raw material, t	Waste tyres processed for energy recovery, t
2007	27 824,18	21 230,42	17 005,74	4 224,68
2008	27 372,47	21 224,46	16 161,08	5 063,38
2009	19 702,55	20 234,33	15 648,21	4 586,12
2010	19 913,37	19 916,65	15 610,75	4 305,87
2011	20 883,96	18 509,04	13 605,26	4 903,78
2012	16 808,05	17 031,49	12 002,58	5 028,91
2013	18 304,66	19 346,16	12 739,24	6 606,92
2014	19 468,10	17 409,56	14 097,38	3 312,18
2015	19 774,08	18 717,00	14 005,50	4 711,50
2016	25 371,78	19 051,63	15 733,40	3 318,23

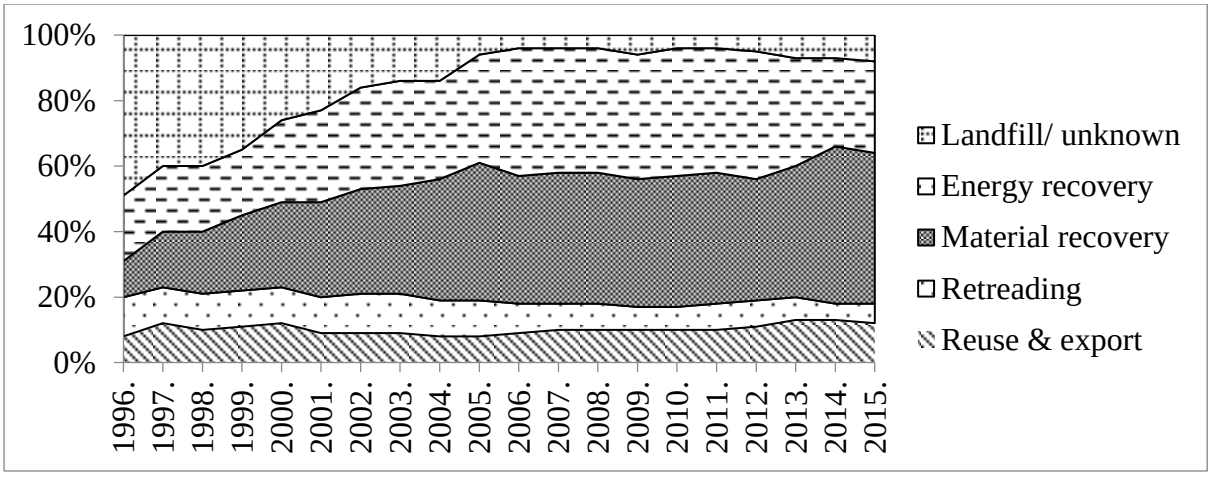

Figure 2. Treatment routes for used tyres in Europe. Source: authors' work, based on [31; p.27].

If potentials of the Croatian market for the usage of recycled tyre rubber are to be considered, appreciating the focus of this study for applications in concrete, size of the Croatian concrete market should be examined as well. Table 3 shows the trend of ready mixed concrete volumes in Croatia during the last 5 years.

Table 3. Ready mixed concrete volumes in Croatia. Source: authors' work, based on [38-42].

Year	Total produced quantity, t	Unit value, EUR/m^3
2016	3 163 510,00	25
2015	3 048 957,00	24
2014	2 758 374,00	25
2013	2 858 368,00	25
2012	3 091 517,00	27

Slow but stable growth of the concrete market is for sure one of the best possible motivation spurs for additional research and development activities regarding waste tyres applications in concrete.

DISCUSSION

Conducted situational analysis of Croatian ELT market provides detailed insight into current strengths, weaknesses, opportunities, and threats, according to the opinion of the main stakeholders. Findings are presented in Table 4.

In order to discuss the above stated strengths, weaknesses, opportunities, and threats identified by the main stakeholders of Croatian ELT market, it can be said that a significant step forward has been realized during the last decade, resulting in an organized and well - functioning market, with evolving eco-economical awareness of the entire population. However, the main threat and the obstacle for further development is the level of overall Croatian industrial production.

Croatian development chance lies not only in its geo-strategic position but also in well-educated population, availability of needed resources as well as in advanced infrastructure. But on the other side, industrial production in Croatia was based on state of the art technologies until the homeland war in the early 1990s. Unfortunately, many factories were significantly damaged during the war or extinguished during the privatization and transition process to a market economy after the war. As a direct consequence, industrial production today is underdeveloped and mostly unprepared for global competition, with few exceptions [43].

Table 4. Findings from situational analysis of Croatian ELT market. Source: authors' work.

STRENGTHS	WEAKNESSES
• the reduced amount of waste disposed on landfills, • cleaned all municipal waste landfills from discarded tires on the territory of the Republic of Croatia, • decreased probability of development of long-term and toxic fires at landfills, • the use of waste tires as raw material for the production of new products, • diminished utilization of natural raw materials due to the reuse of recycled materials, • establishment of the national system of continuous collection and processing of waste tires , • raising the level of ecological awareness in terms of the willingness to use products made from recycled materials, especially in construction, • by adopting new technologies, the equipment is timely acquired and modern, global trends followed.	• tyre recycling is a continuous process throughout the year, while the routine of delivery of collected ELT quantities to recycling plants shows more a seasonal character, • only one authorized mechanical recycling plant on the entire domestic market; lack of competition, • complicated and ample administration, • insufficient utilization of recycled resources in terms of final products production on a domestic market, • small domestic market due to both population size and underdeveloped industry.
OPPORTUNITIES	**THREATS**
• market attractiveness for the emergence of additional mechanical recycling subjects, • enough market capacity for the occurrence of new producers of any final products made from rubber recyclate, • finding new markets for new materials and new products, • becoming a more active participant of the EU market to which, utilizing know-how as well as import and export opportunities as a means for boosting the overall GDP growth rate, • achieving better alignment between environmental and economic initiatives.	• almost non-existing industry in Croatia for production of any final product type from rubber recyclate resources, • stock planning and logistics organization are difficult due to fluctuating availability and delivery of collected waste tyres to recycling plants, • for the same reason, ensuring stock of waste tyres that would enable continuous process is capital demanding for recycling plants, • insufficient quantities of waste tyres for a sustainable recycling industry on a domestic market, • the wrong perception that the price of rubber recyclate is higher than natural rubber resources, resulting in the opinion that there are a very few applications of final products made from recycled resources, whose properties would justify their higher price.

Structure of the ongoing industrial production in Croatia is presented in Figure 3.

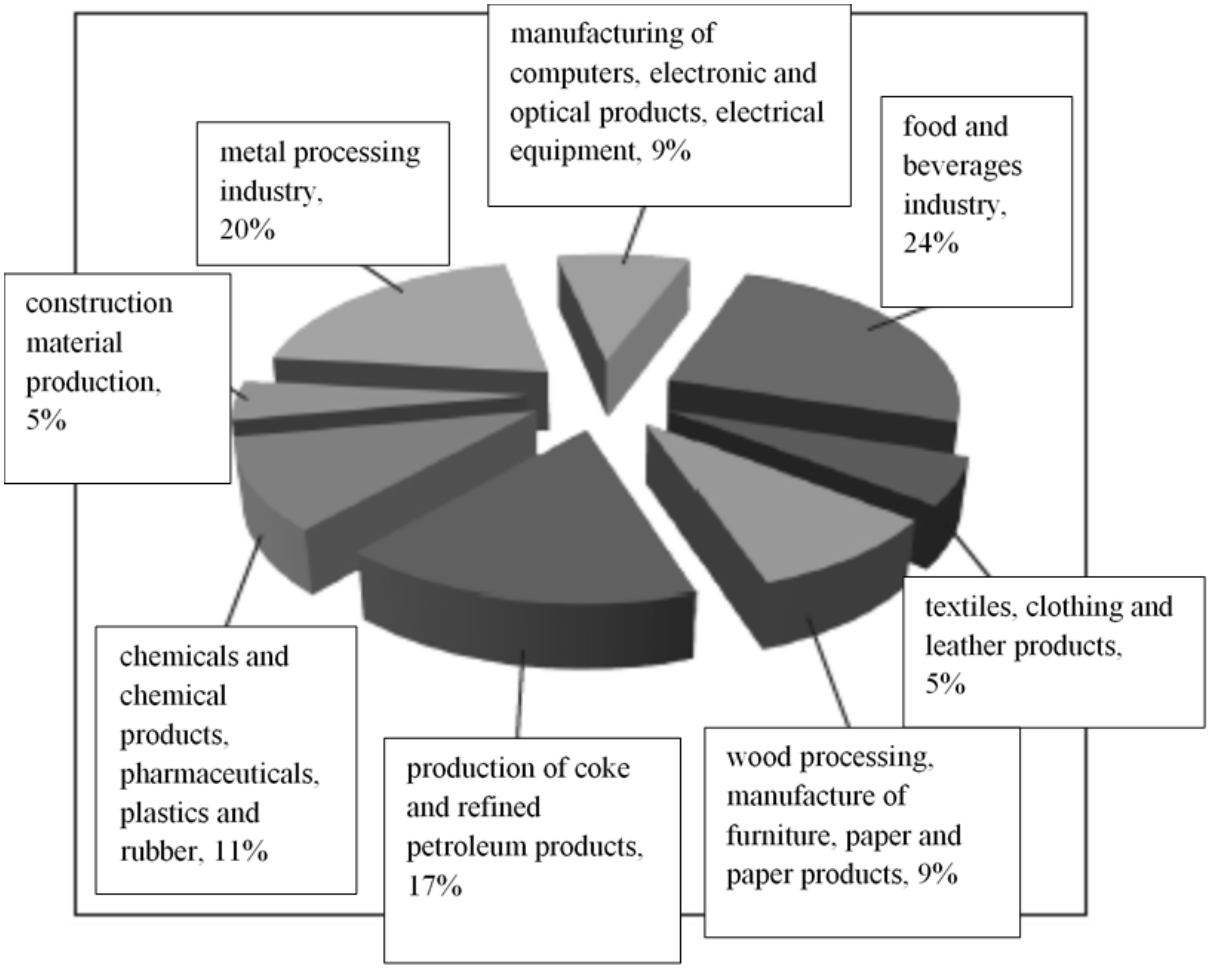

Figure 3. Structure of industrial production in the Republic of Croatia. Source: authors' work, based on [44; p.7].

The Gross Domestic Product (GDP) in Croatia was worth 54,85 billion US dollars in 2017 [45]. Industrial production had a ratio of only 2,9 % in Croatian GDP in 2017 [46], and the latest available data presented in Figure 3 show that processing of rubber, plastics, chemicals, and pharmaceuticals together amounts only 11 % of the industrial production.

Not only the size of the market determines small financial output but also the level of production, which is in Croatia, unfortunately underdeveloped. Data obtained from the only authorized mechanical recycler of the waste tyres rubber in Croatia show that generated recycled rubber resources are mostly sold in the form of basic material and only the small amount is being transformed into final products on the domestic market. More precisely, that very company has its own production of protective covers and cast rubber products made from recycled rubber. Beside them, there are only a couple of very small producers using recycled rubber resources within the country. Insight into internal records of the recycling company reveals that joined rubber recyclate demand of domestic producers generates only 17 % of their annual sales income. Remaining 83 % of income comes from the export of created resources, mainly to regular customers, big producers of different final products in Germany and England. Obviously, not only efficient collection and processing of waste tyres but increasing the level of production and creating products with higher additional value than plain resource should be seen as the tyre circular economy potential in Croatia.

Such assertions could be supported by the study conducted by Prieto-Sandoval et al. [47], who concluded that the regulation and policy determinants build the circular economy legal

framework that supports the supply side actions such as cleaner production, the development of industrial metabolisms and sustainable business models, whilst the demand side determinants, mainly represented by consumers, should be able to accept eco-innovative products in the market and acquire sustainable behavior.

As a direct consequence of such poor exploitation of produced ELT recyclate, Croatia is well below EU's average concerning the Eco lnnovation Index. It is a composite index that measures the eco-innovation performance of a country compared with the EU average and with the EU top performers [11]. In 2017 Croatia achieved a performance score that is 28 % lower than the EU average, which places it 8th from the bottom in the EU-28 eco-innovation ranking.

However, in 2015 Croatia scored 61 % of EU-average, so it rose 4 places with 18 % improvement in eco-innovation. In addition to that, Croatian scholars and professionals follow European trends by cooperating on different studies, which gives hope that circular economy potential shall be fully seized in the near future. Regarding ELT in Croatia, which is the main focus of this article, the most important studies regarding industrialization and commercialization of waste tyre rubber material and products have been ANAGENNISI – *Innovative Reuse of All Tyre Components in Concrete* [48], RUCONBAR – *Rubberised Concrete Noise Barriers* [49] and an ongoing ReCoTiP – *Development of Reinforced Concrete Elements and Systems with Waste Tyre Powder* [50].

On the European and even more global scale, Croatian share is small. But, the ecosystem is mutual, so even the smallest contribution in terms of material or energy recovery matters for the whole planet. Perhaps that environmental aspect of ELT market shall bring to overpowering the lack of domestic capital and stimulation of foreign investments, ending in the win-win situation of achieving the full potential of Croatian waste tyre rubber circular economy.

In compliance with the majority of the existing circular economy work, which is mainly done on the practical and technical levels of the actual physical flows of materials and energy in production [51], this article tried to articulate the current contribution of Croatian end-of-life tyres management activities to Croatian and European circular economy context.

CONCLUSIONS

Circular economy implies the appropriate level of society's awareness, the adoption of suitable and clear policies and tools as well as the use of modern technologies. Due to the waste tyres treatment rate above 90 %, no other waste material stream performs as high as the ELT sector in Europe [31] and fundamentally demonstrates a high circular economy potential. As such, ELT treatment can be analysed as process innovation, which is considered the most significant out of the four basic innovation types, as it can offer the most material and energy savings [13]. But, since ELT based resources and products also influence other dimensions, like the social, product and environmental innovation, at micro, mezzo and macro level, ELT recycling and reuse is even more important than that and belongs to the domain of eco-innovations. Study of the Croatian ELT market found that national legislation framework is adequate and compatible with European regulations. It ensures well and transparent functioning of the market despite complex administration that might be reduced to more acceptable proportions. Furthermore, as in the EU, material recycling and combustion of used tyres are the most technologically developed methods of handling these wastes in Croatia. The focus of this article has been primarily on material recycling since it is a source of valuable raw material that has potential in construction and other industries.

Results indicate that even though Croatian recovery structure is somewhat different from the European in favour of material rather than energy recycling, previously presented results

confirm proposition RP1, concluding that *although smaller, Croatian waste tyres market is in compliance with characteristics of the European waste tyres market in terms of legislation, collection rate and recovery structure*. Unfortunately, the study detected also the deficiencies of the ELT market in Croatia. Due to the generally underdeveloped industrial production in Croatia, waste tyre activities in Croatia can be called an approach to more appropriate waste management rather than a serious circular economy. There are still not enough industrial and commercial achievements that would make existing recycling, reuse, and recovery activities sufficiently exploited. Besides the SWOT analysis results, the market trends indcuate that the waste tyre market is still developing, indicating that RP2 cannot be accepted, thus indicating that *waste tyre market is still not a significant source of eco-innovations in Croatia since it provides opportunities for recycling, re-use, and new business models development, thus contributing to circular economy initiatives*. The transition towards a circular economy comes from the involvement of all actors of the society and their capacity to link and create suitable collaboration and exchange patterns [1]. Therefore, it seems that in the case of Croatia, only the new industrial investments would have the strength to become the real driver towards a circular economy, supplementing current advanced initiatives and activities performed by public institutions, academicians and ELT management companies.

In the end, limitations of the study need to be highlighted. This study proved that there are quantitative, qualitative, and organizational potentials in recycled rubber materials in Croatia. However, comercializig the concept needs to be additionaly anaylized since it does not happen spontaneously but is the process that needs to be supported. Therefore, suggested future research direction are particular market purposes, their reasoning by focusing on financial justification of potential usages and analysis of the possibility to trade them.

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IDENTIFYING THE INTERDEPENDENCE BETWEEN CONSUMER CONFIDENCE AND MACROECONOMIC DEVELOPMENTS IN CROATIA

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ABSTRACT

This article represents an empirical attempt to discern the interrelationship between consumer confidence and macroeconomic trends in Croatia. Previous studies that employ both subjective and objective variables show that consumer confidence, consumption and gross domestic product in other countries are interdependent to a great extent. Apart from the mentioned variables, our study additionally includes savings, as another important determinant in the households' economic decision making. The results indicate that consumer confidence Granger-causes all selected macroeconomic variables and vice versa. Not surprisingly, there are also many significant interrelations between the macroeconomic variables. These findings confirm the predictive ability of consumer confidence in Croatia and suggest that combining subjective and objective indicators has an important role in understanding households' economic behaviour.

KEY WORDS

consumer confidence, consumption, savings, GDP, Granger causality

CLASSIFICATION

JEL: C51, E21, E71

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INTRODUCTION

A substantial amount of research has been devoted to investigating the interrelationship between economic sentiment and macroeconomic trends. Generally speaking, indicators of consumer confidence, which present economic agents' "state of mind" when assessing overall economic conditions, are believed to be closely associated with macroeconomic developments. This article examines the way consumer confidence and selected macroeconomic variables are connected in Croatia. In other words, by including the psychological component in the econometric model, the aim is to combine the subjective (survey derived) variable and the standard set of macroeconomic variables. Hence this work could add to the literature in behavioural economics, which is an insufficiently explored field in Croatia.

Similar studies have been done for other countries and mostly proved that indicators of consumer confidence serve as rather good predictors of macroeconomic activity. The latter could be considered as a truly important result. In a theoretical sense, it enables us an improved understanding of the way these variables are interrelated, as well as a better comprehension of households' economic behaviour. On the other hand, there is also a practical contribution of this finding related to economic policy making and doing business. Namely, policy makers and managers could advance the quality of their analyses and decision making process by taking into account the variable which directly reflects the level of consumers' confidence in a given moment.

Thus this work contributes to the existing literature in several aspects. First, it will be analysed whether confidence of Croatian consumers and consequently their economic behaviour generate macroeconomic trends and *vice versa*. Such research has not yet been done for Croatia. In that manner, our main research goal is to find out if it is suitable to predict future macroeconomic trends using consumer confidence indicator (CCI). We hypothesise that, in line with the results of studies done for other countries, CCI is a useful leading indicator in Croatia as well. Apart from that, our model additionally includes the variable savings which is also a very important determinant in household financial decision making. That is especially true for the case of Croatia due to several experienced hyperinflation episodes, which permanently made Croatian consumers very sensitive to (expected) changes in macroeconomic conditions and therefore very careful in making financial choices.

The structure of this article is organised as follows. Section 2 provides an overview of previous research, Section 3 describes the data and methodology used, while Section 4 presents and discusses the empirical results. The final section brings concluding remarks.

OVERVIEW OF PREVIOUS RESEARCH

There are a number of empirical studies, done mostly for developed countries, which examine the relationship between consumer confidence, their economic behaviour and macroeconomic trends. The theory behind most research questions is rather simple. If consumer confidence is high enough, it should drive them to spend more and save less, leading to higher aggregate consumption, which is often the largest gross domestic product (GDP) component. While the relationship between macroeconomic variables (consumption, savings and GDP) is theoretically grounded, the link between consumer confidence and macroeconomic activity is an empirical question. Although the results of different analyses are distinct, many of them confirm the thesis that consumer confidence successfully predicts consumption and/or gross domestic product. The contribution of CCI in explaining consumption is even increasing when households experience some major changes or when there is evidence of certain economic shocks. Among others, [1-3] describe household decision making as depending on whether the economy is currently in the boom or bust phase of the business cycle.

The widely held view is that households make economic decisions in accordance with their current level of optimism regarding their financial situation and general economic outlook. The way consumers feel is often measured via consumer surveys. In line with that, when investigating household behaviour, it is generally essential to know if they are trustworthy when answering survey questions about their financial situation. If not, indicators stemming from household survey results might not be reliable. Authors [4] include the subjective variable in their study using survey information and show that the results are in accordance with the life-cycle-permanent-income (LC-PI) model, which represents a prevailing conceptual framework for learning representative consumer's financial behaviour. They confirm the premise that households are honest when reporting on their financial position.

There are many ways various authors addressed the question if consumer confidence indices were truly the leading indicators. When speaking about household decisions and habits, one strand of the literature emphasised the importance of precautionary saving motive, see e.g. [5-11]. They all examined whether the role of consumer confidence in explaining future total private consumption could be related to either the precautionary saving motive or the permanent income hypothesis. Nonetheless, authors [12] argue that the mentioned predictive ability of consumer confidence cannot be explained by either precautionary savings motive or permanent income hypothesis. They show that holding all other variables constant, the lagged values of consumer confidence indices have explanatory power in the future growth of total private consumption.

Authors who examined the role of consumer confidence in predicting economic activity, among others, are [12-22]. To be specific, these authors investigated the impact of consumer confidence on consumption expenditures. For example, [5] suggest the use of precautionary motives for explaining the tendency of savings that increase during recessions. In their study, [23] show that indicators of consumer confidence are procyclical and generally play a significant role in predicting downturns.

On the other hand, [17, 24, 25] propose that while considering other relevant determinants of consumption, the impact of confidence on consumption is weak. According to [20], one of the components that makes confidence significant in forecasting consumption growth could be the asymmetry in the way household process information from diverse sources. The latter is partially mirrored by the sentiment diffusion indices.

In his study [26] implies that people's opinions about future economic circumstances are helpful in predicting future consumer spending. Similarly, [27] examine if the expectation formation of boundedly rational agents could exceed purely rational expectations. The authors stated that consumer confidence is a very important factor in determining household decisions about consumption. Interestingly, in his paper [28] addresses the situation when the people's assessment of their financial situation actually contradicts their expenditure decisions.

Further on, [29] found that consumer confidence index Granger-causes future consumption with an average time lag of 4 to 5 months. They suggest that consumer confidence is a useful predictor of consumption not only in the short-term, but also in long time horizons. Generally speaking, this conclusion might be very beneficial to policymakers at the macro level, as well as to managers at the micro level (for example production and retail managers).

In the case of Poland [30] investigates which confidence indicators are significant for predicting future aggregate household propensity to save and borrow. Among other findings, the author concludes that consumer confidence index has predictive power in future household saving and borrowing rates. In their research of European Union countries outside the euro area with their own currencies (Croatia not included), and three Baltic countries that recently adopted the euro, authors in [30] emphasize irrationalities of the saving behaviour.

They observe the significant impact of overall confidence indicator, perceptions about future savings and financial situation. Authors [31] found that financial optimism and saving are inversely related. They suggest that current financial expectations are helpful in predicting future consumption.

As far as studies for Croatia are concerned, the literature on the usefulness of consumer confidence indicators in explaining the real economy is relatively scarce. The study worth mentioning is [32], where authors found using vector autoregression (VAR) models that quarterly economic sentiment indicator contains some predictive power for quarterly GDP. However, they did not focus on sole consumer confidence, as is done in this article, but investigated the role of Economic Sentiment Indicator which reflects and represents total economic activity. Also, some aspects of changes in household saving behaviour in Croatia were discussed by [33-36]. Although the interrelationship of consumer confidence and macroeconomic developments is widely explored, still most of the studies have focused on the USA and other developed economies. Therefore it will be interesting to investigate, with the inclusion of the variable savings in the model, if the results for Croatia would prove to be similar to those of previous studies conducted for other countries.

DATA AND METHOD

In order to assess the role of consumer confidence in generating macroeconomic trends in Croatia, authors collect data on a quarterly basis, ranging from the first quarter of 2006 to the last quarter of 2016. The article covers the stated period as data measuring consumer confidence is available from the first quarter of 2006. Variables taken for the analysis are GDP, final consumption expenditure, gross savings and CCI, all in terms of growth rates[1]. The last mentioned variable, CCI, reflects the optimism (or pessimism) of Croatian consumers and is derived from Croatian Consumer Surveys. It is calculated as an indicator based on response balance to questions posed to consumers (randomly selected in the sample) about their evaluations and expectations on economic variables characteristics in the following period [37]. Taking into account that this variable is standardly measured in monthly frequencies, CCI was here calculated for all the necessary quarters to conduct the analysis. Due to the fact that we deal with quarterly data, all of the variables were seasonally adjusted using ARIMA X-12 method.

As authors were here mostly interested in investigating the dynamics of the variables of interest, and especially the relationships between them, VAR approach was used. As VAR model was being estimated, stationarity of all the included variables was checked. Hereby the Augmented Dickey Fuller Unit Root Test was employed. All of the variables proved to be stationary in levels (results available on demand), which is not surprising as their growth rates were initially taken for the analysis. Figure 1 shows the dynamics of the selected variables in the observed period.

There are several insights stemming from the presented graphs. First, the strong positive correlation between GDP and consumption is quite obvious. Thereby this graphical representations can serve as an affirmation of the premise that consumption is by far the most important (largest) GDP component in Croatia, as is confirmed for many other countries, e.g. [38]. Furthermore, it can be observed that the largest drop in GDP and consumption levels happened at the onset of the global financial crisis. It seems reasonable to assume that, in times of such a severe financial and economic breakdown, economic agents would start feeling pessimistic and lacking confidence, leading to the lower levels of economic sentiment. In Figure 1 one could easily notice the decreasing trend of consumer confidence starting from the second quarter of 2008.

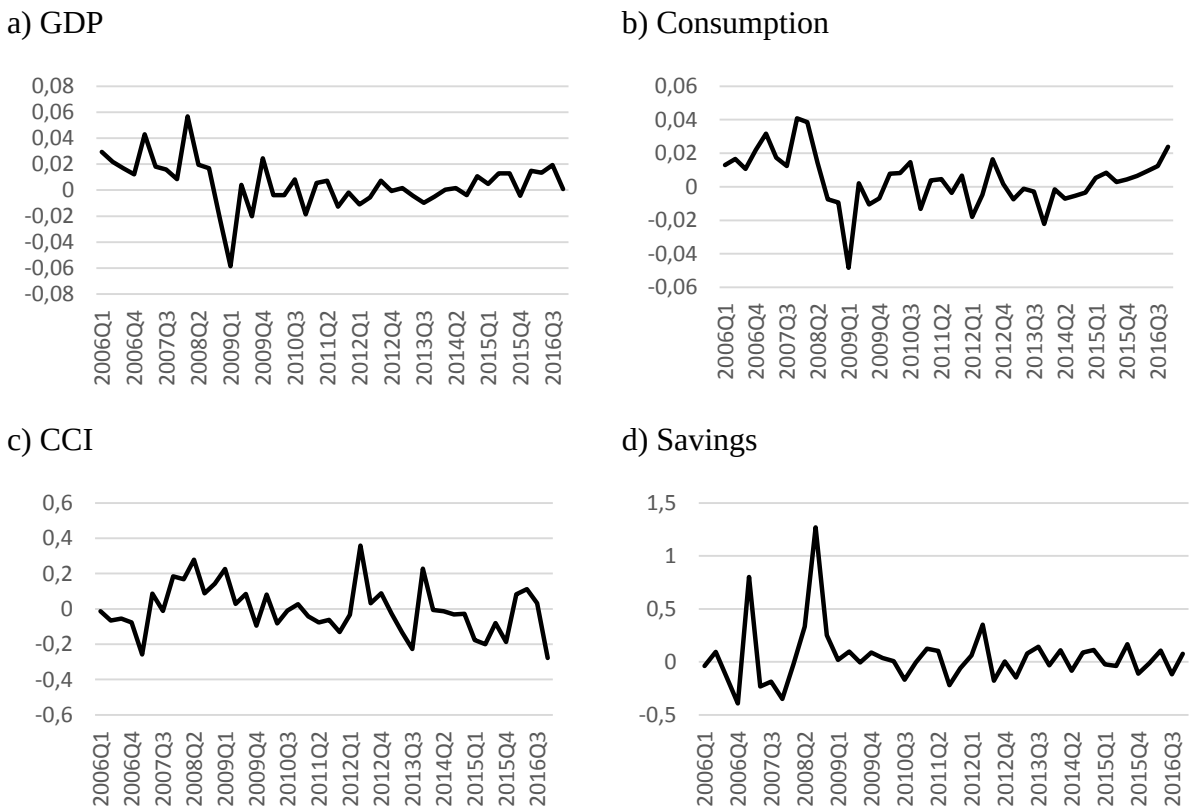

Figure 1. Graphs of analysed variables. Source: authors' construction.

When comparing graphs b) and d) in Figure 1, the variable savings appears to be inversely proportional to consumption, as excessively low negative growth rates of consumption correspond to high levels of savings. It is expectedly most pronounced at the end of 2008. Lastly, it looks like the dynamics of GDP and CCI are slightly alike, but having only graphical representations it cannot be formally concluded whether CCI precedes GDP. Gaining now only the initial insights about the relationships between the selected variables, authors therefore conduct an econometric analysis.

In accordance with the main research question of this article, which is to determine the relationship between the subjective variable CCI and objective macroeconomic variables, multivariate reduced-form VAR model was estimated. Moreover, to resolve whether CCI makes a good leading indicator of macroeconomic activity Granger Causality Test was conducted. Hereby authors want to test the ability of the first variable to predict the dynamics of the other variable, or in other words, to examine if the dynamics of macroeconomic variables would better be explained if previous values of CCI were included in the analysis. The optimal number of lags k in this model was chosen taking into account the AIC information criterion ($k = 3$).

EMPIRICAL RESULTS

This section brings the results of the Granger Causality Test shown in Table 1 and Table 2. As is shown in Table 1 there obviously exists a bi-directional causal relationship between consumer confidence and macroeconomic variables. To be specific, CCI Granger-causes GDP, consumption and savings, thereby explaining the dynamics of those variables. Examined macroeconomic variables however also Granger-cause CCI[2] or, in other words, shifts in macroeconomic variables precede to movements in CCI. It is namely intuitive that important macroeconomic indicators such as GDP, aggregate consumption and savings,

which create certain economic climate, also sway consumer perceptions about their economic environment. That being said, it should be noted that changes in consumers' impressions and beliefs might lead them to adjust to the new economic surrounding by modifying their economic behaviour and decision making.

Table 1. Results of Granger Causality Test showing the interdependence between CCI and selected macroeconomic variables, *p*-values are in brackets. Source: authors' calculation.

	Test statistic
CCI → GDP	7,480* (0,0581)
CCI → CONSUMPTION	10,940** (0,0121)
CCI → SAVINGS	6,852* (0,0768)
GDP → CCI	7,596* (0,0552)
CONSUMPTION → CCI	7,728* (0,0520)
SAVINGS → CCI	6,410* (0,0933)

*statistically significant at 10 %
**statistically significant at 5 %

Table 2 shows the results of Granger Causality Test for sole macroeconomic variables. Although these results are not as important for this research, some existing significant relationships serve to complement results obtained in Table 1. Therefore it can be concluded that economic mechanism *CCI → consumption → GDP,* which proved to be valid for other countries (as discussed in the literature review), seems to be true for Croatia as well. In other words, as it precedes macroeconomic variables, CCI should serve as a fine leading indicator of economic activity in Croatia.

Table 2. Results of Granger Causality Test showing the interdependence between selected macroeconomic variables, *p*-values are in brackets. Source: authors' calculation.

	Test statistic
GDP → CONSUMPTION	10,90** (0,0123)
GDP → SAVINGS	1,294 (0,7305)
CONSUMPTION → GDP	6,838* (0,0772)
CONSUMPTION → SAVINGS	4,742 (0,1917)
SAVINGS → GDP	15,700*** (0,0013)
SAVINGS → CONSUMPTION	17,730*** (0,0005)

*statistically significant at 10 %
**statistically significant at 5 %
***statistically significant at 1 %

However, similar conclusions can be drawn on the basis of Granger Causality Test when including the variable savings instead of consumption in the previously mentioned mechanism (*CCI → savings → GDP*). Such results are in line with economic theory and intuition. They are also not surprising taking into consideration that Croatian people had experienced several hyperinflation episodes which makes them especially sensitive when it comes to the question of perceiving current and future inflation. Due to these past negative experiences, Croatian consumers are generally more prone to save by buying real estate rather than saving in other forms whose value could be diminished by some sudden inflation [39]. Anyway, one could definitely expect that consumer confidence in Croatia is strongly linked to the aggregate savings.

There is one more thing worthwhile noticing when summing up the obtained results. Namely, CCI (except for the observed direct Granger causation) actually generates shifts in GDP indirectly through shifts in consumption and savings, as consumers make their financial decisions and obviously modify their proneness to spend depending on their market confidence.

At the end, the diagnostics check was made. The tests proved that the estimated VAR model has no heteroscedasticity, non-normality or autocorrelation issues, as well as that model satisfies the stability condition because no root lies outside the unit circle (results available on demand). For robustness check the order of the variables in the Cholesky decomposition was made multiple times and the gained results remained almost the same.

CONCLUSION

This article represents one of the few empirical attempts to discern the interrelationship between consumer confidence and main macroeconomic indicators in Croatia. These subjective and objective variables are combined and analysed by estimating VAR model and thereby this work represents a modest step towards complementing the existing literature in the field of behavioural economics. Nevertheless, speaking in Croatian terms, research that binds economic, psychological and sociological elements is pretty scarce.

The main research question of this article was to determine whether there exists the interdependence between the selected behavioural and macroeconomic variables, and especially to find out if CCI makes a reliable predictor of Croatian macroeconomic activity. The results of Granger Causality Tests suggest that there exist significant bi-directional causal relationships between almost all the observed variables. Thereby it is corroborated that consumers' perceptions of their economic surrounding obviously reflect their decisions concerning spending and saving. Additionally, consumption and saving Granger-cause GDP. These results combined imply that CCI could adequately predict short-run macroeconomic developments.

In line with the obtained results, certain implications come to light. First, economists working in research institutes, as well as managers and policymakers are in this manner advised to include obviously an important factor – consumer confidence – in their analysis and forecasts. By paying close attention to movements in consumer confidence, they could anticipate potential changes in macroeconomic developments, which might be especially important in cases of potential economic downturns. If there is a crisis in sight, they could react to it even before time. Second, it is suggested for policymakers to find a way to either directly or indirectly increase consumer confidence, as consumers' positive economic beliefs should lead to higher aggregate consumption and consequently economic growth. Again, this finding could be of even greater importance for economic policy in times of crisis. However, designing an appropriate and efficient policy instrument for raising consumer optimism should be the subject of our further analysis.

REMARKS

[1]GDP and final consumption expenditure data were collected from Eurostat database, gross household savings from European Central Bank database, while the source of CCI data is European Commission.

[2]As presented in Table 1, although most causal relationships prove to be statistically significant at 10 %, p-value actually just slightly exceeds the 0,05 value in the cases of GDP Granger-causing CCI, CCI Granger-causing GDP and consumption Granger-causing CCI.

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CORPORATE SOCIAL RESPONSIBILITY STRATEGY AND REPORTING: OVERVIEW OF PRACTICE IN SELECTED EUROPEAN COUNTRIES

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ABSTRACT

Corporate social responsibility became an inevitable element of modern organizations as they are trying to achieve balance in their profit-oriented activities on one side, and different environmental, social and philanthropic activities on the other side. As such, the socially responsible strategy has become an important aspect of organizational strategy, trying to incorporate organizational values into overall society. The impetus for socially responsible activities are various, coming from different organizational stakeholders and their requests for transparent activities. This created also growth in quantity of reports related to corporate social responsibility, a report covering organizational social responsibility activities not covered by financial reports. Still, not only that quality and quantity of these reports vary, but also a perception of stakeholders influence and importance can differ significantly across cultures. Therefore, the goal of the article is to give a deeper insight into corporate social responsibility practice in selected European countries. The analysis is especially oriented on the practices of corporate social responsibility and reporting, and influence of different stakeholders on them. The article presents the results of empirical research done among 154 organizations from ten European countries.

KEY WORDS

corporate social responsibility, CSR strategy, CSR reporting, stakeholder

CLASSIFICATION

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INTRODUCTION

When we look back, since begging the world we live in is changing, and so are our societies and so is the way we deal with it. We do not yet fully understand how our reality is changing, but we have a pretty clear understanding of what that change will bring. A modern market economy has emerged as the most efficient system for the distribution of scarce resources, but has also led to growing social inequalities and negative effects on the environment. Unquestionably, these social and ecological pressures triggered by the renewed increase in the value of natural resources, major climate change, the disrespect of human and employee rights became the indirect material problem of business and corporate world. Therefore, in their pursuit of profit and organizational goals, organizations are increasingly encouraged to be socially responsible and balance organizational with shareholders' values [1].

Increase in corporate social responsibility (hereafter CSR) activities also created an increase in a non-financial form of reporting, CSR reporting, that nowadays presents a high-growth industry [2]. With the intent to communicate its' CSR activities and strategies to the general public and interested stakeholders [3] organization publish CSR reports, capturing activities not included in their financial reports.

Still, the choice of CSR strategies and quantity and quality of CSR reports depends on industrial sector, national and specific organizational factors [4-6] but also on diverse institutional pressures from multiple stakeholders [7]. Understanding and balancing multiple stakeholder needs presents one of the biggest challenges in organization CSR activities [8]. Although organizations are expected to respond to all needs and often conflicting goals of various stakeholders, requests of those shareholders that are more powerful and can significantly impact organization will dominate [9].

Therefore, as a result, many different practices, attitudes, and perspectives can be found. The aim of this article is to give an overview of these practices and provide analysis on different aspects of CSR among sampled organizations from selected European countries. Special emphasis is put on the analysis of CSR reports and their evaluation, relation to stakeholders and their impact on CSR activities, strategy, and reporting.

Following the introduction, the article provides insight into CSR strategy and reporting, with special emphasis on Global Reporting Initiative standards and guidelines for reporting. After the literature review, the article continues with the presentation of empirical research and key results of the exploratory analysis are presented. The article ends with a discussion of key findings and research limitations.

CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE SOCIAL STRATEGY

CSR refers to the general public expectations that business is both accountable and responsible for its impact on society and the environment. Organizations have begun to understand their specific role in society and thus begun to address different social, environmental and philanthropic issues. As such Carroll [10] proposed that CSR of an organization could be conceptualized and seen through economic, legal, ethical, and philanthropic responsibilities an organization has towards society in a given moment in time. A broader definition states that CSR can be defined as "context-specific organizational actions and policies that take into account stakeholders' expectations and the triple bottom line of economic, social, and environmental performance" [11; p.855, 12; p.933].

For organizations, CSR responsibility is not their primary function. For this reason, increased regulation of a powerful institutional framework as well as the growing pressure from various

stakeholders that seek transparent information can be seen as a means of forcing companies to be socially and ecologically accountable.

An institutional theory perspective argues that CSR is not based solely on "voluntary behaviour of companies but on understanding the larger historical and political determinants of this behaviour" [13; p.3]. Therefore, there's a necessity for organizations to link their operations with values of its environment [14]. Institutional theory emphasizes organizations conduct their activities in an institutionalized environment, consisting of social, economic, political, cultural, legal and other factors acting as institutional pressures. Meeting these institutional requirements helps an organization increase its legitimacy and transparency of activities, at the same time reducing uncertainty [15]. Managers try to conform to these norms [14] in order to appear legitimate and develop socially acceptable policies and activities [16].

Stakeholder theory recognizes the important role of various groups that have share or part in the organization and its activities [17]. Managers must acknowledge and satisfy a variety of constituents, their needs, interests, and requests and embody them in organizational goals [18]. Overall, as an answer to stakeholders pressures organizations can change their social behaviour [19]. Growing stakeholder pressure can be described by the contemporary roles of particular stakeholders. A new type of investor is the one that invests in projects and companies that guarantee profitability and sustainability. Furthermore, employees want better working conditions, suppliers are required to meet high international standards, local community asks for an investment in the general good while buyers have greater freedom of speech and greater rights resulting in a purchase that is more transparent.

Research shows that inclusion of CSR activities into business practice can ensure many benefits, such as financial ones [20-27]. In addition, Park and Moon [28] have shown that the stocks of organizations that are in top social performance quantile are significantly better than organizations in lower quantiles. Besides financial, monetary benefits, Weber [29] looks at the CSR's contributions also through non-financial benefits. Financial benefits are seen in direct financial results, but also effects measurable in monetary terms (income, costs, risk, and value of the brand measured by financial units). Non-financial benefits include fees that are not measurable in monetary terms, but may affect company's competitiveness and financial performances such as the impact on reputation and employment, customer retention, employee motivation, improved access to capital and similar. In addition, Cheng et al. [30] emphasize also better access to valuable resources, creation of unpredictable opportunities, promotion of better sales of products and services as well as contribution to the creation of social legitimacy.

Furthermore, CSR enables organizations to create a strong connection with important stakeholder groups, where consequently this provides the capital to develop new techniques, products, and enter new markets [20]. According to Hawkins [31] by understanding the needs of the local community and environment, an organization can create new values and achieve market competitiveness. This creates a dynamic relationship with the organizational strategy, as competition is likely to exploit quickly new market opportunities. Galbreath [32] argues how an organization that understands its social responsibility and incorporates elements of socially responsible business into its business strategy is likely to have better business results and influence the development of industry, country and entire society. Therefore, as Bonn and Fisher [33] emphasize sustainability can be seen as the missing ingredient in strategy, and socially responsible strategy needs to become an integral part of corporate strategy. Socially responsible strategy, according to Husted and Allen [34], presents a plan for creating social and economic value, with the emphasis on the inseparability of these two values. In that sense, CSR strategy transforms its social role into the potential strategic planning of new products and markets, and creates new economic and social values.

CORPORATE SOCIAL RESPONSIBILITY REPORTING

Modern society expects business organisations to take an active role and deal with their negative externalities, but also contribute to social welfare. In addition to that, it also expects business to be accountable for these impacts and explain them in a transparent manner. This increased demand for CSR has been accompanied by increased demand for business transparency, resulting in voluntary corporate reporting on its socially responsible activities. As Schreck [4; p.30] defines CSR reporting presents "company's systematic disclosure of information on its social, environmental, and governance issues that are typically not covered by financial performance metrics". Today, many companies publish CSR report as standalone report or as part of their report on financial issues [2].

Still, as there is no formal obligation and structure of reporting, a form of reporting is generally uncodified [35], leading reports to generally differ by their quality and relevance of the information provided. Research shows the quality of CSR reporting affects CSR performance [36], helps to improve operational and process efficiency, corporate image and relations with stakeholders [37]. Therefore to standardize and guarantee the quality of CSR reports, there are numerous models that orient on assuring the quality of CSR reports (see for more details [38]). Among them, the Global Reporting Initiative (GRI) guidelines are the ones most often used and broadly accepted [3]. GRI identified four focus areas including [39]:

1. creating standards and guidance to advance sustainable development,
2. harmonizing the sustainability landscape,
3. leading efficient and effective sustainability reporting, and
4. driving effective use of sustainability information to improve performance.

The standards are designed to provide performance metrics, guidelines, principles, and suggestions related to the content and information provided by reports and aimed at increasing quality, rigor, and utility of CSR reporting [38].

METHODOLOGICAL FRAMEWORK

The purpose of this research was to do an exploratory analysis of CSR practice and perspectives related to CSR strategy and reporting among organizations in selected European countries. As indicated previously, special attention is on analysis of CSR reports and their evaluation, relation to stakeholders and their impact on CSR activities, strategy, and reporting. Survey research was conducted using Qualtrics software. The sample included companies from Austria, Belgium, Croatia, France, Germany, Italy, Netherlands, United Kingdom, Sweden, and Switzerland. A total of 527 Fortune 500 largest companies or companies listed in the GRI database were contacted. In the end, the sample consisted of 154 organizations, whose representatives completed the survey, which makes the response rate of 29,22 %, considered adequate for this type of research. Information on company CSR reports was downloaded from the GRI database or from the official website of the company. Quality of CSR Reporting relates to the level of application of the GRI framework for nonfinancial reporting and had modalities of (1) High Level: Core/Comprehensive with external assurance; (2) Medium level: Comprehensive and (3) Low level: Core. Statistical analysis was done using Statistics software, ver. 12. Content analysis for CSR reports was also used, as this research method helps explore large amounts of textual information [40].

The sample included companies from Austria, Belgium, Croatia, France, Germany, Italy, Netherlands, United Kingdom, Sweden, and Switzerland with the distribution of companies as presented in Table 1.

Table 1. Distribution of companies by country.

Country	Number of Companies	Structure, %
Austria	6	3,90
Belgium	5	3,25
Croatia	84	54,54
France	4	2,60
Germany	12	7,79
Italy	13	8,44
Netherlands	5	3,25
United Kingdom	4	2,60
Sweden	9	5,84
Switzerland	12	7,79
Total	**154**	**100,00**

More than half of the companies are from Croatia (54,54 %). This is followed by approximately the same proportion of companies from Italy (8,44 %) Germany (7,79 %), and Switzerland (7,79 %), while the smallest number of companies is from the United Kingdom (2,60 %). Most companies belong to the industry of financial services (14,94 %), followed by those in the food and beverage industry (11,69%). As regards to their size more than half of them are large with more than 250 employees (64,29 %), while there is an approximately equal number of medium (18,83 %) and small (16,88 %) companies.

Representatives of organizations, respondents of the questionnaire, were mostly in the position of the President of the management board/Director/Member of the management board (32.58 %), followed by position of CSR officer/specialist (10,11 %), Public relations manager (14,61 %) and Marketing manager (8,99 %). Other positions refer to positions such as Human resource director, Legal advisor or Advisor to the management board, Finance manager and Head of internal communications. Most of the respondents are up to 40 years of age (46,22 %) and have a university (32,77 %) or an MBA degree (38,66 %). As regards to their CSR experience, most respondents have been working in CSR for more than five years (41,30 %), while 6,52 % of them have been working in CSR for less than a year. 14,13 % reported being without any significant CSR experience. This type of the respondents' profile shows that they can answer the questions in this research with great knowledge and experience. Considering that those younger than 40 years make up the largest portion of respondents, it can be considered that the results of this research also point to future trends in CSR.

EXPLORATORY ANALYSIS RESULTS

When it comes to general attitudes and perception of CSR, mean grades for different statements reveal respondents strongly agree their organizations do not consider CSR initiatives to be in collision with their economic interest, although slightly less agree that CSR initiatives do not create too much pressure on their business. They also consider their organization to be supportive of CSR initiatives, pays attention to various stakeholders' voices and maximizes its effort in full-filling stakeholders' demands (Table 2).

Respondents were asked if they as organization publish a sustainable development report/CSR report and respondents were informed that sustainability reports include all non-financial reports prepared in accordance with international guidelines for non-financial or sustainability reporting. CSR reporting is on a voluntary basis, so many organizations do not feel obliged to publish these types of reports and often are not even familiar with them. Our research has confirmed this, as the results presented in Table 3 show that among analysed organizations only 57,79 % of them publish sustainability results, while 42,21 % do not.

Table 4. shows the evaluation of the latest sustainability report according to the GRI guideline. In total 89 companies, which stated that they publish sustainability reports, have been analysed.

Table 5 lists the frequency of writing sustainability reports. Most companies write reports annually (66,29 %), while 8,99 % of them write a report once every two years. 3,37 % of companies used to publish reports, but have stopped doing that.

Table 2. Ratings of CSR in companies (1 – strongly disagree, …, 7 – strongly agree).

Corporate social responsibility in companies	**Average**
Our company fights against corporate responsibility initiatives	1,45
Our company believes that corporate responsibility initiatives are not in our economic interest	1,93
Our company believes that corporate responsibility initiatives create too much pressure on our business	2,45
Our company rarely takes voluntarily initiatives for social good	3,92
Our company tries to pay attention to various stakeholders' voices	5,44
Our company maximizes its effort in full-filling stakeholders' demands	3,78

Table 3. Distribution of the sampled companies depending on publication of sustainability reports.

Publishing of a sustainable development report / CSR report	***N***	**%**
Yes, my company publishes a sustainability report.	89	57,79
No, my company does not publish a sustainability report.	65	42,21
Total	154	100,00

Table 4. Evaluation of the latest sustainability report (according to the GRI).

Evaluation of CSR report	**N**	**%**
In accordance-Core	20	22.47
In accordance-Comprehensive	15	16.85
Core or Comprehensive with assurance	24	26.97
Not following GRI reports/No answer	30	33.71
Total	89	100.00

Table 5. Frequency of writing a CSR report (according to the GRI).

Frequency of CSR report	***N***	**%**
Annually	59	66,29
Every two years	8	8,99
Every three years	1	1,12
We used to publish reports, but have stopped doing them	3	3,37
No answer	18	20,23
Total	89	100,00

Respondents were asked to assess their perception about the impact that CSR reporting has on the company's reputation (1 – highest impact, …, 6 – low or no impact). Average grades (Table 6) indicate respondents consider CSR reporting to have an impact on company reputation, either by building or maintaining it. Other impacts and role of CSR reports listed by respondents include: (i) creation or maintenance of stakeholder dialogue; (ii) creation of business value; (iii) help in setting priorities and focus; (iv) improving internal awareness and decision-making processes; (v) branding company in the eyes of key stakeholders (vi) help in building a sustainable culture of the company; (vii) vehicle for employee satisfaction and motivation; (viii) tool for planning improvement of CSR practices and risk management.

Most of the organizations currently without sustainability report, indicated (Table 7) they do not plan to write a sustainability report because they are not familiar with that type of reporting (25 %), are familiar but do not plan (22,92%) or they plan to write a sustainability report but do not yet know when they will start (20,83 %).

Many authors emphasize the crucial significance of understanding the characteristics and needs of stakeholders when planning and designing organizational CSR initiatives [41, 42]. Therefore, we wanted to analyse how organizations perceive stakeholders, their impact on CSR strategy and CSR reporting, and moreover, their relation and interplay with different types of shareholders. Table 8 shows the respondents' assessment of stakeholders', as well as formal and informal institutions' impact on CSR.

Table 9 shows the frequency of conducting stakeholder analysis. Most companies conduct stakeholder analysis at least once a year (40,34 %), followed by those who only do them under special circumstances (37,82 %). There is also a significant percentage of companies that do not carry out stakeholder analysis nor do they plan on doing them (12,61 %).

As seen from the results above organization consider shareholders, as well as formal and informal institutions, to have a very strong impact on their socially responsible strategy. This impact is considered somehow smaller in case of Sustainability / CSR reports, but it is still considered relevant and high.

Table 6. The impacts of CSR reporting on the company's reputation (1 – highest ranking, …, 6 – lowest ranking).

CSR reports and reputation	**Average**
Protecting company reputation	3,13
Maintaining a good company reputation	2,21
Building company reputation	2,60
Building company reputation for competitive advantage	2,77
No influence on company's reputation	4,28

Table 7. Plans for creating a sustainability report (sustainable development report) for companies that do not have it.

Plans for creating a sustainability report	***N***	**%**
No, we are not familiar with that type of reporting	12	25.00
We are not planning, but we are familiar with that type of reporting	11	22.92
We need more information on that type of reporting	7	14.58
We are planning, but do not know when we will start writing the report	10	20.83
We are planning to create a report in the next two years.	4	8.34
We are planning to create a report in the next year.	3	6.25
We are in the process of creating our first sustainability report.	1	2.08
Total	48	100.00

Table 8. The assessment of impacts on CSR (1 – no impact, …, 5 – very big impact).

	Average
Stakeholders' impact	
CSR strategy	4,76
Sustainability / CSR reports	3,97
Formal institutions' impact	
CSR strategy	4,38
Sustainability / CSR reports	3,79
Informal institutions' impact	
CSR strategy	4,13
Sustainability / CSR reports	3,63

Table 9. The frequency of conducting stakeholder analysis

Frequency of conducting stakeholder analysis	***N***	**%**
Yes, at least once a year	48	40,34
Yes, but only under special circumstances	45	37,82
No, but we intend to start it next year	11	9,24
No, and we have no intentions to start it next year	15	12,60
Total	119	100,00

As organizations are likely to take prior into consideration and send stronger signals to those stakeholders considered important to their social legitimacy [7] we further asked respondents to assess the degree to which their company responds to the needs and demands of different stakeholders (interest groups) (Fig. 1).

With regard to the category 'Customers', most companies stated that stakeholders' needs and demands often lead to innovation in their enterprise. As for the categories 'Suppliers', 'Employees' and 'Shareholders', most companies have stated that they respond to every demand by trying to resolve it as soon as possible. Interestingly, demands of local community and social institutions are also considered important, as most organizations stated they respond to every demand coming from these stakeholders, and these demands often lead to innovation in their organization. With respect to the category 'Policy', most companies have stated that they respond to it only when it is necessary.

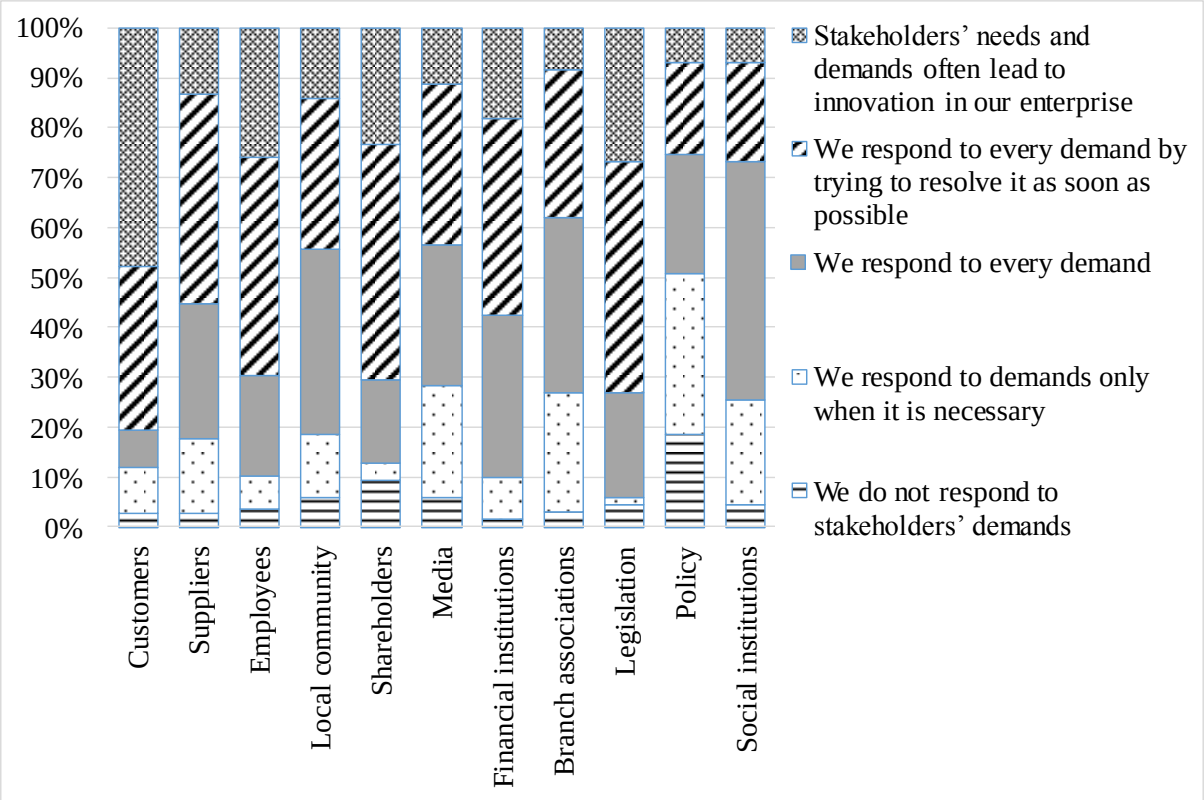

Figure 1. Structure of the sampled companies according to the degree to which a company responds to the needs and demands of stakeholders (interest groups).

Respondents were also asked to assess the communication between their organization and their stakeholders from 1 to 5 (1 – not at all satisfied, …, 5 – very satisfied). The average score is 3,64, indicating good to very good satisfaction with the communication. Figure 2 shows the histogram of communication ratings between companies and stakeholders. It shows that the distribution of answers is asymmetrical to the right, indicating that more

respondents gave good ratings to the communication between companies and stakeholders, while only a small number of respondents were critical of this issue. Kolmogorov-Smirnov test was performed, using Lilliefors corrections, which showed that it cannot be concluded that the distribution is normal (D = 0,164; p-value < 0,000). The same conclusion was also demonstrated by the Shapiro-Wilk test (0,915; p-value < 0,000).

Respondents were also asked to rank and provide suggestions for improving companies' communication with their stakeholders (Table 10).

Most companies listed more meetings and working on resolving problems together (44,81 %) as well as having more frequent communication (38,96 %). Only 5,84 % of companies answered that there is no room for improvement. Some of the additional suggestions for improving stakeholder communication were:

1. comprehensive stakeholder mapping and analysis of their needs and demands,
2. less but better-quality, more focused, dialogue and communication with the stakeholders,
3. building shared platforms for dialogue and starting shared initiatives and joint projects,
4. incorporating stronger measures on responsible behaviour into legislation.

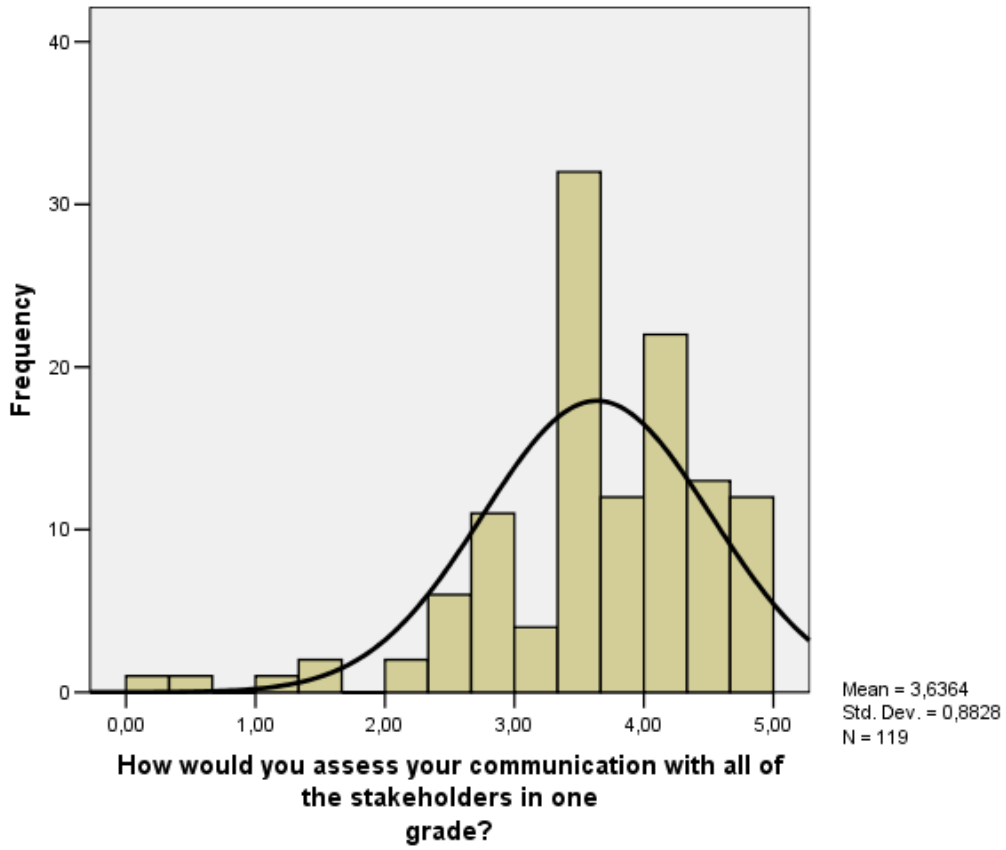

Figure 2. Histogram of communication ratings between companies and their stakeholders (1 – not at all satisfied, …, 5 – very satisfied).

Table 10. Suggestions for improving companies' communication with their stakeholders.

	N	**%**
More meetings and joint work on resolving problems	69	44,81
More frequent communication	60	38,96
No room for improvement	9	5,84
Other	16	10,39
Total	154	100,00

DISCUSSION AND CONCLUSION

Faced often with worrisome future projections about what and when something may happen to our societies and Planet, managers sometimes do appear resigned. It is for this fact that it has never been so hard to be a successful manager. Integrating CSR reporting and CSR strategy can be a good starting point on the quest for a sustainable solution, where reporting is perceived and described as something more than just an organization's response to stakeholders. With CSR reporting, companies endeavour to demonstrate their wider responsibility to society and to inform all stakeholders as to what extent and how they might contribute to sustainable development [43].

Based on that assumption, research on CSR reporting and strategy practice among the selected European countries has been conducted and presented in this article. According to this research, organizations consider that shareholders, formal and informal institutions have a very strong impact on their socially responsible strategy. Furthermore, through the CSR reporting, organizations conduct stakeholder dialogue in which they need to identify what key stakeholders perceive significant to report on. In that sense social, environmental and economic performance indicators described in the CSR reports, present the organization's CSR strategy and its performance. Looking from that perspective, an organization's CSR strategy can through effective CSR reporting transform organization's social responsibility into the new economic model in which stakeholder's demand for corporate responsibility presents the new way of doing business.

The research has shown that organizations from the research understand the importance of CSR reporting and conduct stakeholder dialogue in order to shape a responsive CSR strategy. However, if the CSR is an effective tool for stakeholder dialogue, strategy, and reporting, the question to be asked is why a larger number of companies still do not conduct CSR reporting and integrate it into its strategy. If nothing, CSR reporting should help progressive companies to identify clearly where environmental and social challenges lie, but also help them look for innovative solutions, new angles and future opportunities. According to that, further research should be focused on the quality of CSR reporting and understanding the social, economic and environmental impact organizations make by doing the business as usual.

The article also has certain research limitations that need to be acknowledged. First limitation comes from the sample itself, as the sample includes companies from countries with similar legal frameworks and practice regarding CSR. Thus, in order to provide more general conclusions, future research should try to incorporate a larger number of organizations, from countries with more diverse economic, social and legal context. Second, our research provides an overview of practice, being only descriptive, so future research should be aimed at identifying more cause-consequence relations among CSR strategy and reporting. In addition, future research should take into consideration additional factors that can influence the development and implementation of CSR strategy, as well as quality of information, its accuracy and adequacy in CSR reports.

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BUSINESS PROCESS MANAGEMENT AND CORPORATE PERFORMANCE MANAGEMENT: DOES THEIR ALIGNMENT IMPACT ORGANIZATIONAL PERFORMANCE

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ABSTRACT

Both business process management (BPM) and corporate performance management (CPM) are receiving much attention in academic circles, as well as in business practice. One of the main reasons behind their adoption within organizations is enhancing overall organizational performance (OP). Therefore, this article aims to explore the link between BPM and CPM and how their maturities affect their alignment. Moreover, the article deals with the impact of BPM-CPM alignment to OP. Although there are some studies dealing with empirical confirmation that either BPM or CPM increases OP, to the best of authors' knowledge, none of the studies tries to investigate their combined impact in terms of an alignment empirically. Hence, this article focuses on shedding some light on the importance of BPM-CPM alignment and its connection to OP. A survey has been conducted in medium sized and large organizations operating in Slovenia and Croatia resulting in a total of 159 answers. Observed organizations have been segmented in two clusters, using k-means algorithm: low-performers and high-performers, revealing statistically significant differences between them for all observed variables. Results also indicate that the BPM-CPM alignment increases when both BPM and CPM maturities are higher. Furthermore, OP of the observed organizations has been examined through named two clusters. The Mann-Whitney U test revealed there are statistically significant differences between OP variables among low-performers and high-performance clusters, indicating the relationship of BPM-CPM alignment with OP.

KEY WORDS

business process management, business process orientation, corporate performance management, organizational performance, BPM-CPM alignment

CLASSIFICATION

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INTRODUCTION

The competitive global market of the new millennium has raised awareness of business processes as the most important management paradigm. Organizations are no longer viewed as a collection of functional areas, but as a combination of highly integrated processes [1]. Additionally, processes are now viewed as assets requiring investment and development as they mature. Thus, business process management (BPM) is becoming increasingly important. The extensive literature on BPM suggests that organizations can enhance their overall performance by adopting a process view of business [2].

While BPM represents a more operational management approach by which organizations maintain good performance on a daily basis, corporate performance management (CPM) is a typical approach with a strong strategic emphasis. By using CPM, organizations can obtain many benefits also and improve organizational performance (OP) [3].

Recent studies showed that there is a need for BPM and CPM alignment as it reflects the aspects of connecting strategy with operations [4-5]. Based on that assumption, the following research questions have been formed: *(RQ1) How BPM and CPM maturity levels effect their alignment? (RQ2) Does BPM-CPM alignment impacts OP?*

Having in mind the presented research questions, the objective of this article is to examine the impact of BPM-CPM alignment on OP. Therefore, the structure of the article, after this introduction is as follows. First, the theoretical background has been given to examining the definitions of BPM and CPM and its linkages to OP, as well to describe the benefits of BPM and CPM adoption. Also, past studies on this topic have been discussed. Next, a methodology description has been given, presenting empirical research in the form of a survey, which has been conducted among large and medium sized Croatian and Slovenian organizations. Finally, before the conclusion, the findings are presented, summarized and discussed. In the end, the plans for further research are identified, together with the limitations of this study.

LITERATURE REVIEW

BUSINESS PROCESS MANAGEMENT

Organizations are continually under competitive pressures and forced to re-evaluate their business models and underline business processes [6]. Zairi defines a process as an approach for converting inputs into outputs [7]. It is the way in which all the resources of an organization are used in a reliable, repeatable and consistent way to achieve its goals. A business process is a coordinated chain of activities intended to produce a business result or a repeating cycle that reaches a business goal [8]. Business processes represent a core of the functioning of an organization because it primarily consists of processes, not products or services. In other words, managing a business means managing its processes [9].

Over the past two decades, definitions of BPM have ranged from IT-focused to BPM as a holistic discipline [10-12]. According to Elzinga et al., BPM refers to a systematic approach to managing processes with the aim of improving the quality of products and services [13]. Zairi describes BPM as a structured approach to analyse and continually improve fundamental activities such as marketing, manufacturing, communications and other major elements of organizations' operations [7]. BPM relies on measurement activity to assess the performance of each individual process, set targets and deliver output levels which can meet corporate objectives. Siriam proposed an integrated "soft" and "hard" approach to BPM, where a "soft" approach is related to the human activity dimension, and a "hard" approach is concerned with the use of IT to improve business processes [12]. Since most business problems have both, the technical and human activity dimensions, a hybrid BPM definition

gives the best solution [14, 15]. So, BPM is a set of methods, techniques, and tools that can support the design, performance, management, and analysis of business processes [16].

Lee and Dale state that BPM is intended to align the business processes with strategic objectives and customers' needs, but requires a change in an organizations' emphasis from functional to process orientation [17]. DeToro and McCabe say that BPM solves many of the problems of the traditional hierarchical structure because it focuses on customer, manages hands-off between functions and employees have a stake in the final results [18]. The functional approach creates barriers to achieving customer satisfaction [7], and that is why today's organizations, in order to stay competitive, become more and more process oriented [19, 20].

CORPORATE PERFORMANCE MANAGEMENT

Performance management aims at the systematic generation and control of an organization's performance [21]. Every progressive organization needs "something" that enables it to formulate the strategy, implement processes that support operations, provide performance evaluation and operational control, and to learn and change [22]. In order to express that "something", the term "corporate performance management" has been coined by analyst group Gartner. It is much broader term than "corporate performance measurement" which deals specifically with performance measures or indicators that organizations put in place to track the progress against their strategy. CPM describes the metrics, but it also describes the methodologies, processes, and systems used to monitor and manage the business performance of an organization.

According to Melchert, Winter and Klesse [21], CPM comprises four major dimensions: (i) goals and metrics orientation, (ii) methodology support, (iii) IT support and (iv) process orientation. Goal and metrics orientation refers to enabling the measurement and management of process oriented organization. For that purpose, clear objectives have to be derived from the strategy and transformed into metrics. Methodology support explains that CPM delivers the process and IT infrastructure that is utilized to implement a methodology that best suits an individual organization [21]. IT support dimension means that CPM is supported by a set of software tools for integrating and analysing performance-relevant data, for supporting decision making and for facilitating the communication of decision [21]. Process orientation dimension refers to the understanding that CPM is based on a business-process-oriented view of the organization. McCormack and Johnson state that organizations' BPO is the level at which organizations pays attention to their essential business processes [9]. BPO can slim down operational costs, promote customer relations through satisfying customer needs better, increase employee satisfaction through harnessing the benefits available in organizational knowledge and improve OP. As this is a complex process done over a long period of time, organizations can attain various degrees of BPO acceptance through adjustments of their business processes.

Similar, Aho [23] presents a CPM maturity model based on following components: (i) management and organization, (ii) technology, (iii) people and culture and (iv) processes. Management and organization component refers to an organization's strategic goals and decisions, defining the management, organization, and contribution of CPM [23]. Technology component refers to the support which IT can provide to CPM in order to ensure reliable and quality information across the organization [23]. Component of people and culture deals with employees' training, communication, and understanding of CPM, while process component refers to the process orientation of the organization, as explained above [23].

CPM ensures that an organization's strategy is defined. It implements the strategy into business processes, analyses the execution of the processes and business environment and then takes appropriate actions to modify the strategy or processes according to the results [21]. CPM is

assumed to provide a wide variety of strategic and operational benefits. Examples of strategic benefits include following: all parts of an organization can focus on the same corporate goals; staff can understand how their choices, when combined with those of other business units, will better achieve organizational goals; interests of all stakeholders are aligned; an organization can better allocate resources [22]. Examples of operational benefits include following: organizations can have standard, defined, repeatable processes around the management of financial data, which ensures the data's accuracy, believability, relevance, and timeliness; employees are more satisfied as they become more involved; organizations have better control of operations; organizations increase their efficiency and adaptability [22].

BPM-CPM ALIGMENT AND ORGANIZATIONAL PERFORMANCE

The concept of OP is the comparison of an organization's goals and objectives with its actual performance in three distinct areas: financial performance, market performance, and shareholder value. As previously stated, nowadays, organizations became more process oriented in order to improve their OP. Regardless, rare authors have empirically investigated the relationship between BPM and OP. For example, McCormack et al. and Škrinjar, by using structural equation modelling in their researches, showed that BPO has a positive impact on OP and they proved that higher levels of BPO lead to better financial and non-financial performance [1, 24]. Milanović Glavan and Bosilj Vukšić revealed that there is a strong direct impact of BPO on non-financial performance [2]. On the other hand, no such impact has been found between BPO and financial performance. This does not mean that there is no connection whatsoever, but that BPO has a strong indirect impact on financial performance through non-financial performance [2, 25].

The theory assumes that CPM also positively impacts OP [21]. Based on a brief literature overview that has been conducted for the purpose of this study, it can be concluded that there is a lack of empirical evidence for that assumption. Listiani and Kartini proved that CPM directly affects the performance of the organization, but the effect is not strong [4]. Kamasak showed that different resource sets and capabilities of CPM effect OP [26].

Hence, practice, theory and all conducted researches agree that there is a positive impact of BPM on OP and that there is a positive effect of CPM on OP. On the other hand, recent studies claim that integration or alignment of BPM and CPM has many benefits. Various authors have discussed the important role of BPM and CPM alignment in OP [4, 5, 27]. However, to the best of authors' knowledge, there has not been any research conducted in order to investigate the combined impact of both BPM and CPM on OP. In that sense, since no empirical evidence has been found on the importance of BPM-CPM alignment in OP, this article addresses the question of BPM-CPM alignment and its effect on OP.

PREVIOUS RESEARCH EMPLOYING CLUSTER ANALYSIS

Cluster analysis is a data analysis technique that is often used in the field of economics and business. It is commonly used in marketing research for profiling customers or determining patterns of purchase intensions [28], as well as for the purpose of customer segmentation, e.g., in the financial industry with the aim of performing risk assessments [29].

Cluster analysis is also used for investigating BPM and CPM. Soni and Kodali [30] investigated supply chain performance in manufacturing, using a cluster analysis approach. They discovered that higher levels of business performance lead to higher levels of supply chain excellence [30]. Another example indicates that specific combinations of organizational characteristics can be linked with the organizational ability to create a virtual supply chain strategy [31]. Similarly, Marodini et al. [32] describe how particular combinations of contextual

factors influence the adoption of lean manufacturing. Some authors report using cluster analysis in terms of examining the moderation roles in the context of CPM. For instance, Pejić Bach et al. [33] demonstrate the impact of organizational culture on the relationship between business intelligence and organizational performance.

METHODOLOGY

DATA

The focus of this research is medium and large organizations. Due to their size, it is expected that it is more likely that they implemented BPM and CPM systems. The criteria for the size of organizations was the number of employees. Organizations having between 50 and 250 employees are considered to be medium organizations. Large organizations are employing at least 250 people. Therefore, only organizations with more than 50 employees have been taken into consideration.

The sample included organizations from Croatia and Slovenia. These two countries are geographically close, both are members of the European Union, and share similar past and economic history, which is being considered as solid justification for research analysis on combined data sample [34, 35].

Data analysed in this article has been collected in a period of March until December 2016 as a part of the research conducted under the PROSPER project (Process and Business Intelligence for Business Performance – IP-2014-09-3729), fully supported by Croatian Science Foundation.

A random sample has been used, and the data has been collected using an online survey tool as well as the questionnaires in paper format sent by mail. In both countries, the list of medium and large organizations has been drawn out from the business entities repository that is publicly available (the Registry of business entities in Croatia and business directory bizi.si in Slovenia). The informants have been top level managers having insights into the BPM and CPM in their organizations. In Slovenia, out of 1394 questionnaires that have been sent, 171 responses have been received, which makes a response rate of 12,27 %. In Croatia, out of 500 distributed questionnaires, 101 responses have been received, which makes a response rate of 20,20 %. After the overall collected data has been checked for irregularities, missing values and illogicality, the final sample for this research included 159 responses to questionnaires.

Out of 159 responses within a sample, 37,74 % came from Croatia, whereas 62,26 % came from Slovenia. Table 1 presents the sample features with the regards to the number of employees, turnover and industry sector for the total sample, as well as with the regards to the country.

In Croatia, 40 % of the informants work in a medium sized organization. This share is somewhat higher for Slovenia, accounting for 60,61 % of the Slovenian responses. Contrarily, large organizations employ 60 % of Croatian informants, and 39,39 % of Slovenian informants.

16,67 % of the Croatian responses and 19,19 % of the Slovenian responses came from organizations having a yearly turnover of 10 million euros or less. Percentage of organizations having a yearly turover larger than 49 million euros is 43,33 % for Croatia, and 27,27 % for Slovenia. Consequently, the percentage of organizations having moderate turnover, between 10 and 50 million euros is bigger for Slovenia (48,48 %). For Croatia, this percentage is 21,67 %.

Industries have been classified into sectors using the classification scheme proposed by Gelo and Družić [36]. The smallest share of organizations belongs to the primary sector with 2,52 % share, followed by quinary (11,95 %) and quaternary sector (15,09 %). The terciary

Table 1. Sample features.

Feature	Category	Croatia (*n* = 60)		Slovenia (*n* = 99)		Total (*n* = 159)	
		No.	**Percentage**	**No.**	**Percentage**	**Sum**	**Sum (%)**
No. of employees	51-249	24	40,00 %	60	60,61 %	84	52,83%
	> 249	36	60,00 %	39	39,39 %	75	47,17%
	Sum	60	100,00 %	99	100,00 %	159	100,00%
Turnover (mil EUR)	0-10	10	16,67 %	19	19,19 %	29	18,24%
	10-50	13	21,67 %	48	48,48 %	61	38,64%
	>50	26	43,33 %	27	27,27 %	53	33,33%
	N.A.	11	18,33 %	5	5,05 %	16	10,06%
Industry sector	Primary	3	5,00 %	1	1,01 %	4	2,52%
	Secondary	10	16,67 %	50	50,51 %	60	37,74%
	Tertiary	22	36,67 %	24	24,24 %	46	28,93%
	Quaternary	10	16,67 %	14	14,14 %	24	15,09%
	Quinary	13	21,67 %	6	6,06 %	18	11,95%
	N.A.	2	3,33 %	4	4,04 %	6	3,77%

sector is the second biggest in organizations' share, taking 28,93 % of the sample. The majority of organizations belong to the secondary sector (37,74 %).

RESEARCH INSTRUMENT

Research instrument consists from following constructs: (i) BPM maturity assessment (BPM1 – BPM10); (ii) CPM maturity assessment (CPM1 – CPM10); (iii) BPM-CPM alignment assessment (PPA1 – PPA 7); and, (iv) OP assessment (OP1 – OP5). In total, 32 variables have been taken into consideration. All variables have been measured using a 1-5 Likert scale (1 – strong disagreement, …, 5 – strong agreement).

BPM maturity construct has been based on the Process Performance Index (PPI), originally designed by Rummler-Brache group, encompassing critical success factors of BPM [37]. Similarly, CPM maturity construct has been formed by following the Performance Management Index (PMI) which has been established by Aho [3, 23]. OP construct has been designed based on the research conducted by Law and Ngai [38]. BPM-CPM alignment (PPA construct) has been developed in cooperation with researches from the School of Economics and Business, University of Ljubljana, Slovenia. It is based on several research papers, indicating that CPM in organizations is directly linked with the BPM on the organizational and project level, which indicates that BPM-CPM alignment can be discussed [27, 39, 40]. PPA construct measures the following issues: (i) collaboration of BPM and CPM between departments and on projects; (ii) strategic process orientation; (iii) rewarding system based on process Key Performance Indicators (KPIs); (iv) process ownership actions based on performance indicators; (v) end-to-end business process measurement; (vi) CPM system supporting performance indicators creation; and, (vii) expertise in creation of KPIs.

STATISTICAL METHODS

In order to explore the research questions of this article, a three-step statistical procedure has been employed. In the first step, a cluster analysis has been used in order to answer the first research question regarding relations of BPM and CPM maturity with the BPM-CPM alignment (PPA). The second step included ANOVA analysis aiming to corroborate the differences between discovered clusters [33]. In the third step, a Mann-Whitney U test has been used for investigating the existence of statistically significant differences in OP between clusters. Data analysis has been conducted with the assistance of IBM SPSS and StatSoft Statistica software.

Cluster analysis is an unsupervised learning method seeking to group data records into meaningful groups or clusters, based on the similarity of internal features [41]. This means that unique patterns in data behaviour can be identified, resulting in the identification of clusters with distinctive features. Two main fractions of cluster analysis are hierarchical clustering and non-hierarchical or partitioning clustering. Clustering procedures differ in terms of how they determine the number of clusters and afterwards, how they assign data to a certain cluster. One of the most utilized clustering methods is a non-hierarchical k-means cluster analysis [42].

The number of clusters (that is indicated as *k*) is set prior to the cluster analysis in k-means, rather than after which is the case in hierarchical clustering. The method seeks to divide data instances into *k* groups that differ one from another in a greatest plausible manner. Differentiation is made with regards to groups' geometric mean values, that are called centres or centroids. Data instances are assigned to a cluster which has the closest mean, with the purpose of minimizing the variations within the clusters so that coherent groups of data could be identified. However, the allocation of data to a cluster in k-means is not made on a one-time base, rather iteratively. Hence, the k-means algorithm firstly assorts data according to the initial cluster centres. Afterwards, the cluster means are being recalculated, and data reassigned until the convergence point is reached [41]. The algorithm behind the cluster analysis in Statistica is said to be quite efficient, thus enabling the convergence to be achieved in less than eleven iterations [43]. After that, the clustering results of the final cluster solution can be interpreted, with respect to the underlying theory and research topic.

As already mentioned, in k-means cluster analysis, the number of clusters should be selected by the researcher [41], who can use various approaches for that purpose [44, 45]. However, a common method for deciding upon the number of clusters is an expert conclusion [46, 47]. According to Staw et al. [48], organizational attributes can be benchmarked between low-performing and high-performing organizations, as attributes' levels can be related to OP as the outcome. This study's exploration aims at investigating specific levels of BPM, CPM and BPM-CPM alignment and their relationship with OP. Based on the analysis of various cluster solutions (with 2, 3 and 4 clusters), the authors have decided to use the two-cluster solution, that is focused on the examination of low-performing and high-performing organizations [49, 50].

RESULTS

K-MEANS CLUSTER ANALYSIS

Cluster analysis has been conducted using the constructs BPM, CPM, and PPA for the organizations included in the sample.

In k-means cluster analysis, data instances are repeatedly assigned to a certain cluster. This means that organizations' affiliation with a certain cluster will change over time. Affiliation depends on the calculated distance from clusters' centroid. Organizations are assigned to the cluster with the nearest centroid.

In the beginning, the initial set of centroids is calculated. The maximum average distance has been used for this purpose. Afterwards, centroids are iteratively computed [42] with the goal of "minimizing the within-cluster variability, while maximizing the between-cluster variability" [43]. This process was repeated two times, and the Euclidean distance measure was applied for this purpose. The repetitive process, of determining in which cluster the data will be assigned to, is one of the main advantages of k-means clustering. In this way, higher reliability of clustering results can be achieved [44].

Cluster means regarding all the variables are displayed in Table 4, whereas a graphical representation is made in Figure 3. Cluster means across all the variables are bigger for the second cluster, in comparison to the first cluster. This suggests that the organizations from the second cluster are high-performers, whereas first-cluster organizations can be regarded as low-performers. 91 organization belongs to the high-performing cluster, which accounts for 57,23 % of the sample. Low-performing cluster counts for 42,77 %, i.e., 68 organizations can be found in this group.

The biggest absolute difference between variable means between clusters can be detected for CPM variables, while the smallest differences are detected for BPM variables. For the low-performing organizations, the lowest results in terms of mean values are detected for CPM

Table 2. Mean values of two clusters for observed variables of BPM, PPM, and PPA variables measured on Likert scale (1-5).

Variable	Low-performers (Cluster 1; *n* = 68)		High-performers (Cluster 2; *n* = 91)	
	Mean	Standard Deviation	Mean	Standard Deviation
BPM1	4,000	0,993	4,527	0,603
BPM2	3,794	1,241	4,462	0,735
BPM3	3,471	0,969	4,352	0,656
BPM4	3,750	0,952	4,253	0,811
BPM5	3,176	1,050	3,912	0,852
BPM6	3,029	1,065	4,066	0,772
BPM7	3,721	0,912	4,297	0,707
BPM8	3,324	1,126	4,055	0,794
BPM9	3,059	1,131	4,044	0,868
BPM10	3,147	0,996	4,055	0,751
CPM1	2,309	0,902	3,978	0,760
CPM2	1,765	0,948	3,813	1,095
CPM3	1,765	0,948	3,901	0,895
CPM4	2,559	1,028	4,088	0,740
CPM5	2,412	0,934	3,736	0,712
CPM6	3,176	1,092	4,352	0,689
CPM7	2,765	1,223	4,088	0,865
CPM8	2,000	0,829	3,637	0,782
CPM9	2,588	0,918	4,055	0,751
CPM10	2,515	1,165	3,769	0,955
PPA1	2,206	1,001	3,571	0,791
PPA2	2,750	0,936	3,934	0,827
PPA3	2,265	1,141	3,703	1,027
PPA4	2,559	1,042	3,934	0,800
PPA5	2,382	0,898	3,615	0,840
PPA6	2,603	0,949	3,912	0,755
PPA7	2,941	1,183	4,143	0,783

construct. In particular, the lowest results are shown for the CPM2 and CPM3 variables that are having the same mean values of 1,765. These variables represent defined responsibility for CPM activities and adoption of CPM methodologies in support of decision making. The highest results in low-performing organizations cluster have variable BPM1 with a mean value of 4,000. High results of BPM1 variable indicate that business processes have a strategic orientation in these companies. Similarly, high-performing cluster organizations also exceed in the strategic orientation of business processes. Although, BPM1 value of 4,527 is higher in comparison to the low-performing cluster. On the other hand, the lowest results for the high-performers are detected for the variables CPM8 and PPA5. CPM8 variable presents employee awareness about the importance and role of the CPM. PPA5 variable presents end-to-end business process measurement.

According to the results, the high-performing cluster is more stable in terms of variability in levels of the variables. Smaller mean variabilities across the variables are present in the high-performing cluster, whereas the low-performing cluster has bigger variability between variables, as presented in Figure 3.

One can also notice that differences in BPM and CPM maturity levels between clusters are related to differences between levels of BPM-CPM alignment. In other words, if the organization has both BPM and CPM maturity at a higher level, their alignment is also going to be higher. On the other hand, if one of the two observed maturity levels is lower, their alignment is also going to be lower. This result could be reasonable if taking into consideration that PPA construct reinforces BPM and CPM and their orchestration in organizations.

ANOVA analysis has been performed in order to test the significance of variable differences between clusters. Results of the ANOVA analysis (available in Table 8. in Appendix) show that at 1 % significance level, there are statistically significant differences between clusters. All of the above implies that the chosen two-cluster solution is justified in this example [51].

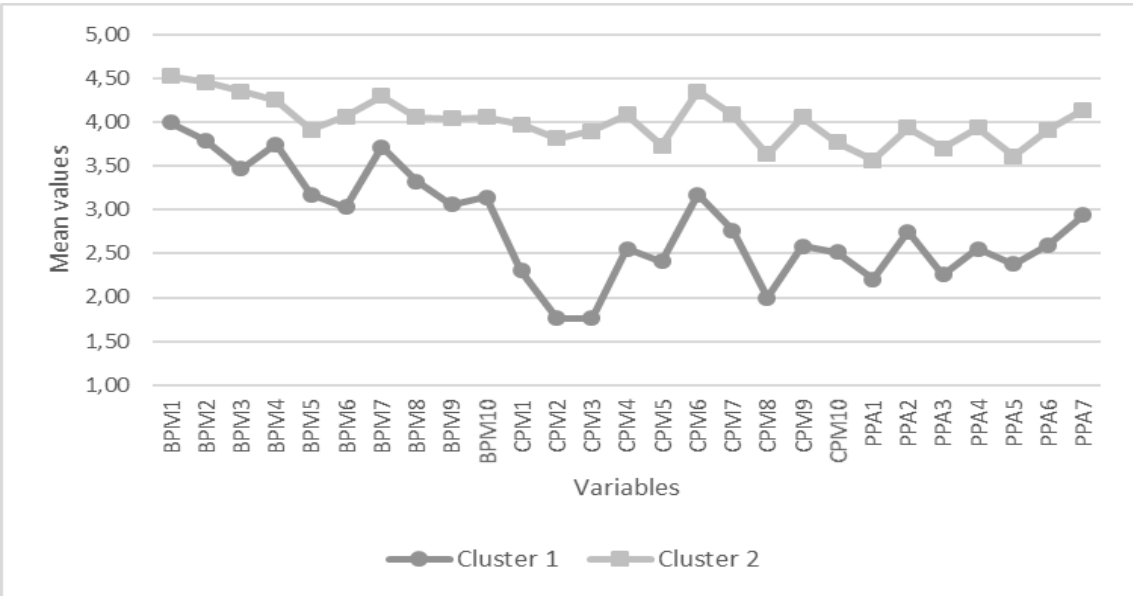

Figure 1. Plot of means for each cluster.

IMPACT OF BPM-CPM ALINGNMENT ON ORGANIZATIONAL PERFORMANCE

Two groups of organizations having internally similar characteristics in terms of BPM and CPM maturity have been identified. On top of that, levels of BPM and CPM maturity have

been brought in relationship with BPM-CPM alignment of organizations. In this study, organizations are regarded as high-performers or low-performers, depending on their performance in BPM, CPM, and PPA.

Additionally, the goal of this article has been to investigate the impact of cluster characteristics on the OP. In order to analyse that impact, descriptive statistics have been performed and inspected in relation to the OP construct. Cluster descriptive statistics for OP variables are visible in Table 7. Graphical presentation of cluster means with respect to OP variables can be seen in Figure 4.

Overall, variables OP1 and OP2 have been revealed to have higher mean values in comparison to the three remaining construct variables. Variables OP1 and OP2 represent customers' perception about organization; and, customer retention rate, in relation to industry competitors. One possible explanation for higher grades of customer related issues could lie in data collection method bias. Since the grades have been delivered by informants, they could incorporate individual perceptions. On the other hand, OP3, OP4, and OP5 variables embody performance measures that are regularity quantified such as profitability and sales growth and are having overall lower mean values.

Inspection of cluster means for each of the OP variables reveals that the second cluster, i.e., high-performing, yields superior results in terms of OP, while the first cluster, i.e., low-performing, has been falling behind. The second cluster also has better scores on BPM and CPM maturity, and their alignment, and organizations in this cluster are regarded as high-performers. Hence, we can infer that higher levels of OP are influenced by organizations'

Table 5. Cluster descriptive statistics for OP variables.

	Clusters	*N*	Mean	Std. Deviation	Std. Error Mean
OP1	1	68	3,735	0,874	0,106
	2	91	4,055	0,656	0,069
OP2	1	68	3,544	0,969	0,117
	2	91	4,055	0,705	0,074
OP3	1	68	2,809	0,981	0,119
	2	91	3,593	0,894	0,094
OP4	1	68	2,765	0,994	0,121
	2	91	3,615	0,928	0,097
OP5	1	68	2,926	0,982	0,119
	2	91	3,780	0,867	0,091

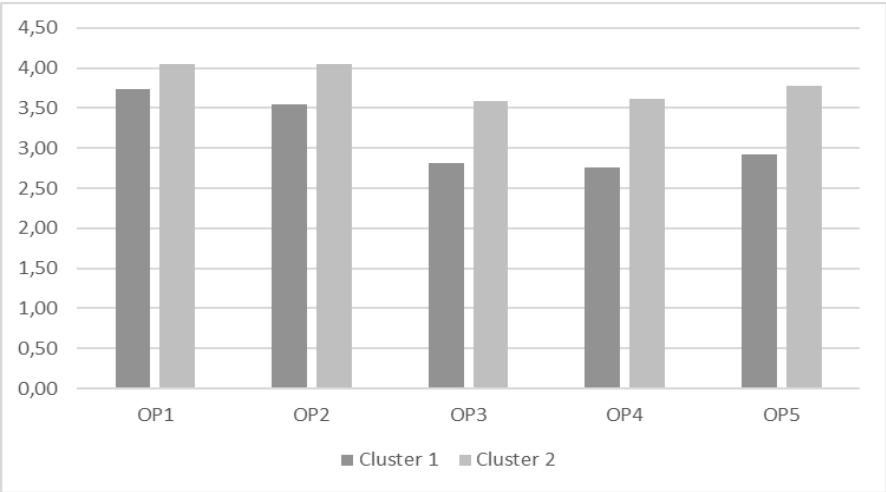

Figure 2. Mean values of OP variables across clusters.

exceeding in BPM and CPM maturity. These results are consistent with previous findings in the literature [25, 52]. A novelty in assuming the OP is its relationship with the BPM-CPM alignment as well.

A non-parametric Mann-Whitney U test, widely used for ordinal data [49], has been conducted in order to confirm clusters' impact on the OP. Firstly, paired ranks for the test have been calculated, as presented in Table 6. Table 7 presents the Mann-Whitney U test results.

The results indicate that there are significant differences between group characteristics regarding OP construct [53]. Statistically significant differences at a 5 % significance level are detected for the PO1 variable, which expresses customers' perception about the value they are receiving for their money when purchasing organizations' goods and services. This perception is more optimistic for the second cluster, i.e. for organizations that are high-performers Statistically significant differences between clusters at a 1 % significance level are discovered for OP2, OP3, OP4, and OP5 variables. Hence, statistically strong differences between clusters can be found regarding the rest of the OP variables. Again, high-performing cluster yields better results in terms of customers' retention rate; sales rate; profitability; and, overall positioning in the market, all in comparison to the competitors. Therefore, the test results confirmed that the organizations that are high-performing in BPM, CPM, as well as the alignment between BPM and CPM, are producing better in overall organizational performance. On the other hand, organizations with lower BPM, CPM, and BPM-CPM alignment, are also having inferior market positioning with respect to customers, other players in the niche and profitability scores.

As stated in the introduction, this article focused on two research questions, being: (i) How BPM and CPM maturity levels effect their alignment? and (ii) Does BPM-CPM alignment impacts OP? Having in mind the presented results, the answer to the first research question is that organizations having both BPM and CPM maturity at a higher level are most likely to

Table 6. Mann-Whitney test ranks.

	Cluster	N	Mean Rank	Sum of Ranks
OP1	1	68	71,32	4849,50
	2	91	86,49	7870,50
OP2	1	68	66,54	4524,50
	2	91	90,06	8195,50
OP3	1	68	59,81	4067,00
	2	91	95,09	8653,00
OP4	1	68	59,51	4047,00
	2	91	95,31	8673,00
OP5	1	68	58,38	3970,00
	2	91	96,15	8750,00

Table 7. Mann-Whitney test statistics.

	OP1	OP2	OP3	OP4	OP5
Mann-Whitney U	2503,500	2178,500	1721,000	1701,000	1624,000
Wilcoxon W	4849,500	4524,500	4067,000	4047,000	3970,000
Z	–2,269	–3,401	–5,044	–5,051	–5,349
Asymp. Sig. (2-tailed)	0,023**	0,001*	0,000*	0,000*	0,000*

*statistically significant at 1 %
**statistically significant at 5 %

have a higher level of BPM-CPM alignment. As for the second research question, based on the presented research results, it could be concluded that BPM-CPM alignment positively influences OP; i.e., organizations having the higher level of BPM-CPM alignment are most likely to have the higher overall OP.

CONCLUSION

This article aimed to examine the effect of BPM and CPM maturity on their alignment as well as to investigate the role of BPM-CPM alignment and its impact on achieving higher levels of OP. In order to be able to provide answers to the stated research questions, an empirical study has been conducted. Data has been gathered through online and paper questionnaires after which the gathered data has been analysed employing k-means cluster analysis and tested using the Mann-Whitney U test. To summarize the findings, k-means cluster analysis resulted in two clusters (high-performers and low-performers) and revealed that higher levels of BPM and CPM maturity indicate higher levels of BPM-CPM alignment. Moreover, this study showed that organizations that have higher BPM-CPM alignment also have at the same time the higher OP.

Since cluster analysis approach results in the grouping of cases, the exact numbers for the unique organization in terms of identifying the level of OP based on the BPM-CPM alignment results cannot be predicted. Nevertheless, it has been noticed that the differences between clusters are statistically significant and have relatively small volatility across alignment variables. Hence, one could, with strong plausibility, infer that organizations characterized as high-performers in process performance alignment will also have better organizational outcomes in terms of both financial, as well as customer related indicators. On the contrary, organizations failing to deploy process performance alignment successfully are given to have inferior OP in general. Indeed, the main omissions in BPM in organizations are associated with strategical aspects and process performance measurement [25, 34]. This article reveals that this governance gap can be overcome by BPM-CPM alignment that is reinforcing the overall OP.

However, although this study yields some interesting findings, one should be aware of its limitations as well. As already indicated, one cannot predict the OP of the organization based only on the BPM-CPM alignment. Moreover, the article has been focused only on organizations operating in two neighbouring countries, Slovenia and Croatia, and therefore findings of the research should be further examined and tested in order to make the findings more generalizable. With that purpose, one of the directions for further research could include expansion of the research to other countries and investigating the results by a cross-country analysis. Additionally, further research of this topic could include a more detailed analysis of the gathered data, e.g., structural equation modelling in order to increase the generalisation and the strength of the findings.

APPENDIX

Table 8. ANOVA table for 2-means clustering, n = 159 (continued on p.380).

Variable	Analysis of Variance					
	Between SS	df	Within SS	df	*F*	signif. *p*
BPM1	10,8281	1	98,6813	157	17,2273	0,000054
BPM2	17,3362	1	151,7330	157	17,9379	0,000039
BPM3	30,2109	1	101,6884	157	46,6436	0,000000
BPM4	9,8368	1	119,9368	157	12,8766	0,000444

Table 8. ANOVA table for 2-means clustering, *n* = 159 (continuation from p.379).

BPM5	21,0599	1	139,1791	157	23,7565	0,000003
BPM6	41,8129	1	129,5456	157	50,6743	0,000000
BPM7	12,9173	1	100,6802	157	20,1431	0,000014
BPM8	20,8201	1	141,6076	157	23,0831	0,000004
BPM9	37,7696	1	153,5889	157	38,6085	0,000000
BPM10	32,0787	1	117,2547	157	42,9522	0,000000
CPM1	108,4349	1	106,4708	157	159,8963	0,000000
CPM2	163,3116	1	168,0595	157	152,5646	0,000000
CPM3	177,6297	1	132,3452	157	210,7206	0,000000
CPM4	90,9952	1	120,0614	157	118,9911	0,000000
CPM5	68,2742	1	104,1409	157	102,9283	0,000000
CPM6	53,7478	1	122,6296	157	68,8121	0,000000
CPM7	68,1410	1	167,5320	157	63,8572	0,000000
CPM8	104,3381	1	101,0330	157	162,1360	0,000000
CPM9	83,7224	1	107,1959	157	122,6205	0,000000
CPM10	61,2508	1	173,1391	157	55,5413	0,000000
PPA1	72,5715	1	123,4034	157	92,3291	0,000000
PPA2	54,5638	1	120,3544	157	71,1775	0,000000
PPA3	80,5430	1	182,2243	157	69,3939	0,000000
PPA4	73,6057	1	130,3691	157	88,6414	0,000000
PPA5	59,1700	1	117,5973	157	78,9958	0,000000
PPA6	66,7006	1	111,5761	157	93,8552	0,000000
PPA7	56,1994	1	148,9076	157	59,2535	0,000000

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SUCCESS IN STUDYING AT THE UNIVERSITY OF MONTENEGRO: IS THERE HYPER-PRODUCTION OF DIPLOMAS?

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ABSTRACT

The article presents the results of research of the study success at the University of Montenegro (UoM). The theoretical framework of the study points to the complexity and multidimensionality of the problem studied. The aim of the research was to identify the success of studying at UoM. Some of the variables were observed statistically, with the evidence based on empirical data. We have followed the relationship between the completed secondary school, regional characteristics and gender dimensions at the completion of bachelor studies in the foreseen time period, in the fields of study: natural and technical, social-humanistic and artistic (total of 19 faculties, $N = 4\,517$). The results of research reject the hypothesis about the outstanding success of the study, i.e., the overproduction of diplomas, because 27,5 % of students graduated in natural and technical sciences, and 32 % in the field of social and humanistic sciences up-to-date. Higher success is noted only in the art disciplines (74,6 %). The results and their interpretation point to the need for introducing a qualification exam during enrolment, reducing the number of the enrolled at individual faculties, but also continually improving and innovating teaching and learning at the university. The results suggest the necessity of innovations in order to improve study success. Starting with students' enrolment university need to develop innovative approaches in the area of teaching and learning, but also monitoring and evaluation.

KEY WORDS

educational trajectory, gender, graduation time, predictors of (no) success, regional characteristics, continuous innovation

CLASSIFICATION

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INTRODUCTION

An ideal picture of university studies would probably have been achieved if all the predictors of the success of the study were achieved, that is: students enrolled in studies that they have developed abilities in, but which they were prepared for on the level of previous academic achievements; enrolled candidates were motivated and had developed metacognitive skills or learning skills; students regularly, according to academic years, passed exams with high achievement in learning outcomes, which would also reflect on their grades; all or at least most of the studies were provided with gender-balanced choices (and otherwise the coherent structure of the student population was provided), and there would not have been any feminized or masculinized programs or any other imbalance in the demographic structure [1]; students and teachers were devoted and had a high sense of belonging to the university; teachers got continually professionally trained in the field of teaching methodology and organized student-oriented or learning process-oriented classes [2]; financial circumstances of both students and universities were at a high level; after graduation, students got employed and employers showed satisfaction with their competences. At least three basic interested entities are covered by the previous description: student, university teacher, and employer. Each of them is not an independent individual but is involved in a complex system of social groups and institutions, so the whole society is justifiably interested in university work, and the description of *the ideal image* points to the complexity of the concept of *successful study.*

Apart from the fact that in contemporary circumstances that are attributed to many technical and technological advances, it is necessary to develop innovative pedagogies. Namely, innovative pedagogical approaches are important in order to help our students to learn in an efficient way and to be better prepared for the labor market. University teaching has to be much more oriented towards functional learning and students' needs. That will be possible only through continuous innovations in teaching and learning.

The ideal picture is fictitious and actual universities, on a day-to-day basis, face difficulties with the above-mentioned factors, so it's easy to see that enrolling students at the university is one thing, but secondly, keeping these same university students exactly as long as they were meant to, by predicted rules and standards, is a specific point [3]. In educational systems, there is so-called retention during the study (some students are considerably longer in that status than it was anticipated) or abandonment of studies. In 2008, the OECD average percentage of completion of the study was 69 % [4], which means that even a third of the enrolled students did not complete the studies in the envisaged framework. Retention during the study, or abandonment, carries numerous negative financial and psychological effects. This is a problem of crucial importance for both the individual and the society, and it is necessary to acquaint it from many perspectives. It is of particular importance to look at this problem in the context of the concrete conditions in which a university is functioning, because – as shown by recent comparative studies [5, 6] – national education systems have many differences that do not provide a simple solution for common denominators of (no) success in studying.

In this article, we present the results of the research conducted with the aim of establishing and analyzing statistical and descriptive indicators of the success of the study at the only public university in Montenegro (University of Montenegro) for the enrollment 2013/14 study year. The study included a sample of 4 517 students.

THEORETICAL BASIS OF RESEARCH

Success in studying is a complex construct for which there is no universally acceptable definition or single theory, i.e., it is not viewed equally in various research, systems, times, social conditions, etc. This is a multidimensional phenomenon, as defined in numerous

studies [7-10]. In some studies, success is measured by the average grades [9], which can be done in case of research in smaller national systems. Other and more frequent research as a criterion of success was taken solely to complete studies and acquire a degree [8]. This perspective is also needed in comparative reports [5, 6].

The so-called retention during the study, i.e., prolonged study and abandonment of study or abandonment of the program without its completion, is analyzed in particular [11]. The situation of the diversity of assessment of success in studying is still evident throughout the European education systems [5, 6], after numerous harmonization activities stemming from the Bologna Declaration and the establishment of the European Higher Education Area (EHEA). Even outside Europe, countries do not have the same perception of academic success / achievement [10], although researchers have increasingly relied on OECD reports (e.g., a periodic report *Education at a Glance*), the European Commission or other relevant institutions. These and such reports point to the variety of school systems, but at the same time, they try to present some common denominators. The European Commission's recent report suggests that we still have insufficient research of (no) success in studying and that some European countries have only the implicit attitudes towards the success of university programs and students [5]. On the other hand, as the same report states, some European countries are dealing with this phenomenon explicitly and intensively (e.g., the UK or Germany), and numerous studies have been carried out in non-European countries such as Australia, New Zealand, USA, etc. Therefore, the above mentioned report frequently includes the models and results of research from these systems, which we also apply in this article.

Success in studying is different and always multidimensional [6, 10]. This is normally expected, as all societies do not have the same needs or conditions, as well as opportunities or cultural-historical and traditional experiences. Success is, in any area, seldom socio-culturally decontextualized, and its such nature conditions the difficulty of research in terms of system-wide comparisons, even in terms of comparison in the same system in the diachronical perspective [10]. Every study of success in studying needs to specify contextual conditions, because as a complex of many factors (individual and social), success is only a relative category, inseparable to the level of general conclusions. This is the viewpoint and report of the European Commission, which states:

> Not only is success in studying a multidimensional concept – including retirement, retention, progress in study, study duration, completion and transition to the next level or the labor market - it is also dependent on many factors on different levels, such as the structure of education systems and trajectories towards higher education, national politics, financial and other incentives, institutional structures, approaches to teaching and learning, curriculum design and student environment, as well as on the interplay of everything [5; p.14].

The most obvious common denominator of the success of the study is its completion [8], which is probably the only attribute of success that has sufficiently reliable and objective general acceptability [6]. National systems use three measures of success assessment: completion of studies, time to graduation, and retention and abandonment [5].

Nevertheless, despite all the differences in defining success, recent research in this domain shows that many of the success factors are identified, although their role and impact are not equal everywhere nor even are they in the same direction. One approach observes the three levels that are to be considered for success predictors: the national (state / social), institutional and individual level [5, 6, 10]. Here, therefore, there are three levels of interested participants. State or social interests are focused on human capital, so higher education institutions are expected to achieve educational outcomes derived from national qualification frameworks and their achievement at a given time interval. Other factors are associated with

this level, so in the research, it is determined that the cultural-economic factors are explaining 32 % and the competitiveness 36 % in the success of the study [7]. Cultural models of evaluation of education are transmitted as inter-generational [7], so it is expected that in Montenegro, there is a very positive attitude towards education [12]. The family, as a core group reflecting cultural and value patterns, has a strong influence, starting with the choice of studies, but this influence is not always positive [13].

Institutional interests are directly linked to the national, primarily through the legislative, but also to the traditionally recognized and defined roles of the University in the care of state / social interests through their progressive education mission and vision. In addition, university programs, according to the legality of didactics and methodology of teaching, therefore, according to the nature of the work they do, have a strong interest that students entering the teaching process in the minimum projected time complete the studies, with the maximum achieved learning outcomes. However, there is often disproportion between time and achievement, so many students stay on the study longer than anticipated. There are also frequent assessments that university teaching has not sufficiently aligned with the needs of new generations [2]. Reasons for this may be many and are often the ones that are considered in the research as a predictor of success [9]. Institutions can offer a more or less flexible regime of study, which has a positive impact on success through increased motivation and interest. However, flexibility in choice may also have a negative role as students do not achieve desired learning outcomes [14]. And the method of study enrollment has an influence on studying [15].

Institutions also have some interests in their public image. Namely, those universities that are recognized as having prolonged retention during studies may find it difficult to have a favorable public image, especially among those categories of citizens who are their special interest groups – future students and their parents. Also, employers gain a negative perception. The prolonged study thus creates a negative reference for future enrollment terms, and gradually, in case it happens to be a continuous phenomenon, leads to worse enrollment rates. Thus, prolonged study and enrollment condition are mutually adversely conditioned. It is worth noting that there is another public rating – as it is often in Montenegro – and that is there is a hyper-production of diplomas in the society, whose quality is questionable [16, 17]. The assessment is impossible to be a priori negated, but it is necessary to reconsider it. It is partly *saltus in concludendo*, because the ratings have been an abstraction of many aspects of university education in the new millennium, and they have also been performed without sufficient precision in real evidence, e.g., without the specification of the degree and type of diploma that is hyper-produced. In addition, the increased number of diplomas in employment bureaus should not be interpreted unilaterally (as exclusively credited to universities), irrespective of the labor market development, from which continuous job security is expected in the conditions of the development of economy and society as a whole. The thesis on overproduction of diplomas is partly implied by the traditional public attitude – good studies are ones for which we get evidence (regarding the duration of the studies, repetition of the same exams, low grades, etc.) that students have to make some extra effort. Nor is it a generalization, and all universities are concerned, although it is realistic to assume that all institutions do not have the same role in the overproduction of graduates. So, the thesis about the *surplus* of diplomas is possible, but it needs to be specified and concretized.

Somewhere between the institution and student level, the important predictor is the informed study choice, so in most studies, it is shown that the so-called informed choice of study program [3] and dedication to studying are of greatest importance to students [10]. Both factors are complex and involve a number of elements which they depend on and / or which they condition, and they themselves are interdependent. Thus, the choice of the study program depends on the student's knowledge, his self-awareness (What can I learn? Do I

have enough knowledge and skills? Does this matter interest me? etc.), self-regulation and a whole range of motivational aspects in three groups (amotivation, extrinsic and intrinsic motivation) on the continuity of self-determination [18-20]. Dedication to studying is also multidimensional, composed of cognitive, affective, and conative factors.

When it comes to students, it would be expected that their interest would be to complete the enrolled studies within the envisaged time. However, for many reasons this is not always the case, so there are few situations that students, after years of attempts, fail to complete the program, which results in formal abandonment of the study (and serious financial losses for the student and / or the one who funds the student), and it essentially heavily affects the personality of an unsuccessful student who loses family support, his/her close environment, becomes anxious and / or depressed, etc. [11], which often provokes persistent psychological difficulties as a result of reduced self-confidence and self-empowerment [21].

Some researchers [15] group predictors of academic success into three groups: psycho-social (student integration into an institution, university dedication, university satisfaction, career orientation, social support, psychological health and financial situation); cognitive and affective (self-efficacy and attributional style, described in terms of *learned helplessness*, and attitudes of optimism / pessimism); demographic (student age, gender, (un)employment and student hardship during study). Other researches also take the predictors by categories; thus, for example, they often analyze socio-demographic data, data on learners' behavior in the learning process (learning skills), personal characteristics, attitudes towards learning and organization of teaching [9]. Researches, based on the evaluation of the obtained grades, single out some fifteen factors of influence from the aforementioned categories, among which some are relevant for this research: duration of the study, tuition, place of study, gender identity [9].

The previous academic achievement is considered to be the main predictor of success, yet these are also important: integration into the university, self-efficacy and student responsibility in terms of his need to be employed [15]. In addition to the academic achievement, observed through the grades obtained during high school, metacognitive, i.e., learning skills, are also included, which shows that previous academic success is not predictable for university grades, but learning skills are [15]. Some demographic factors are highly predictable for success, and the research shows that more successful students are those of the following characteristics: female gender, the status of regularity during studies, younger students and students who had previously been educated for 12 years [3]. Previous research also points to differences in performance depending on the field of study.

Some studies on the success of studying consider the factors of the educational pathway (student trajectory) and the student's socioeconomic status to be of particular importance [10]. While it is expected that better previous achievements and better trajectories (*better* upper secondary school) has a positive correlation with the success of the study, the socioeconomic status of the student can act in the opposite way, i.e., it is not always the case that (too) good financial conditions ensure good students. It is certain that the socioeconomic factor influences the choice of study, but does not provide sufficient probability for its completion. Likewise, some students with poor financial conditions can be very successful because, in the studies, they see a chance to improve their personal position. Thus, the socioeconomic status has a great influence, but this effect is uneven in different circumstances.

Since in the previous analysis there is an inequality in the definition of success, though it is not about contradictory differences, but rather about the differences that confirm the complexity of the phenomenon, in this research, we are treating success in studying as a factor in timely completion of the studies started. The three levels of success that we see are the key ones to our research, so some of them are differentiating certain influencing variables.

Thus, at the national level, important factors are university selectivity (or the possibility of enrollment), flexibility in studying [14], tuition and student support [5]. University selectivity and flexibility in studying can have both a positive and negative impact on success, while, for example, there is no direct link between tuition and success in studying [4, 6]. The university level contains several prediction variables for success: institutional engagement and strategic approach; devotion to learning, teaching and assessment in the context of social constructivism [2, 22]; an informed choice of study, which includes self-identification, overall monitoring and monitoring of students and teaching; university structure (student population structure, student services, organization of studies). Compared to the mentioned factors, there are also a number of subordinate influence variables [5]. The individual level is composed of socioeconomic (and family) status, gender, ethnicity, cognitive competence, and motivation, as well as educational path and its trajectory [5].

RESEARCH METHODOLOGY

In the research, we used a descriptive method [23, 24], which corresponded to the set goal. Quantitative indicators are taken from several variables, which are treated in a number of studies as predictable for the success of studies (gender, educational trajectory, regional affiliation). All data is downloaded from the Information System Center of UoM. Since in the areas of study (natural and technical, social and humanistic, art) there are exceptionally large differences in various factors (number and gender affiliation, modes and methods of work during studies, teacher education etc.) it is not justified to work on intercorrelated statistical analysis, at least not for the purposes of this research. E.g., there are obviously great differences in the education of university teachers, which is certainly one of the factors that make it difficult to compare between groups and areas of study [25]. Therefore, we have divided the data into three groups (according to the fields of study), and for each group, we perceived basic indicators.

The aim of the research was to determine the success of the UoM studies defined by completing the study in a time-limited interval (3 years, 6 semesters, i.e. 4 years, 8 semesters for studies at the Faculty of Economics) in the following fields of study: natural and technical, social and humanistic studies and art studies. We analyzed the enrollment 2013/14 academic year.

VARIABLES

Independent variables are region, educational trajectory, and gender of students. We will show the success of the study regarding these variables.

In education research, it is common practice to treat the territory of Montenegro through three areas: the northern, central, and southern regions. This is not an official division, and the territory of Montenegro is unique in the formal-legal and administrative view. The organization is basically geographic, and the region is distinguished by its natural physical and geographical characteristics. However, this configuration is both social and economical at the same time, as the regions do not develop at the same speed nor they do so equally well. The South is considered the most financially viable, primarily through tourism, but also in trade and other activities based on the Adriatic coast. The central region is the historical, cultural, managerial center of Montenegro, while the northern region is in a somewhat disadvantageous financial and general position. For universities, it is important that the education system in the regions is very similar, i.e., the basic prescribed competences are equal for all primary and secondary school students in Montenegro [12, 26].

The educational trajectory is significant for university studies. The elementary school system is unique in Montenegro (nine years), organized into three cycles, and there are two basic

opportunities for secondary education that are a prerequisite for enrolling a university: occupational high school and grammar school. Both types of schools are free of charge for students, i.e., they are funded from public funds, and both types last for four years. Teaching in the middle schools and gymnasiums take part in partly open curricula (percentage of openness is 20 %), where the central (80 %) share is common for all schools, and 20 % is foreseen to include content for local and regional communities. Matura exam is based on a common part of the subject curricula. At the end of the fourth year, students take an external matriculation examination, the results of which, together with the average grades achieved in four grades of high school and grades from subjects of relevance to the profession, are the basic data on which universities rank candidates. Only a few faculties and / or departments have additional qualification exams [27].

Depending variables are choice of studies and enrollment at faculties and/or areas of study, successful completion of studies in due time.

On choosing a study, future students can be informed via the *Informator* [28]. The end of the study in due time is also reflected in the reports as a factor for measuring the success of the study in Montenegro [5], and this concept is recognized in the way of financing, so the students, as long as they achieve the predetermined time-scale of study, do not have to pay for their tuition.

HYPOTHESES

Main hypothesis: Students enrolled at the University of Montenegro successfully complete their studies in due time. The hypothesis will be interpreted according to the five levels of possible results, i.e., we observe it by the percentage of students completing the studies in the predicted time interval, so achievement in the study is as follows: (i) very unsuccessful if 0-20 % of the enrolled have completed the study; (ii) unsuccessful if 21-40 % of the enrolled have graduated; (iii) medium successful for intervals 41-60 %; (iv) successful for 61-80 % of graduates and (v) very successful if there are 81-100 % of graduates.

The auxiliary hypotheses are:

H1: Students enrolled at the technical and natural fields of UoM study successfully complete the studies within the envisaged time frame.

H2: Students enrolled at social and humanities studies at UoM successfully complete their studies in the foreseen time.

H3: Students enrolled at UoM art studies successfully end their studies in the predicted time interval.

Graduation data was taken at the beginning of the academic year 2018/19. Therefore, students enrolled in 2013/14 were observed two years after the end of their final semester, while the students of the Faculty of Economics were analyzed one year after they had finished their final semester.

SAMPLE

The research involved 4 517 students enrolled at the UoM in the academic year 2013/14. The sample is presented with graphs according to three independent variables, and additional interpretation of the sample was made in relation to specific indicators by the fields of study. Most of the students were from the centra region of Montenego (56 %), followed by the northern region (26 %) and the souther region (18 %). 52% are females, and 48 % are males, which corresponds with the general trends of predominating females in higher education. Finally, most of the respondents finished high occuplational schools (58 %), while the smaller number finished grammar school (42 %).

RESULTS

The first part of the results was directed towards the area of natural and technical sciences, and Table 1 shows a detailed overview of the enrollment in this area.

The total of 1990 students was enrolled at the faculties of natural and technical sciences, accounting for 44,1 % of the total number of enrolled students. In addition, students from the Central Region make up more than half of the enrolled (50,8 %) in this field of study, which is expected percentage considering that this is the most densely populated area in Montenegro (cities: Podgorica, Nikšić, Cetinje, and Danilovgrad). The share of students from this region is the highest in the Faculty of Mechanical Engineering (71,9 %) and is followed by the Faculty of Electrical Engineering (70,6 %). The only two faculties from the area of natural and technical studies that had no more than half of the students in the Central Region are the Faculty of Medicine (with 40 % of these students) and the Faculty of Maritime Studies (29,3 %).

The smallest number of candidates from the Southern Region enrolled these studies (22 %). There is a noticeable smaller share of students from the Southern Region at the Faculty of Mechanical Engineering (0,8 %), Technological and Metallurgical Faculty (5,7 %), Faculty of Medicine (12 %) and Faculty of Natural Sciences and Mathematics (12,7 %). Students

Table 1. Distribution of students enrolled in academic year 2013/14 at the faculties of natural and technical sciences. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Architecture	19 (29,7)	30 (46,9)	8 (12,5)	2 (3,1)	3 (4,7)	2 (3,1)	64 (100)	**3,2 %**
Biotechnical faculty	45 (24,2)	58 (31,2)	4 (2,1)	5 (2,7)	47 (25,3)	27 (14,5)	186 (100)	**9,3 %**
Faculty of Electrical Engineering	180 (55,7)	48 (14,9)	26 (8,0)	7 (2,2)	48 (14,9)	14 (4,3)	323 (100)	**16,2 %**
Faculty of Civil Engineering	65 (33,3)	39 (20,0)	13 (6,7)	8 (4,1)	48 (24,6)	22 (11,3)	195 (100)	**9,8 %**
Mechanical Engineering Faculty	78 (64,5)	9 (7,4)	1 (0,8)	0 (0,0)	28 (23,1)	5 (4,1)	121 (100)	**6,1 %**
Faculty of Medicine	21 (9,8)	65 (30,2)	7 (3,2)	19 (8,8)	22 (10,2)	81 (37,7)	215 (100)	**10,8 %**
Faculty of Metallurgy/ Technology	24 (27,3)	39 (44,3)	0 (0,0)	5 (5,7)	2 (2,3)	18 (20,4)	88 (100)	**4,4 %**
Faculty of Maritime Studies	121 (21,6)	43 (7,7)	255 (45,4)	48 (8,6)	88 (15,7)	6 (1,1)	561 (100)	**28,2 %**
Faculty of Natural Sciences and Mathematics	68 (28,7)	60 (25,3)	13 (5,5)	17 (7,2)	32 (13,5)	47 (19,8)	237 (100)	**11,9 %**
Total	621 (**31,2**)	391 (**19,6**)	327 (**16,4**)	111 (**5,6**)	318 (**16,0**)	222 (**11,1**)	**1990** (**100**)	**100,0 %**

from the Southern Region, as expected, account for more than half of the enrolled at the Faculty of Maritime Studies (54 %). Candidates from the Northern Region are most interested in the Faculty of Medicine (47,9 % of the number enrolled at this faculty) and are least interested in the Faculty of Architecture (7,8 %).

The number of female students is considerably smaller (36,3 %) compared to a number of male students (63,7 %) so that the ratio is 1:2 related to gender. The highest share of female students is at the Faculty of Medicine (76,7 %), Metallurgical and Technological Faculty (70,4 %), Faculty of Architecture (53,1 %) and Faculty of Natural Sciences and Mathematics (52,3 %), while girls are least interested in studies at the Faculty of Mechanical Engineering (11,5 %).

It is one thing to enroll the studies, and it may be quite another thing to complete studies within the regular term, which we can also find out on the basis of the results from Table 2 and Figure 1.

Out of 1990 enrolled students, only 548 have graduated, or 27,5 %, which is the percentage that stays within the 21-40 % interval, marked as "unsuccessful", which refutes the first auxiliary hypothesis. In this distribution also, students from the Central Region account for more than half of the total number of graduates (52,7 %), followed by candidates from the North Region (27,1 %), and those from the Southern Region (20,1 %), so that in this – not a very encouraging picture – the trend and order, i.e. rank of enrollment has still been preserved.

Table 2. Distribution of students enrolled in the academic year 2013/14 at the faculties of natural and technical sciences that graduated in the envisaged term. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Architecture	11 (28,2)	20 (51,3)	3 (7,7)	1 (2,6)	2 (5,1)	2 (5,1)	39 (100)	**7,1 %**
Biotechnical faculty	17 (22,4)	25 (32,9)	3 (3,9)	3 (3,9)	14 (18,4)	14 (18,4)	76 (100)	**13,9 %**
Faculty of Electrical Engineering	48 (59,2)	11 (13,6)	7 (8,6)	3 (3,7)	11 (13,6)	1 (1,2)	81 (100)	**14,8 %**
Faculty of Civil Engineering	18 (31,6)	14 (24,6)	2 (3,5)	1 (1,7)	10 (17,5)	12 (21,0)	57 (100)	**10,4 %**
Mechanical Engineering Faculty	5 (33,3)	3 (20)	0 (0)	0 (0)	6 (40)	1 (6,7)	15 (100)	**2,7 %**
Faculty of Medicine	6 (8,9)	2 (37,3)	1 (1,5)	3 (4,5)	4 (6,0)	28 (41,8)	67 (100)	**12,2 %**
Faculty of Metallurgy/ Technology	2 (10,0)	9 (45,0)	0 (0,0)	2 (0,0)	0 (0,0)	7 (35,0)	20 (100)	**3,6 %**
Faculty of Maritime Studies	33 (23,6)	18 (12,9)	53 (37,9)	18 (12,9)	16 (11,4)	2 (1,4)	140 (100)	**25,5 %**
Faculty of Natural Sciences and Mathematics	14 (26,4)	10 (18,9)	5 (9,4)	5 (9,4)	8 (15,1)	11 (20,7)	53 (100)	**9,7 %**
Total	154 **(28,1)**	135 **(24,6)**	74 **(13,5)**	36 **(6,6)**	71 **(12,9)**	78 **(14,2)**	548 (100)	**100 %**

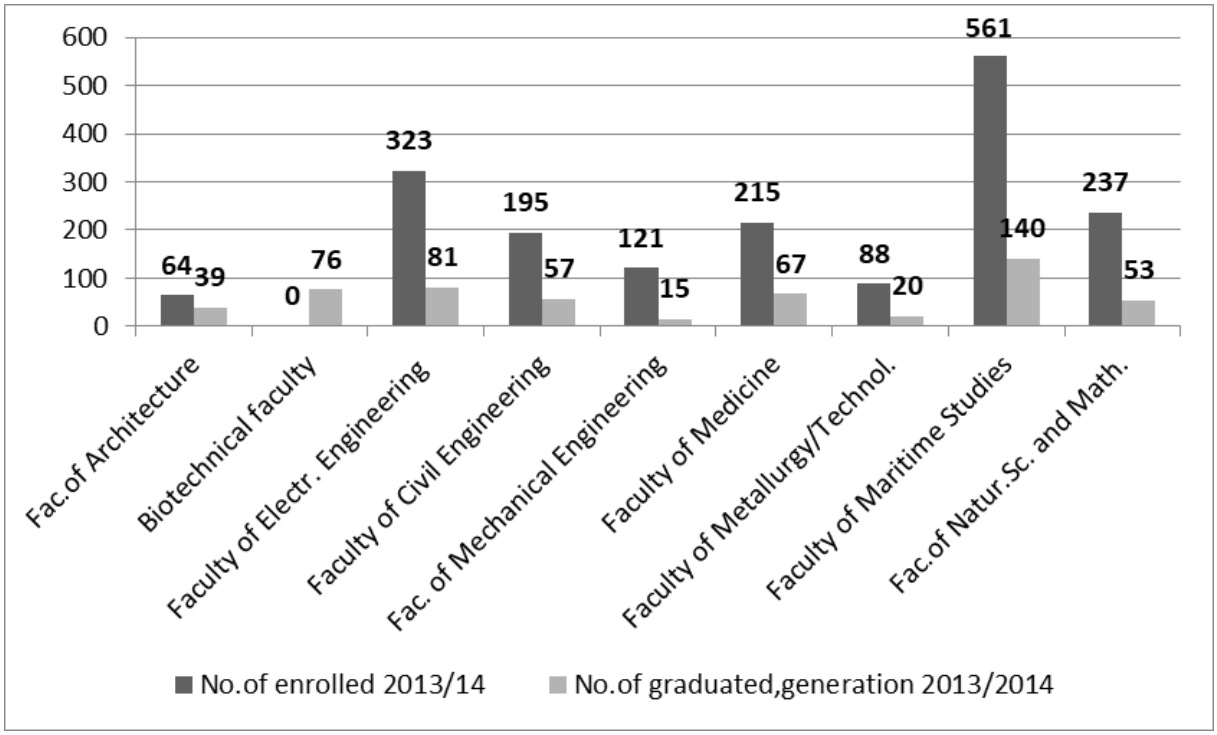

Figure 1. The ratio of enrolled and graduated students from the generation 2013/14 at faculties of natural and technical sciences.

Figure 1 clearly shows the extremely large differences between the number of enrolled students and the number of graduates. These differences between the faculties are not comparable according to the procedures of parametric statistics, since these are quite different areas of study, and the number of enrolled ones significantly differs. However, it can be noticed that the ratio between the enrolled and the graduates is the best at the Faculty of Architecture (60,9 % have graduated), which is partly explained by the fact that a supplementary exam (a kind of qualification examination) is also applied for enrollment at these studies. This exam should make an additional selection of candidates and give them timely information on whether they made the right choice of study. Namely, research shows that enrollment procedures are inadequate, and some candidates who objectively cannot complete a particular curriculum are being enrolled and introduced into a system in which they will not be successful [10], which is probably one of the causes for the situation shown in our sample. Regarding other faculties in this group, the qualification exam is only taken at the Faculty of Medicine. However, the success of students from that faculty (31,2 % of graduates) is not in the categories that we previously identified as successful. The reasons for a fairly small percentage of graduates can be diverse – students are not ready for studies, teaching curriculum is not adapted enough for students, curricula are too demanding, too much loaded with information, etc. A part of the explanation for failure can be found in the educational trajectory (Table 3).

Students being enrolled in this field of study, more often do so after graduating from a high vocational school, compared to those graduating from grammar school. The ratio is almost 3:2, and this factor (the previous educational trajectory) can be treated as important in the overall picture of the (un)successful studying. Namely, it is expected that students who finish grammar school have better developed learning skills because they have experience with learning different subjects. This, however, is not a factor that should have a crucial role in success, as, for example, in Germany, the vocational high school as a predecessor, has no adverse effects on studying [5], while, for example, a Spanish study shows negative effects [29].

Table 3. Distribution of students enrolled at technical faculties and faculties of natural sciences in 2013/14 in relation to the completed high school. Numbers in parentheses denote percentage.

Type of School	Grammar School		High Occupational School		Total	
Faculty of Architecture	51	79,7 %	13	20,3 %	64 (100)	**3,2 %**
Biotechnical faculty	59	31,7 %	127	68,3 %	186 (100)	**9,3 %**
Faculty of Electrical Engineering	148	45,8 %	175	54,2 %	323 (100)	**16,2 %**
Faculty of Civil Engineering	132	67,7 %	63	32,3 %	195 (100)	**9,8 %**
Mechanical Engineering Faculty	31	25,6 %	90	74,4 %	121 (100)	**6,1 %**
Faculty of Medicine	82	38,1 %	133	61,9 %	215 (100)	**10,8 %**
Faculty of Metallurgy/ Technology	24	27,3 %	64	72,7 %	88 (100)	**4,4 %**
Faculty of Maritime Studies	168	29,9 %	393	70,1 %	561 (100)	**28,2 %**
Faculty of Natural Sciences and Mathematics	148	62,4 %	89	37,5 %	237 (100)	**11,9 %**
Total	**843**	**42,4 %**	**1147**	**57,6 %**	1990	**100,0 %**

In the case of this variable, the curricula and the quality of teaching of high vocational schools and grammar schools should, in particular, be discussed.

The following analyses include studies of social and humanistic sciences, and Table 4 shows the enrollment situation.

Faculties of social sciences and humanities were enrolled by 2 468 students (54,6 % of the total number) in the academic year 2013/14. In this case, as well, the share of students from the Central Region is significant (59,6 %), and there is a significantly small percentage of students from the Southern Region (14,5 %). In addition to the Faculty of Tourism and Hotel Management, where 34,2 % of candidates from the Central Region are enrolled, this share at all other faculties amounts to 50% and more. Female students make up close to two-thirds of the population (64 %) enrolled at this group of faculties, which is in line with European and world trends [6]. Table 5 shows the results of previous studies for this part of the sample.

The number of graduates is not sufficient enough in order to talk about successful studies, as only 32 % of enrolled students completed their studies. This percentage, however, is higher than that achieved in the group of natural and technical sciences (27,5 %), but it is within the same interval we have labeled as “unsuccessful” so that another auxiliary hypothesis was rejected as well. In the overall scores, a trend was noted, among which the highest number of students from the Central Region has the highest number of graduates (54 %), while the smallest

Table 4. Distribution of students enrolled at faculties of social sciences and humanities in 2013/14. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Economics	225 (27,6)	293 (36,0)	34 (4,2)	65 (8,0)	77 (9,5)	120 (14,7)	814 (100)	**33,0 %**
Faculty of Political sciences	31 (11,7)	101 (38,3)	11 (4,2)	34 (12,9)	18 (6,8)	69 (26,1)	264 (100)	**10,7 %**
Faculty of Sport and Physical Education	82 (73,9)	8 (7,2)	4 (3,6)	1 (0,9)	16 (14,4)	0 (0,0)	111 (100)	**4,5 %**
Faculty of Tourism and Hotel Management	24 (10,9)	51 (23,3)	24 (10,9)	60 (27,4)	19 (8,7)	41 (18,7)	219 (100)	**8,9 %**
Faculty of Philology	53 (16,1)	160 (48,6)	5 (1,5)	31 (9,4)	21 (6,4)	59 (17,9)	329 (100)	**13,3 %**
Faculty of Philosophy	74 (22,3)	144 (43,5)	5 (1,5)	22 (6,6)	24 (7,2)	62 (18,7)	331 (100)	**13,4 %**
Faculty of Law	89 (22,2)	137 (34,2)	18 (4,5)	45 (11,2)	32 (8,0)	79 (19,7)	400 (100)	**16,2 %**
Total	578 **(23,4)**	894 **(36,2)**	101 **(4,1)**	258 **(10,4)**	207 **(8,4)**	430 **(17,4)**	**2 468**	**100 %**

Table 5. Distribution of students graduating from faculties of social sciences and humanities. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Economics	58 (23,5)	98 (39,7)	5 (2,0)	26 (10,5)	15 (6,1)	45 (18,2)	247 (100)	**31,3 %**
Faculty of Political sciences	17 (10,4)	61 (37,2)	10 (6,1)	24 (14,6)	8 (4,9)	44 (26,8)	164 (100)	**20,7 %**
Faculty of Sport and Physical Education	15 (88,2)	0 (0,0)	0 (0,0)	0 (0,0)	2 (11,8)	0 (0,0)	17 (100)	**2,1 %**
Faculty of Tourism and Hotel Management	10 (11,6)	21 (24,4)	9 (10,5)	18 (20,9)	9 (10,5)	19 (22,1)	86 (100)	**1,.9 %**
Faculty of Philology	5 (5,8)	42 (48,8)	1 (1,2)	11 (12,8)	2 (2,3)	25 (29,1)	86 (100)	**10,9 %**
Faculty of Philosophy	14 (14,9)	35 (37,2)	1 (1,1)	15 (15,9)	5 (5,3)	24 (25,5)	94 (100)	**11,9 %**
Faculty of Law	22 (22,9)	29 (30,2)	2 (2,1)	11 (11,4)	9 (9,4)	23 (23,9)	96 (100)	**12,1 %**
Total	141 **(17,8)**	286 **(36,2)**	28 **(3,5)**	105 **(13,3)**	50 **(6,3)**	180 **(22,8)**	**790**	**100 %**

number of them is from the Southern Region (16,8 %). The Faculty of Sport and Physical Education is the only faculty from this group where the qualification exam is taken.

Figure 2 provides data almost analogous to those in the field of natural and technical sciences.

Figure 2 provides opportunities for identifying the largest and smallest variation ranges between the number of the enrolled students and graduates, with a common suggestion that the analyzed numbers do not show positive trends. The best ratio of the graduated/enrolled students was achieved at the Faculty of Political Sciences (62 % graduated). This faculty is traditionally enrolled by excellent students, and this is probably one of the factors that explain these results. Interestingly, the biggest number of graduates are at the Faculty of Economics (247), but this makes only thirty percent of the number enrolled. However, at this faculty, studies last for eight semesters, which should be kept in mind during further analysis.

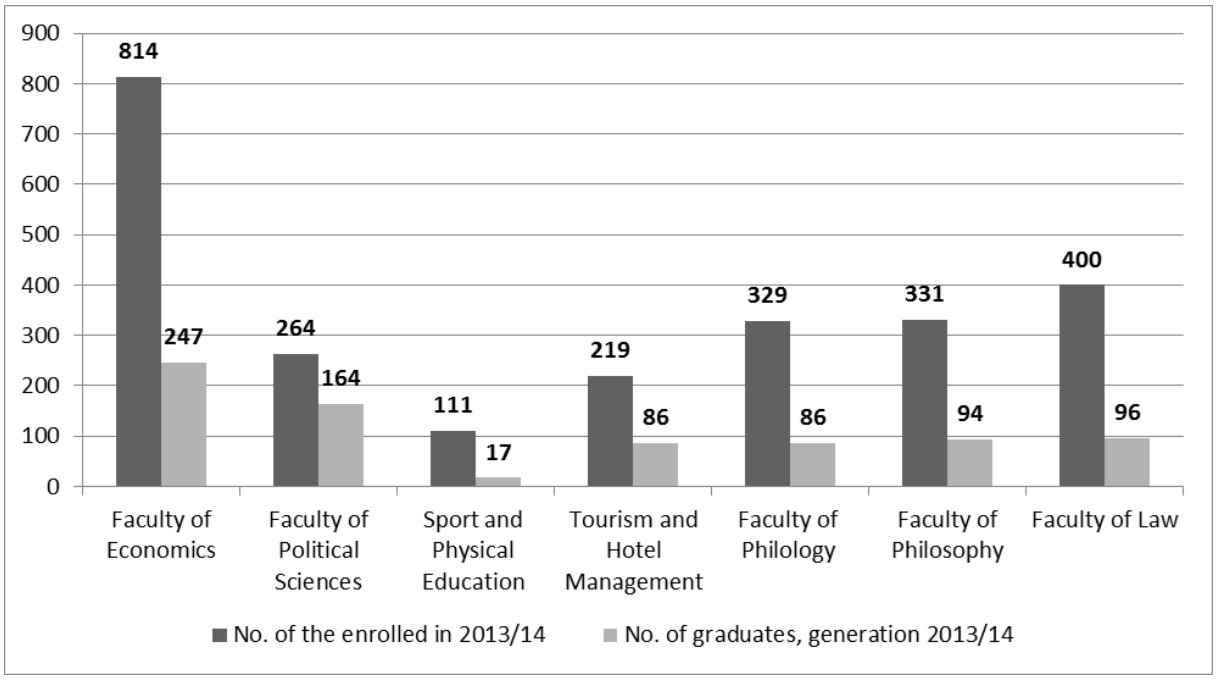

Figure 2. The ratio of the enrolled and graduated from faculties of social and humanistic sciences.

Table 6 shows an overview of the enrolled students with regard to their educational trajectory.

It is interesting that the ratio of the enrolled according to the previous educational trajectory is almost the same as the one we determined for faculties of natural and technical sciences. It is also one of the factors that can affect the final results in terms of success in studying.

An analogous analysis for the faculties of art shall follow, and Table 7 shows the situation on enrollment.

In the case of art studies as well, the share of students from the Central Region is the largest (59,3 %), which definitely points to the trend that it is this region which mostly gravitates towards UoM, which is natural because the majority of faculties from this university is located in that region, and this area is also the most densely populated. The percentage of the students from the Southern Region is the smallest here as well (18,6 %). The ratio of male and female students shows that the structure of the student population in this field of study is the most harmonious (52,5 % F: 47,5 % M). Table 8 shows the percentage and number of graduates.

The percentage of graduates compared to the enrolled ones in this field amounts to 74,6 % and belongs to the category “successful”. This is explained by two factors: all faculties in the

Table 6. An overview of the enrolled at faculties of social and humanistic sciences according to the completed high school.

Type of school	Grammar School		High Occupational School		Total	
Faculty of Economics	300	36,8 %	514	63,1 %	814	**33,0 %**
Faculty of Political sciences	157	59,5 %	107	40,5 %	264	**10,7 %**
Faculty of Sport and Physical Education	25	22,5 %	86	77,5 %	111	**4,5 %**
Faculty of Tourism and Hotel Management	55	25,1 %	164	74,9 %	219	**8,9 %**
Faculty of Philology	162	49,2 %	167	50,8 %	329	**13,3 %**
Faculty of Philosophy	109	32,9 %	222	67,1 %	331	**13,4 %**
Faculty of Law	240	60,0 %	160	40,0 %	400	**16,2 %**
Total	**843**	**42,4 %**	**1147**	**57,6 %**	1990	**100,0 %**

Table 7. Distribution of students enrolled at faculties of art in 2013/14. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Drama Art	7 (36,8)	5 (26,3)	1 (5,3)	1 (5,3)	3 (15,8)	2 (10,5)	19 (100)	**32,2 %**
Faculty of Fine Arts	5 (25,0)	7 (35,0)	0 (0,0)	2 (10,0)	3 (15,0)	3 (15,0)	20 (100)	**33,9 %**
Music Academy	7 (35,0)	4 (20,0)	1 (5,0)	6 (30,0)	1 (5,0)	1 (5,0)	20 (100)	**33,9 %**
Total	19 **(32,2)**	16 **(27,1)**	2 **(3,4)**	9 **(15,2)**	7 **(11,9)**	6 **(10,2)**	**59 (100)**	**100 %**

Table 8. Distribution of students graduating from faculties of art. Numbers in parentheses denote percentage.

Region	Central		Southern		Northern		Total	
	M	F	M	F	M	F		
Faculty of Drama Art	6 (40,0)	2 (13,3)	1 (6,7)	1 (6,7)	3 (20)	2 (13,3)	15 (100)	**34,1 %**
Faculty of Fine Arts	5 (31,2)	5 (31,2)	0 (0,0)	2 (12,5)	2 (12,5)	2 (12,5)	16 (100)	**36,4 %**
Music Academy	4 (30,8)	3 (23,1)	0 (0,0)	4 (30,8)	1 (7,7)	1 (7,7ž9	13 (100)	**29,5 %**
Total	15 **(34,1)**	10 **(22,7)**	1 **(2,3)**	7 **(15,9)**	6 **(13,6)**	5 **(11,4)**	**44 (100)**	**100 %**

field of art have the appropriate qualification exams, and the teaching is mostly individual or in very small groups of students. In addition, this is the field of study in which the talent has a clear role, and only those individuals with the confirmed talent decide to study these faculties. Figure 3 shows the ratio of enrolled and graduated students.

The relationship between the enrolled and the graduated in this group is generally very good, but somewhat less favorable at the Academy of Music. The third auxiliary hypothesis is accepted. For this group, we have also calculated the educational trajectory of the enrolled students, which is shown in Table 9.

These faculties are dominantly enrolled by candidates who have previously completed vocational high schools – Music Academy 100 %, and Academy of Fine Arts 75 %. The exception is the Faculty of Drama Arts, which is dominated by students who completed grammar school.

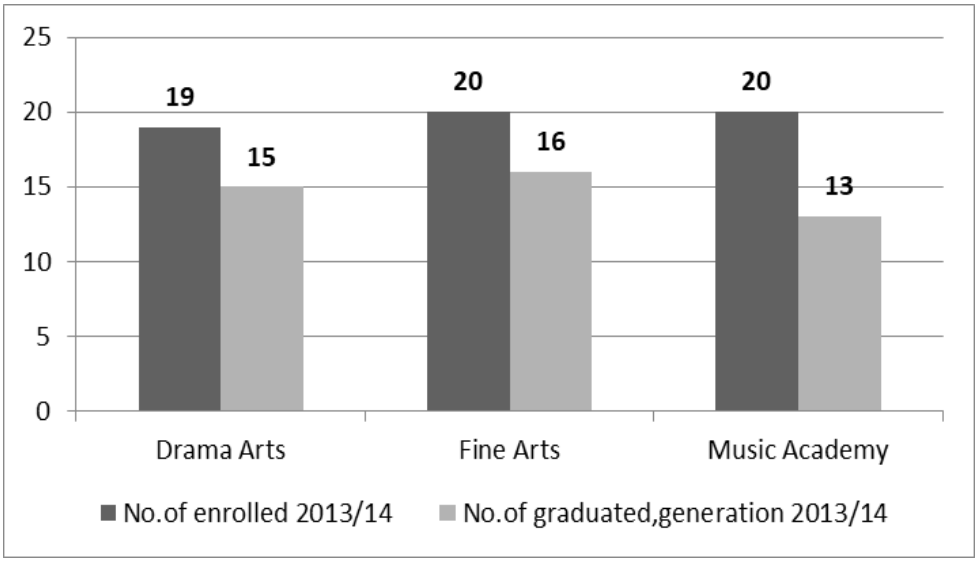

Figure 3. Relations between the enrolled and graduated students in the field of art.

Table 9. The educational trajectory of students enrolled at faculties of art. Numbers in parentheses denote percentage.

Type of School	Grammar School		High Occupational School		Total	
Faculty of Drama Art	13	68,4 %	6	31,6 %	19 (100)	**32,2 %**
Faculty of Fine Arts	5	25,0 %	15	75,0 %	20 (100)	**33,9 %**
Music Academy	0	0,0 %	20	100,0 %	20 (100)	**33,9 %**
Total	**18**	**30,5 %**	**41**	**69,5 %**	**59**	**100,0 %**

CONCLUSIONS

Our research suggests that the hypothesis of high academic achievement (and hyper-production of diplomas) at the University of Montenegro should not be accepted because it turned out that the selected generation of students failed to complete the studies in a significant percentage. In doing so, we have identified that one area of study (art faculties) records successful studying, which we mostly interpreted by the fact that the qualification exam is applied for enrollment at these studies. Students of natural and technical, social, and humanistic studies are not sufficiently successful in terms of graduation. Approximately 30 % of the aforementioned students completed studies in the envisaged time. A total of 1382 students

graduated from enrolled 4 517, which makes 30,6 %. According to the gender category, 842 female students (60,9 %) and 540 male students (39,1 %) graduated. Enrollment and selection of studies by gender category follow world trends [6].

One of the reasons for the failure of the two groups of studies and the success of the art area is a big difference in the number of enrolled ones. This difference has caused the unequal quality of teaching and learning, so that students of arts have individual classes or classes in small groups, while at other faculties teaching is predominantly in large groups of students. It is clear that the number of students enrolled at faculties that are not art-related cannot aim towards too few enrollments, but it is also debatable that regarding the generation of 2013/14, e.g. 814 students enrolled at the Faculty of Economics and 400 students at the Law Faculty, for Montenegrin circumstances. Under the conditions of such a large number of students in one generation, it is difficult to talk about sufficient quality of teaching and learning. However, it is interesting here that the increased interest in these studies appears on a global scale [6].

In our sample, the highest share of students originates from the Central Region, and the smallest share is from the Southern Region. The factor of unequal gender inclusion of students in groups of natural and technical, i.e., social and humanistic sciences, could be improved. Some of the professions are completely feminized (for example, teaching and educating), which is not evident from the previous results because they are included in the broader population of students of the Faculty of Philosophy.

Although this research could not provide a more detailed insight into all predictors of study success, we believe that the following recommendations are based on the data:

- A qualification exam should be introduced as a condition for enrollment at all studies. This examination does not have to have a role in selecting candidates solely, but could, at the same time be an important source of information on studies. Students of faculties of arts are successful and, for example, students of the Faculty of Architecture, which would suggest the introduction of this exam.
- At faculties where such a test already exists, and students are still not sufficiently successful in completing the studies, the content and the way of taking the qualification exam should be re-examined.
- The enrollment policy must be more rational and more harmonized with the needs of the labor market, but also with the possibilities of realizing good teaching quality focused on the student and learning. In the year 2013/14, an extremely large number of candidates were enrolled at several faculties which had to create an unfavorable situation for teaching and learning. In the end, too many enrolled students must necessarily act in a demotivating way to students, since it is justified that they have less hope for employment.

It is clear that for the final claims about the (un)success of studying, it is also necessary to include all other factors, those that we mentioned in the theoretical part. We shall point out the importance of continuous innovations, especially in the area of teaching and learning, such as Google Classroom [30] and simulation games [31]. Results that we gained may be partly explained by the incompatibility of teaching according to students' needs, learning styles, and readiness. That is why teaching innovations are one of the key cornerstones of study success. However, given the complexity of the issues, this has to be done gradually and systematically, and this research gives an insight into several variables of influence, those that were available in an objective and reliable form.

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TRAVEL AND ACCOMMODATION WEB SERVICES: USAGE IN SELECTED EUROPEAN COUNTRIES

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ABSTRACT

Travel and accommodation Web services are used to promote tourism services and to attract customers offering them the opportunity to book accommodation services online, to communicate and for many other tourism activities. The goals of the article are: (i) to investigate the current trends in usage of Web services for online accommodation reservation in selected European countries, and (ii) to investigate the habits and readiness of individual Croatian travellers regarding the usage of Web services for the accommodation reservation. Respondents were asked to evaluate indicators that effect on the selection of different Web services and functionalities for three Web services regarding accommodation reservation (Airbnb, booking.com, TripAdvisor). Data was collected using an online questionnaire which was distributed by Facebook, WhatsApp, and sent by email. Research results indicate that the percentage of individuals who are using the Internet for tourism services is growing through years in European Union countries, but the differences among the countries are also strongly evident. However, research results regarding individual Croatian travellers indicate that almost half of the respondents have never used the option of booking accommodation through Web services.

KEY WORDS

travel and accommodation Web services, accommodation services, internet, social media, Croatia

CLASSIFICATION

JEL: L83, L86

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INTRODUCTION

Tourism as an economic, social, and cultural activity is one of the most significant activities of modern society and world-wide economic development and is particularly significant in most European countries [1, 2]. Furthermore, Croatia is a traditional tourism- oriented country [1]. Tourism is a very important segment of the economy and has the potential to stimulate the entire socio and economic development [3].

Development of information and communication technology (ICT) and its usage in all aspects of every day life has an influence on tourism. New applications, the popularity of social media, and social networks lead to higher usage of Internet and adaption to new technologies in tourism. According to Dunne et all. [4] "The Internet has become an inevitable decision-making tool of a modern, wealthy, traveller with no time". Buhalis and Law [5] point out that ICT plays a key role in the competitiveness of tourism organizations. Using ICT can improve the quality of the service, which will contribute to greater customer satisfaction, especially through loyalty programs [6]. In general, technological advances, in particular, the development of the Internet, have had a huge impact on the growth of tourist expectations [5]. Usage of ICT also helps in attracting new tourism consumers, especially varioius social networks, such as Facebook, Instagram, and Twitter.

The quality of travel and accomodation Web services in providing customer support refers to the quality of the service itself and the quality of the information provided by these general features of the system. Therefore, the effectiveness of the Web service is manifested in the satisfaction of its users [7]. The use of the Internet has drastically changed the behavior of tourists. Potential Internet travelers have direct access to vast information provided online by tourism organizations, private companies from the tourism sector, etc. Due to the popularity of Internet applications, most of the companies in the tourism industry have adopted the use of Internet technology as part of their marketing and communication strategy [5, 8].

The goal of the article is twofold. Firstly, we try to discuss the impact of Web services for online accommodation reservation. Using data from Eurostat, we analyse Internet usage for travel and accommodation services in European Union countries from 2009 to 2017 and analyse Website or app usage to arrange accommodation in the year 2017. Secondly, we aim to investigate the habits and readiness of individual Croatian travellers regarding the usage of Web services for the accommodation reservation. We also investigate respondents' attitudes towards different determinants regarding accommodation selection and which functionalities of Web services respondents prefer the most. Data were collected from August 2016 until March 2017 through an online questionnaire which was distributed by Facebook, WhatsApp, and send by email. Descriptive statistical methods were used to analyse collected data from Eurostat and data regarding habits and readiness of Croatian individual travellers regarding Web services usage for booking accommodation.

The article consists of six sections. After the introduction, there are two sections which describe the role of travel and accomodation Web services and social media in tourism. The fourth section is about data on tourism trends in selected European countries and is based on data from Eurostat regarding the percentage of individuals who use the Internet or any Website for travel and accommodation services in European countries. The fifth section is a case study of individual Croatian travellers regarding accomodation reservation, which consists of two subsections: methodology and data. The last section concludes the article.

TRAVEL AND ACCOMODATION WEB SERVICES

Travel and accomodation Web services are nowadays the most often used services for various purposes, such as the selection of the destinations, reservation of specific accommodation, use of various contents during the journey, and sharing experiences after the journey [9]. Travel and accomodation Web services allow users quick and easy access to all relevant information [10]. Andrlić and Ružić [11] consider that travel and accomodation Web services provide access to relevant information about global destinations, enable direct communication with tourism services providers, enable a quick and easy booking and allow users to develop and buy their own itineraries anytime and anywhere [12]. However, in order to support these activities, travel and accomodation Web services should be simple, transparent, and informative, and enable quick access to the required information. In addition, they should enable communication with touristic providers and sharing experiences with different users.

Lončarić, Bašan, and Gligora Marković [13] believe that travel and accomodation Web services must be designed to respond to user needs. Information about the offer, destination descriptions, and booking options, are of great importance for tourists. The well-known travel and accomodation Web services are TripAdvisor, booking.com, Trivago, HolidayCheck, and Expedia. Millions of tourists share their experiences on these services that help in rating and scoring system of accommodation services [14, 15]. Therefore, Web services such as booking.com, Airbnb, and TripAdvisor will be analyzed in the next sections.

THE ROLE OF SOCIAL MEDIA IN TOURISM

Social media has become inevitable in all aspects of everyday life, and they have a significant impact on communication and decision-making. Most people use the Internet as the main source of information, and by the emergence and development of social networks, people primarily use the benefits of social media when searching for information.

For many travelers, social media have become a key tool for finding travelling ideas; they use them to choose the ideal destination and choose accommodation in that destination. Since it has become a widespread practice to share photos and impressions of travels on social networks, future travelers can search, view photos, and read comments and reviews, find inspiration and advice, which can help them decide and maybe even be crucial when choosing a destination.

Thus, via social media, there is two-way communication between consumers and owners, where consumers leave positive and negative feedback on experience that owners should use to improve and adjust their offer to the wishes and needs of potential customers [16].

Social networks are an excellent mechanism for fostering sales. Through social networks, it is possible to increase sales, and especially through various offers intended solely to their customers [17]. They can be Last Minute offers or prize games that are common on social networks. This can encourage users to comment on why they should win the prize (travel, discount, etc.) and thus encourage users to think and interact, and the most creative will be winners.

Consumers rely on their smartphones during travel planning, but also during travel, and it is very important for tourist providers to customize their Websites for mobile use. Speed, transparency, and simplicity are key search elements. Such apps are available for various travel and accomodation Web services, such as booking.com, Airbnb, and TripAdvisor [18, 19]. Also, important apps that help with orientation are Citymapper and Google Maps. Citymapper is an application through which various forms of public transport, routes and distances can be found. The most popular application of this kind is certainly Google Maps, which allows users to search for various locations (places, states, exact addresses, routes and distances, length of travel, various types of public transport, etc.), and one of the best features

is Google Earth. Yelp is an example of an app that offers a wide variety of restaurants, bars, including user reviews, which is one of the best features of this app. An excellent example of a travel application is Foursquare, which offers the ability to find the best places to go out easily and the best places for nightlife, shopping, food and drink and entertainment. Consumers can also be active providers of content on social media.

Another way of advertising is through blogs. The blog is a diary that is posted on the Internet and is published by one person, while others can read and comment on it. They can be personal, thematic, but also in the form of a travelogue. A blog can be an essential element in the advertising of tourist content [20]. Many bloggers are paid to travel to various destinations and stay in hotels and other types of accommodation and write their impressions about the activities, amenities, and location itself [21].

USAGE OF TRAVEL AND ACCOMMODATION SERVICES IN EUROPAN COUNTRIES

In the following section, data from European statistical database Eurostat will be used to present dynamic trends for individuals who use Web services for travel and accommodation services in European countries.

In the last nine years, there is an increasing trend for the EU-28 countries in usage of travel and accomodation Web services. Table 4 in the Appendix presents the detailed information about the number of individuals who use the Internet for travel and accommodation services for the period of nine years, from 2009 to 2017. In 2009 there was 35 % of individuals who use the Internet for travel and accommodation services, which increased to 42 % of individuals in 2017. However, there are differences among countries.

The highest percentage of individuals who use the Internet for travel and accommodation services in 2017 was in Finland (61 %) and in Luxembourg (71 %), which was the leader also in the year 2009 (59 %). The lowest percentage of individuals who use the Internet for travel and accommodation services in 2009 (6 %) and in 2017 (11 %) was in Bulgaria and in North Macedonia (2009 and 2017: 10 %). There are also two countries whose percentage of individuals who use the Internet for travel and accommodation services, doubled in the last nine years (Cyprus: 2009 – 20 %; 2017 – 40 % and Estonia: 2009 – 20 %; 2017 – 39 %).

Several countries have approximately the same percentage of individuals who use the Internet for tourism services through nine years: Greece, Italy, Romania. In Latvia, there was less percentage of individuals who use the Internet for travel and accommodation services in the year 2017 (18 %) than in 2009 (23 %) as well as in Ireland (2009: 44 %; 2017: 42 %). The United Kingdom is the only country with a decreasing trend from 2009 (57 %) to 2017 (56 %). It can be concluded that developed countries with higher income and more effective ICT services use the Internet more for travel and accommodation services [22].

Table 5 in the Appendix presents the percentage of individuals who used the Website or app to arrange accommodation for the year 2017. In the year 2017, there were 18 % of individuals in the EU-28 countries who used any Website or app to arrange accommodation. There are several countries which are above EU-28 average: Ireland 21 %; Luxembourg 22 %; Malta 20 % and Netherlands 20 %. However, there are more countries below the EU-28 average: Czechia 5 %; Cyprus 4 %; Portugal 6 % and Romania: 6 %. United Kingdom is a country which has the highest percentage of individuals who used any Website or app to arrange accommodation (34 %), almost double the EU-28 average.

Regarding individuals who used dedicated Website or app to arrange an accommodation in the year 2017 in the EU-28 countries (14 %), the situation is quite similar regarding individuals who used any Website. There are several countries which are above EU-28 average:

Luxembourg 18 %; Malta 17 % and Netherlands 17 %. However, there are more countries below the EU-28 average: Czechia and Bulgaria 3 %; Cyprus 2 %; Portugal 4 % and Romania 5%. United Kingdom is a country which has the highest percentage of individuals who used dedicatedWebsite or app to arrange an accommodation (31 %), double than the EU-28 average.

There is a high percentage of individuals who have not used any Websites or apps to arrange accommodation in EU countries for the year 2017. There are many countries with 80 % and more of individuals who have not used any Website or app to arrange an accommodation Czechia (81 %), Denmark (88 %), Finland (85 %), Sweden (80 %) and Iceland (81 %). In Montenegro, there is only 15 % of individuals who have not used any Website or app to arrange an accommodation. The average for the EU-28 is 67 % of individuals who have not used any Website or app to arrange an accommodation in the year 2017.

Table 6 in the Appendix presents the percentage of individuals who make online purchases for holiday accommodation and travel and holiday accommodation for the year 2017. In every European country, there is a higher percentage of individuals who make online purchases for travel and holiday accommodation compared to online purchases for only holiday accommodation. Percentage of individuals who make online purchases for holiday accommodation is 25 % and for travel and holiday accommodation is 31 % for the year 2017 for the EU-28.

Leading countries in both categories with the highest percentage of individuals who make online purchases for holiday accommodation (Netherlands 49 % and Luxembourg 52 %) and for travel and holiday accommodation (Netherlands 54 % and Luxembourg 58 %) for the year 2017 are Netherland and Luxembourg, which is doubled than EU-28 average. Bulgaria and Romania remain at the end of the table in both categories, with the lowest percentage of individuals who make online purchases for holiday accommodation (Bulgaria 4 % and Romania 2 %) and travel and holiday accommodation (Bulgaria 5 % and Romania 3 %) for the year 2017.

CASE STUDY OF CROATIAN INDIVIDUAL TRAVELLERS: ACCOMODATION RESERVATION

BACKGROUND

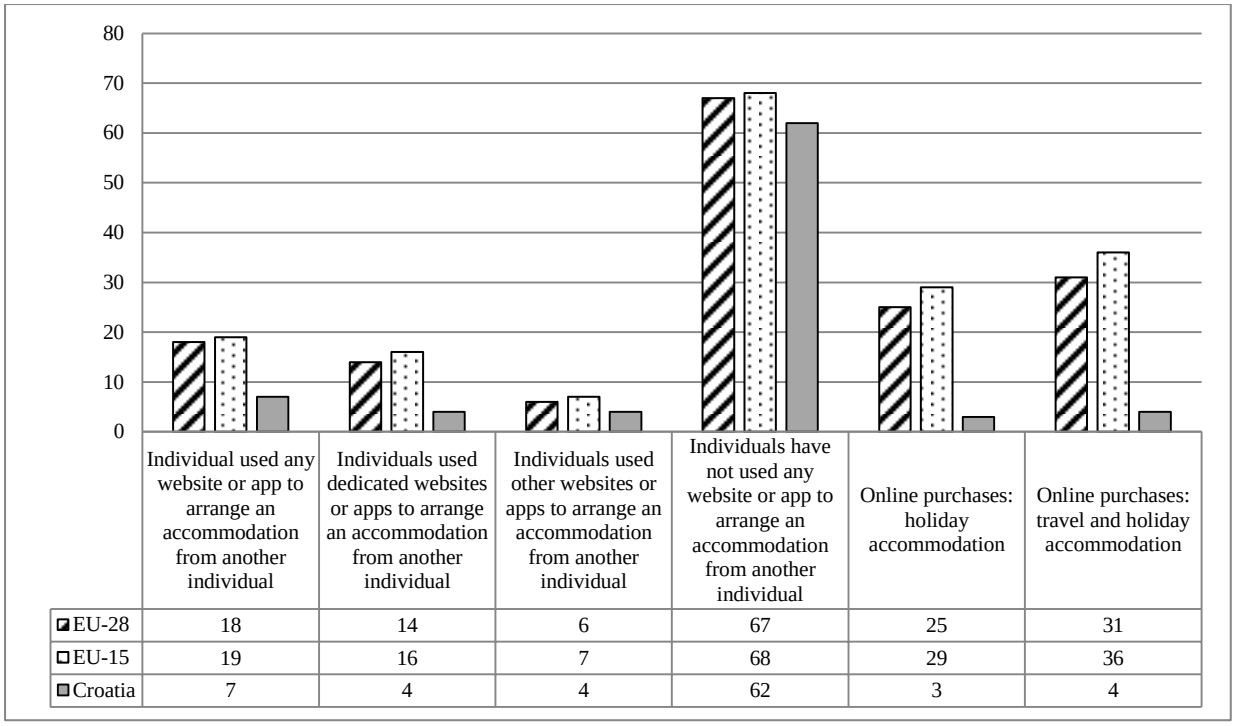
In this work, we focus on individual Croatian travellers and their attitudes towards travelling. Figure 1 presents the percentage of individual Croatian travellers who used any Website or app to arrange accommodation and to make online purchases for holiday accommodation and travel and holiday accommodation for the year 2017.

Compared to EU-28 and EU-15, Croatia is low below the EU average for every category. Regarding online purchases, there is only 3 % of individual Croatian travellers who purchase online holiday accommodation and 4 % who purchases online travel and holiday accommodation.

The smallest difference between EU-28, EU-15, and Croatia is in category “Usage of other Websites or apps to arrange an accommodation” (EU28 6 %, EU-15 7 % and Croatia 4 %). There is an almost similar percentage for individuals who have not used any Website or app to arrange accommodation for the year 2017 in EU-28 (67 %), EU-15 (68 %) and in Croatia (62 %). However, Croatia is lagging behind EU-28 and EU-15 countries regarding the Internet, Websites, or app usage for tourism services.

METHODOLOGY

Research about individual Croatian travellers and their attitudes regarding Web service usage in toursim was conducted from September 2016 to April 2017. Online survey consisted of 25



	Individual used any website or app to arrange an accommodation from another individual	Individuals used dedicated websites or apps to arrange an accommodation from another individual	Individuals used other websites or apps to arrange an accommodation from another individual	Individuals have not used any website or app to arrange an accommodation from another individual	Online purchases: holiday accommodation	Online purchases: travel and holiday accommodation
EU-28	18	14	6	67	25	31
EU-15	19	16	7	68	29	36
Croatia	7	4	4	62	3	4

Figure 1. Percentage of individual Croatian travellers according to travel and accomodation Web services, 2017 [23].

questions and was distributed by Facebook, WhatsApp, and sent by email. There were 81 respondents who participated in the survey. Our intention was to investigate whether individual Croatian travellers are familiar with features of travel and accomodation Web services, whether they use travel and accomodation Web services and how often they use them. We also try to determine respondents' experience when using travel and accomodation Web services and what they perceived as advantages or disadvantages. For the purpose of this article, the following Web services are selected for analysis: booking.com, Airbnb, and TripAdvisor. These Web Services allow travelers to share their experiences and to get an impression of the quality of service they can expect before making their final decision on a specific trip [24].

Table 1 presents the demographic characteristics of Croatian respondents. There are more than double female respondents (70,4 %) compared to male respondents (29,6 %). Most of the respondents are from 25 to 34 years old. There is only 1,2 % of respondents younger than 18 years and 6,2 % older than 45 years. A third of the respondents are students (32,1 %). Most of the respondents are employed (65,4 %) and have a bachelor's degree (63 %).

RESULTS

Overall usage of travel and accomodation Web services

A large number of respondents consider the Internet as the main information source (90,1 %) for their accomodation reservation. They mostly use smartphones (74,1 %), personal computers (18,5 %), and laptops (7,4 %) to acceess travel and accomodation Web services. Therfore, investigation about tourism services, most of the respondents start at the Internet (75,3 %), while 22,2 % discuss with their friends and only 2,5 % use journals, newsletters and flyers.

Respondents mostly make accommodation reservation through Web services (50,6 %). Around 16 % of them use travel agencies, 12,3 % use mobile applications, and 7,4 % use social networks to reserve accommodation.

Table 1. Demographic characteristics of respondents. Source: authors' work, 2017.

Gender	**Percentage, %**
Male	29,6
Female	70,4
Age	
<18	1,2
18-24	18,5
25-34	67,9
35-44	6,2
>45	6,2
Employment	
Pupil/Student	32,1
Employed	65,4
Unemployed	2,5
Retired	0
Education	
Primary school	1,2
High school	23,5
Bacherlor degree	12,3
Faculty	63
Total	**100**

Most of the respondents (88,9 %) search Web services to select accommodation, while only 58 % of them finalize reseravation over the Web servie. Only 11,1 % of respondents have never visited Web services for accommodation selection. Around half of the respondents (53,1 %) named travel and accomodation Web services as the main source of information and starting point regarding toursim services. Around half of respondents prefer paying accommodation services in cash, 38,3 % prefer using credit cards, and 11,1 % use PayPall services.

Around half of the respondents who make online accommodation reservation have only positive experince. However, there are also some reasons which prevent respondents from making online accommodation reservation: a negative review (44,4 %), low confindence (32,1 %), and previous bad experiences (9,9 %).

Usage of specific travel and accomodation Web services

The most of the respondents use following Web services: booking.com (58 %), TripAdvisor (33,3 %), Airbnb (27,2 %), and trivago (22,2 %). Less than 10 % of respondents use Hotels.com (8,6 %) and Expedia (6 %).

Table 2 presents the average grade regarding functionalities for Web services, which are the most popular and the most used by the Croatian respondents (Airbnb, Booking.com, Tripadvisor). In all categories, Booking.com has the highest average grades, especially for two categories: easy to use (3,91) and easy to find specific service (3,93). The lowest average grade, around 3,5, has Tripadvisor compared to the other two Web services. Airbnb has the highest grade for the category: viewable of the page (3,72). Booking.com has the highest average grade of all three Web services (3,85), followed by Airbnb (3,68) and Tripadvisor (3,57).

Previous research showed that users prefer following functionalities of Web services the most: easy of use, quality, quick search, as well as: ease of use, utility, information, security, and personalization [25].

Table 2. Average grade regarding functionalities of selected Web services. Source: authors' work, 2017.

Functionalities	Airbnb	Booking	Tripadvisor
Easy to use	3,70	3,91	3,59
Easy to find specific service	3,67	3,93	3,56
Visibility of pages	3,72	3,89	3,50
Sharing economics regarding accommodation	3,68	3,78	3,64
Two-way reviews	3,65	3,72	3,57
Average grade of Web service	3,68	3,85	3,57

Advantages of travel and accomodation Web services

Table 3 presents determinants that could affect on the selection process of different travel and accomodation Web services. Likert scale from 1-not important at all to 5-very important was used to evaluate offered determinants.

Table 3. Importance of functionalities of travel and accommodation Web services. Source: authors' work, 2017.

Determinants	Not important at all (1)	Not important (2)	Whatever (3)	Important (4)	Very important (5)	Average
Transparency of prices and service description	3	0	5	21	52	4,47
Easy to search and make reservation	3	0	4	26	48	4,43
Cancellation policy and money return	3	0	5	25	48	4,42
Sercurity (personal and credit card data) for users	2	2	10	24	43	4,28
Reservation confirmation via email	3	0	8	38	32	4,19
Possibility of direct communication with the owner of the accommodation	4	1	10	33	33	4,11
Photos of accommodation	10	0	5	30	36	4,01
Free cancellation policy	8	3	9	21	40	4,01
Discounts and promo codes	1	4	14	37	25	4,00
Reviews	9	4	7	23	38	3,95
Mobile access	2	6	24	31	18	3,70
Social networks	3	14	22	27	15	3,46
Newsletters	14	15	26	16	10	2,91

Most of the respondents evaluate following determinants with grade 5 – very important, e.g., *viewable, easy to search and make a reservation, the possibility of cancellation and money return, transparency of prices and service description and personal data security*. All named determinants have an average grade higher than four. The highest average grade has determinant *transparency of prices and service description* (4,47). There are also two other determinants which are important for respondents when deciding which Web service to use when making accommodation reservation and which have a high average grade: *discounts and promo codes* (4,00) and *reservation confirmation through email* (4,19). The lowest average grade has determinant *Newsletter* (2,91) which mean that respondents do not consider it important for the selection of Web services. Following two determinants respondents evaluate as important: *discounts and promo codes and reservation confirmation through email*. Photos of accommodation and Free cancellation policy, with the highest average grade (4,01). Furthermore, all average grades are quite high, around four, which mean that respondents agree with offered statements and their influence on accommodation selection and reservation.

CONCLUSION

Web services provide great flexibility and interoperability regarding online accommodation services. They offer a more effective and efficient way of publishing, promoting, finding, and making a reservation of accommodation. Therefore, the goal of the article was to describe and present the role of Web services for online accommodation services and to analyse Internet usage for travel and accommodation services in European Union countries. We also aimed to determine the habits and readiness of individual Croatian travellers regarding Web services usage for booking accommodation.

Research results showed that the percentage of individuals who are using the Internet for tourism services is growing from 2009 to 2017 in European Union countries, especially for developed countries which are leaders in ICT usage. Furthermore, leading countries regarding making online purchases for holiday accommodation and for travel and holiday accommodation are Netherland and Luxembourg for the year 2017. The situation is different in developing countries where ICT progress is low, which reflects negatively on Internet and Web services usage in tourism activities. The lowest percentage of individuals who are using the Internet for travel and accommodation services in 2017 was in Bulgaria and in North Macedonia. In Romania, there is the lowest percentage of individuals who make online purchases for holiday accommodation and for travel and holiday accommodation in 2017.

Based on Eurostat data, Croatia is low below EU average regarding Website or app usage to arrange accommodation and to make online purchases for holiday accommodation and travel and holiday accommodation for the year 2017 compared to EU-28 and EU-15. In addition, primary research results confirmed Eurostat data. Almost half of the Croatian respondents have never booked accommodation using Web services. Therefore, Croatia is still lagging behind and has to do more to foster individuals to use the Internet and its advantages and possibilities in tourism services.

This is an overview article, and there are several limitations which should be overcome in future research. We collect data from the Eurostat database for the year 2017, and the primary research was also conducted in 2017. Collected data were analysed using descriptive statistical methods. The online questionnaire also presents one of the limitations of the study, while individuals who do not use the Internet and Facebook could not respond to the survey. Also, all respondents regarding primary research are from one country, Croatia, which may cause some generalization problems. Therefore, future research should comprise a larger

sample from the year 2019, which will enable comparison of data from 2017 and 2019. The expanded analysis will also show if there is any progress in the area of Web services usage for online accomodation reservation during the last two years. In addition, inferential statistics methods should be used to describe and make inferences about the population.

APPENDIX

Table 4. Percentage of individuals who use Internet for travel and accommodation services, 2009-2017 [23].

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017
EU-28	35	37	39	36	38	39	39	40	42
EU-27	35	37	39	36	38	39	39	40	42
EU-15	40	41	43	41	44	44	44	45	47
Belgium	34	38	40	40	40	45	46	46	45
Bulgaria	6	12	15	9	13	12	17	13	11
Czechia	27	27	38	43	44	47	48	51	48
Denmark	56	61	60	55	54	50	66	65	58
Germany	47	46	54	51	55	56	58	55	58
Estonia	20	27	25	22	24	28	37	36	39
Ireland	44	47	47	47	45	43	42	42	42
Greece	25	25	27	21	23	19	21	28	28
Spain	36	41	39	40	38	40	41	42	46
France	38	40	41	38	44	:	43	42	43
Croatia	18	25	24	14	25	23	38	22	17
Italy	25	26	30	25	27	26	25	27	27
Cyprus	20	29	31	29	32	31	33	29	40
Latvia	23	26	25	11	19	19	21	19	18
Lithuania	14	18	15	14	13	14	9	16	18
Luxembourg	59	60	62	60	69	67	66	72	71
Hungary	18	26	21	17	20	26	26	23	23
Malta	27	35	38	32	37	35	46	40	40
Netherlands	48	50	50	51	50	51	49	51	56
Austria	31	35	40	41	44	37	44	40	43
Poland	14	17	19	12	12	14	17	21	23
Portugal	15	14	17	17	15	16	21	19	24
Romania	11	16	15	11	11	10	13	13	12
Slovenia	25	38	35	31	34	28	39	38	39
Slovakia	33	40	37	40	35	38	35	36	35
Finland	56	59	59	62	65	66	63	60	61
Sweden	48	52	49	54	54	58	51	55	57
United Kingdom	57	53	49	48	53	47	47	55	56
Iceland	52	58	54	52	53	46			57
Norway	47	63	60	56	61	57	62	61	57
North Macedonia	10	13		6	10	10	13	17	10

Table 5. Percentage of individuals who used the Website or app to arrange accommodation, 2017 [23].

Country	Individuals used any Website or app to arrange accommodation from another individual	Individuals used dedicated Websites or apps to arrange accommodation from another individual	Individuals used other Websites or apps to arrange accommodation from another individual	Individuals have not used any Website or app to arrange accommodation from another individual
EU-28	18	14	6	67
EU-27	18	14	6	67
EU-15	19	16	7	68
Belgium	19	13	7	69
Bulgaria	8	3	5	58
Czechia	5	3	3	81
Denmark	10	8	3	88
Germany	19	15	7	72
Estonia	15	13	3	74
Ireland	21	17	8	61
Spain	18	15	11	67
France	16	14	3	72
Croatia	7	4	4	62
Italy	17	13	10	56
Cyprus	4	2	2	77
Latvia	9	5	5	73
Lithuania	9	5	5	70
Luxembourg	22	18	7	76
Hungary	13	7	10	66
Malta	20	17	12	61
Netherlands	20	17	4	76
Austria	8	6	3	81
Poland	15	11	6	63
Portugal	6	4	3	69
Romania	6	5	2	63
Slovakia	16	8	10	68
Finland	9	6	3	85
Sweden	16	12	6	80
United Kingdom	34	31	6	61
Iceland	17	12	6	81
Montenegro	15	12	9	15
North Macedonia	8	4	4	68
Serbia	12	9	4	60

Table 6. Percentage of individuals who make online purchases for holiday accommodation and travel and holiday accommodation, 2017 [23].

Country	Online purchases: holiday accommodation	Online purchases: travel and holiday accommodation
EU-28	25	31
EU-27	25	31
EU-15	29	36
Belgium	23	28
Bulgaria	4	5
Czechia	21	24
Denmark	46	59
Germany	32	38
Estonia	22	36
Ireland	31	36
Greece	7	10
Spain	27	31
France	25	38
Croatia	3	4
Italy	9	12
Cyprus	11	16
Latvia	8	12
Lithuania	9	11
Luxembourg	52	58
Hungary	15	16
Malta	29	31
Netherlands	49	54
Austria	29	35
Poland	7	10
Portugal	14	18
Romania	2	3
Slovenia	11	13
Slovakia	13	18
Finland	36	45
Sweden	40	57
United Kingdom	47	55
Iceland	38	51
Norway	40	56
Montenegro	3	3
North Macedonia	2	2
Serbia	3	4
Turkey	3	6

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TRANSPARENCY IN PUBLIC RELATIONS: EVIDENCE FROM ASSOCIATIONS' ETHICS CODES

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ABSTRACT

The issue of transparency in public relations, or as it is more often referred, the conflict of interest, belongs to the group of the crucial ethical issues. Nevertheless, among scholars, there exist the question of how strict the imperative of transparency should be, not just concerning the cultural differences or the areas in the world where public relations professionals come from. Given the reputation of the public relations profession, which is still partially marked with negative labels, the issue of transparency in self-regulation of professionals in PR is of utmost importance. Aiming to explore the importance of transparency for PR professionals, and how this issue is regulated, the research was conducted through a method of qualitative content analysis based on 13 ethical codes, delivered by 18 major associations of public relations professionals at national and international levels, which belong to the Western Circle: United States, Great Britain, Germany, Austria, Italy, Spain and Croatia. Although the value of transparency is articulated in all ethical codes, there exist some differences, especially if a distinction is made between conflicts of interest and financial interests. In this respect, few differences emerged with regard to the character of membership in associations (individual/corporative/mixed membership), or their type (national or international) and much less within the geographical milieu of the association. The core finding is actually "the struggle" between the principle level and the operational level of transparency in PR-field: is it possible to be "ethically correct" just if PR-professionals announce that they are in conflict of interests and the client has nothing against?

KEY WORDS

transparency, conflict of interests, public relations, ethics

CLASSIFICATION

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INTRODUCTION

When the initiator of the first international ethics code in public relations French PR-expert Lucien Matrat (1907-1998) stated that "without ethical practice, public relations has no purpose" [1; p.565], and when in 1965 the International Public Relations Association (IPRA) adopted under his leadership International Code of Ethics – which became known as the Code of Athens (mostly inspired by United Nation's Universal Declaration of Human Rights of 1948) – ethical debate, or better to say, ethical negotiations were initiated and in the way they are present until today. That, decades long negotiation process, started when part of IPRA members stated that the code is so ambitious that automatically challenges association members to violate its rules, and that the code is also restricting "their human rights to employment as they wished" [2; p.711]. In other words, that ethical debate, grew after the first international ethic code, also became the matter of transparency of interests or conflict of interests in the public relations area.

The professionalization of any profession, including public relations, besides affirming the profession on the "professional chart of the world", always brings quite specific challenges that can often be reduced to ethical issues [3]. This research seeks to focus on the ethical issue of transparency as a value, or principle, in public relations, which in practice is mostly reduced to the issue of conflict of interest. Although nowadays, PR associations, that are active in practically every developed part of the world, have the code of ethics [4], ethical problems have not disappeared. On the contrary, they also appear to the extent that the existing solutions contained in the codes are not sufficient [5]. Just to address a few old-new questions: Can a public relations practitioner at the same time work for two clients competing with each other? Can PR practitioners provide presents or favours to journalists or politicians? What is the difference between benevolent rewards and corruption in this regard? For public relations professionals (PRs), these issues belong to the category of every-day life. Therefore, it is no surprise that the concept of transparency, or more often used concept of conflict of interests, become an integral part of many ethics codes in public relations, although codes do not address these issues in the same way. At the same time, there is also no consensus among scholars on these issues [6].

As the answer of Sriramesh and Verčič's [7] call for "further research needs in the area of global public relations", in 2014 came huge research of Kim and Ki, who examined public relations professional associations in 107 countries and their 45 ethics codes. They aimed to identify the universal and relativistic values among those codes and associations. "The values most frequently identified were honesty, safeguarding confidences, and conflicts of interest, which were evident in at least half of the ethics codes analysed" [6; p.253]. They find out that conflicts of interest of competing clients were determined to be a relativistic value, and honesty and safeguarding confidences of clients were classified as universal values. They strongly appeal that value of conflict of interest "should be added as a core universal value for the public relations profession in consideration of its occupational nature" [6; p.253].

The year after, 2015, there was also published the research of Taylor and Yang, who analysed the codes of ethics of 41 PR associations across the world. Their research brought six dominant themes emerged from the codes of ethics: professionalism, advocacy, moral standards, clients' interests, expertise, and relationships. Answering the general question whether global values have emerged, Taylor and Yang wrote that "there is a core of professional values that have emerged in public relations across the world" but "no global ethics model has yet to emerge". They also pointed out that "public relations associations recognize the dual-responsibility for the profession to serve both clients and society/public's interests" [8; p.553].

Both types of research mentioned above focused itself on the national and international review of the ethics codes and generally made important conclusions. Nevertheless, by analysing the issue of transparency of interests, there is still space for at least four additional views of the state, since the character of the PR-associations was not always put into consider. The aims of this research are to answer the questions: How transparency is manifested in the positioning within the ethic codes and between the terms of particular codes of associations active in Western countries; How is transparency expressed in the association's codes with regard to their membership type and with regard to "geographic origin" within the West? And, finally, how is resolved one of the more challenging ethical issues: can a PR expert act ethically if there is a conflict of interest?

METHODOLOGY

The research was conducted on a sample of 13 ethics codes of 18 public relations associations, which represents individual, corporative, and mixed membership (Table 1). Since it is assumed that the Western states will have resolved legal regulations regarding transparency, or at least they are not in the "red zone" of Transparency International list [9] for this research are selected PR associations from countries of the Western Circle, and include 11 national codes among EU member states and the United States of America, and 2 international codes.

National PR-associations codes are taken from the following countries in the European Union (in alphabetical order), Austria (PRVA Code – Code of Conduct of the Austrian Public Relations Association with mixed membership), Croatia (CPRA Code – Croatian Public Relations Association Code of Ethics with individual membership), Germany (DRPR Code – The German Communication Code accepted by different association with mixed membership), Italy (Two codes: the first is FERPI Code – Italian Public Relations Federation Code of Professional Conduct with individual membership, and second is with corporative: Professional Principles and Codes of Conduct for Public Relations in Italy – Assorel Code), Spain (Two codes – first belongs to association with individual membership, and the second with corporative: Association of Communication Managers Code of Ethics – Dircom Code; and Association of Communication and Public Relations Consultancy Companies Code of Ethics – ADECEC Code), United Kingdom (Two codes – both belonging to associations with mixed membership: PRCA Professional Charter – PRCA Code; and Chartered Institute of Public Relations Code of Conduct – CIPR Code). In USA PRSA Code of Ethics – PRSA Code – where PRSA has an individual membership and The PR Council Code of Ethics and Principles – PR Council Code – for corporative memberships of the association.

The codes of two international associations are both excluding membership of individual PRs: Global Protocol on Ethics in Public Relations – GA Code – gathers associations and institutions (e.g. universities and faculties) and The ICCO Stockholm Charter – ICCO Code is signed by corporative and association's members. Each of 13 codes was analysed in their version published at associations web-sites till September 2017. The research matrix was made, according to the traditional methodological guidelines for the qualitative content analysis [10], and each code was analysed under two basic criteria, shaped to address specific terms/concepts strictly connected to the principle of transparency [11] the conflict of interests (the financial interest here is excluded) and financial transparency.

The principle of transparency of interests is present directly in l2 of 13 analysed codes, although it is mostly reduced through the term "conflict of interests" (the only ethic code that does not treat transparency of interests in any direct connection is Global Alliance code, but it mentions conflicts in general). This research uses the term transparency since the term "conflict of interests" holds in itself negative connotation.

Table 1. Analysed codes of public relations associations.

Association short name / country	Association full name	Membership type
PRVA / Austria	Public Relations Association Austria (Public Relations Verband Austria)	Mixed
CPRA / Croatia	Croatian Public Relations Association (Hrvatska udruga za odnose s javnošću)	Individual
DPRG / Germany	German Public Relations Society (Deutsche Public Relations Gesellschaft)	Mixed
FERPI / Italy	Italian Public Relations Federation (Federazione Relazioni Pubbliche Italiana)	Individual
Assorel / Italy	Association of Communication and Public Relations companies (Associazione imprese di comunicazione e relazioni pubbliche)	Corporative membership
PRCA / UK	Public Relations Consultants Association	Mixed
CIPR / UK	Chartered Institute of Public Relations	Mixed
Dircom / Spain	Association of Communication Managers (Asociación de Directivos de Comunicación)	Individual
ADECEC / Spain	Association of Communication and Public Relations Consultancy Companies (Asociación de Empresas Consultoras en Relaciones Públicas y Comunicación)	Corporative membership
PRSA / USA	Public Relations Society of America	Individual
PR Council / USA	Public Relations Council	Corporative membership
GA / International	Global Alliance for Public Relations and Communication Management	Corporative membership (associations+institutions)
ICCO / International	International Communications Consultancy Organization	Corporative membership (associations+agencies)

"The principle of transparency" as a value represents itself in a positive way and could be understood through "ethical triangle" between public relations practitioners, clients/employers and the public. Or, as the code of USA's PRSA explains: "Avoiding real, potential or perceived conflicts of interest builds the trust of clients, employers, and the publics." The intention of public relations is, according to them, "to earn trust and mutual respect with clients or employers" and to "build trust with the public by avoiding or ending situations that put one's personal or professional interests in conflict with society's interests".

German DRPR Code also teaches that the successfulness of public relations is rooted in the trust of different publics, because "they are permitted to take the side of their employer or client consistently, but if they do not wish to undermine the employer's or client's credibility

and reputation, as well as the credibility of the entire profession, their work must be transparent and eschew dishonest practices".

The transparency as a principle also has its practical dimension, as PR Council pronounces: "Our overriding principle is that openness and transparency not only are in the public interest, they are also necessary tools for meeting our clients' objectives. Our bias in counseling clients is toward disclosure, which we believe is appropriate as a principle and effective as a communications tool". Furthermore, the transparency can be considered as a corporative public relations communication tool and has its strength, especially in social responsibility communication. Transparency even became its "crucial principle" [12; p.256] and in the context of socially responsible business operations "positively affect the company's reputation, employee motivation, consumer loyalty, protection from bad managerial decisions and long-term profitability" [13; p.141].

Although the principle of transparency can be used in the context of transparency of the information or "as a synonym with integrity, values, forthcoming, accessible, open, and clarity" [14; p.566], in this study the principle of transparency is focused on transparency of different interests, including financial interests. Based on this framework, we pose four research questions:

> **RQ 1**: How transparency is manifested in the positioning within the codex and between the terms of particular codes of associations active in Western countries?
>
> **RQ 2**: How transparency is expressed in the association's codes with regard to the membership type in associations?
>
> **RQ 3:** How transparency is expressed in the association's codes with regard to the national/international type of association?
>
> **RQ 4**: How transparency is experienced in the association's codes with regard to "geographic position" within the West?

RESULTS

The importance of the principle of transparency of interests, or conflict of interest, is visible in the fact that most of the analysed codes have a special textual part to this aspect (it necessary to note that not all analysed codes have organized their own text in sections). These are the following seven codes: CPRA (section: transparency and conflict of interest), the DRPR (section: transparency), the FERPI (section: specific obligations for economic and financial information and specific obligations for the legitimate representation of private interests at the institutions), ASSOREL (section: competing positions, fees, the advisory role), the CIPR (section: transparency and avoidance of conflict of interest), the PRSA (section: conflicts of interest), the GA (section: guide for decision-making, honesty) and ICCO (section: conflicts).

In the 13 analysed codes, 14 terms were found to be related to the value of transparency of interest. Under that concept most commonly used term in codes were: conflict of interest, transparency; financial interests; gifts, presents and favours; improper influence, tie-in transactions; corruption; third parties; surreptitious advertising; kickbacks; use of power; threats and contradictory positions.

The principle of transparency can be divided into two categories. The first is a conflict of interests without direct financial effects, and the second is the category of financial transparency. There are 7 terms which can be situated in the category of conflict of interests (non-financial). The first term, conflict of interests, is present in 12 analysed codes (few of them are using variations to the term, what is put in brackets in Table 2). The second term,

Table 2. Two types of transparency.

Conflict of interest (non-financial) terms	**Codes using terms**	**Financial transparency terms**	**Codes using terms**
Conflict of interests	PRVA CPRA DRPR FERPI CIPR DIRCOM PRSA ICCO ASSOREL (conflicting assignments) PRCA (interest declared) PR COUNCIL(conflicts) GA (conflicts) **Total: 12 associations**	Financial interest	CPRA FERPI CIPR ADECEC PRSA **Total: 5 associations**
Transparency	CPRA DRPR CIPR DIRCOM PR COUNCIL **Total: 5 associations**	Gifts, presents, and favours	PRVA HUOJ FERPI DRPR (granting them benefits) PRCA (not offer or give any inducement) PRSA (example) **Total: 6 associations**
Competing employers/clients	CPRA DRPR PRSA ASSOREL **Total: 4 associations**	Tie-in transactions	PRVA HUOJ FERPI PR COUNCIL **Total: 4 associations**
Improper influence	DRPR FERPI PRCA PRSA **Total: 4 associations**	Third parties	FERPI ADECEC PR COUNCIL **Total: 3 associations**
Use of power	PRVA CPRA (abuse of position and authority) **Total: 2 associations**	Corruption	CPRA FERPI ADECEC **Total: 3 associations**
Contradictory positions	DRPR **Total: 1 association**	Kickbacks	CPRA PRCOUNCIL **Total: 2 associations**
Threats	DRPR **Total: 1 association**	Surreptitious advertising	PRVA DRPR **Total: 2 associations**

transparency, is directly mentioned in 5 codes. Next two terms are part of 4 codes: competing employers/client and improper influence. Two codes hold a term "use of power", and in one code are the terms "contradictory positions" and "threats". The same number of terms (7) can be put into the category of financial transparency. The term "financial interest" is directly mentioned in 5 codes. The terms "gifts/presents/favors" and "tie-in transactions" are part of 4 codes. "Third parties" and "corruption" are mentioned in 3 codes. Finally, "kickbacks" and "surreptitious advertising" are present in 2 codes. Approximately, among codes, there are slightly more uses of non-financial conflict of interests terms, then financial transparency terms.

In second research question, this research sought to verify whether in ethical codes the concepts connected to transparency would show relevance in relation to the membership characteristics in associations which are supporting the specific ethic code (Table 3). It has been shown that the codes supported by associations which are gathering individual membership are more dedicated to the terms that belong to both categories of the principle of transparency, than the codes which are gathering corporative or mixed membership. For example, the codes supported by associations with corporative membership do not mention next terms from the category of conflict of interest: "improper influence", "use of power", "contradictory positions" or "threats". In the category of financial transparency the majority

Table 3. Transparency according to the membership type of associations.

Type of association	**Conflict of interest (non-financial)**	**Number of codes**	**Financial transparency**	**Number of codes**
Code of association with individual membership **Total: 4 associations**	Conflict of interests Transparency Competing employers/clients Improper influence Use of power Contradictory positions Threats	4 2 2 2 1 0 0	1) Financial interest 2) Gifts, presents, and favours 3) Tie-in transactions 4) Third parties 5) Corruption 6) Kickbacks 7) Surreptitious advertising	3 3 2 1 2 1 0
Code of association with mixed membership **Total: 4 associations**	Conflict of interests Transparency Competing employers/clients Improper influence Use of power Contradictory positions Threats	4 2 1 2 1 1 1	1) Financial interest 2) Gifts, presents, and favours 3) Tie-in transactions 4) Third parties 5) Corruption 6) Kickbacks 7) Surreptitious advertising	1 3 1 0 0 0 2
Code of association with corporative membership **Total: 5 associations**	Conflict of interests Transparency Competing employers/clients Improper influence Use of power Contradictory positions Threats	4 1 1 0 0 0 0	1) Financial interest 2) Gifts, presents, and favours 3) Tie-in transactions 4) Third parties 5) Corruption 6) Kickbacks 7) Surreptitious advertising	1 0 1 2 1 1 0

of codes from the same group do not mention the majority of the terms from that category. In the middle of usage are codes of associations with mixed membership.

The third research question has shown that there are differences, given the character of the associations (national or international), international associations far less elaborate on issues of transparency of interest than national associations (Table 4). GA uses the term conflict in general sense, which can be applied to conflict of interests, and ICCO mentions the term "conflicting interest".

When research findings are applied to the fourth research question (How transparency is experienced in the association's codes with regard to "geographic position" within the West?), on the average, only slightly less elaborate concepts of transparency of interest have codes from the United Kingdom and the United States (Table 5). So the criterion of geographic milieu did not prove relevant.

However, during the research, it was especially interesting to note that an "ethical triangle" made from three vertices "PRs – client/employer – public" in the analysis of the codes "split" at the part of "representation of clients and transparency". In this area, the codes have introduced a criterion, which is in ethical sense doubtful, and might be pronounced through a question: Can client's ethos substitute the ethics of PRs?

Before we come deeper in this issue, it is necessary to explain that there are three concepts/terms in the analysed codes related to "representation of clients and transparency", which most often

Table 4. Transparency according to the type of associations.

National associations	Number of different terms	International associations	Number of different terms
Austria PRVA	5	GA	1
Croatia CPRA	9	ICCO	1
Germany DRPR	8		
Italy FERPI	7		
Italy ASSOREL	2		
UK CIPR	3		
UK PRCA	3		
Spain DIRCOM	2		
Spain ADECEC	2		
USA PRSA	5		
USA PR COUNCIL	5		

Table 5. Transparency according to the country of establishment.

Europe	Number of different terms	USA and UK	Number of different terms
Austria PRVA	5	USA PRSA	5
Croatia CPRA	9	USA PR COUNCIL	5
Germany DRPR	8	UK CIPR	3
Italy FERPI	7	UK PRCA	3
Italy ASSOREL	2		
Spain DIRCOM	2		
Spain ADECEC	2		

refer to "clients with conflicting interests". Those terms are part of the codes of 5 associations (PRSA, PR-COUNCIL, ICCO, CPRA, and ASSOREL). Next term is "competing employers / clients" – present in 4 associations (CPRA, DRPR, PRSA, and ASSOREL), and the third term is "contradictory positions", which is mentioned only in one code (DRPR). The question of "representation of clients and transparency" does not treat only three associations: PRCA, DIRCOM, and GA.

Common to all analysed codes that deal with this issue is that the conflict of interest is at the end resolved by – the client. This means that if there is doubt in existing the conflict of interest, and after the client is informed about it and if the client has no objection, the PR expert can take over the job.

Here are some examples of these ethical doubts, taken from the ethic codes.

Austrian PRVA in its code suggests that PRs, before they take new client, should check whether exists a conflict of interest with an existing mandate. "In case of doubt, a clarification is made with the existing client and the potential client as to whether the mandate can be accepted". Croatian CPRA obligates its members "to disclose to the employer, client, or potential client any financial or other interest in the business relationship with the supplier, associate or another client". The same code gives an example of inappropriate practices if "the member does not point to the personal financial interest that exists with the competitor of the employer or the client". And furthermore, it is against ethics if "a member represents a competitive company or a conflict of interest without the prior notice of the client or employer".

Furthermore, German DRPR in its code admits that "public relations professionals operate within complex and often controversial networks of interests", announcing that "they may, therefore, face conflicts of interest during their daily work or when accepting a mandate, for example when two contradictory positions or competing employers or clients are to be represented". The solution is: "The acceptance of such mandates is only permissible if this course of action is agreed on with the employers or clients".

Also, the Italian FERPI members "cannot take up positions or carry out activities that involve a conflict of interest without the explicit consent of the client or employer concerned". On the same wave is Italian ASSOREL by claiming that "competing positions Public Relations agencies can work with clients or competing interests, but all parties involved must be informed before the start of activities".

USA's PRSA also in its code obligates to "disclose promptly any existing or potential conflict of interest to affected clients or organizations" and to "encourage clients and customers to determine if a conflict exists after notifying all affected parties". The same code gives few examples of impropriate acting, if "the member fails to disclose that he or she has a strong financial interest in a client's chief competitor" or if "the member represents a 'competitor company' or a 'conflicting interest' without informing a prospective client". USA's PR Council in its code states: "Members reserve the option to represent more than one client in an industry sector, but any apparent conflicts must be vetted with relevant clients".

International ICCO-code is directly stating: "Consultancies may represent clients with conflicting interests. Work may not commence for a new and conflicting interest without the current client first being offered the opportunity to exercise the rights under any contract between the client and consultancy". Spanish ADECEC in its code looks at the question optionally: "The associated companies and their managers can inform the client of the possession of shares and financial interests in companies of their competence".

CONCLUSION

This study focused on the use of the concept of transparency of 13 ethics codes that concern 18 public relations associations in the West. The analysis has shown that the concept of transparency in the ethics of public relations practitioners, associations, agencies, and institutions is far wider than the notion of conflict of interest.

The content analysis found 14 terms related to transparency, divided into categories of conflict of interest and financial transparency. Furthermore, research has shown that the character of membership in associations is to be taken into account in the analysis of ethical codes, what became significant also in analyses of ethics as a strategy of PR-associations or education as the essential part of the codes [15, 16]. To answer the question of why the codes that are signed by "corporate membership" in relation to "individually" or "mixed" membership are largely different invites additional research.

Research has shown that, in contrast to geographical differences that have not proved to be significant, there are significant differences in the use of concepts when it comes to the national and international character of associations. Since the latter use a far smaller number of concepts related to transparency, it can be argued that international associations are letting national associations deal with these issues.

However, during the research, it became apparent that in codes the issue of conflicts of interest in relation to the client is unanimously solved in the following way: PRs inform clients about the possible existence of the conflict and then the client decides whether or not to cooperate. If the problem is solved, are negotiations on this ethical problem necessary at all? However, Kim and Ki's conclusion maybe helps to invite further discussions [6; p.251]:

> "If we simply stress the complicated nature of the public relations profession and argue the impracticality of applying the universal approach to codes of ethics in public relations practice, professional codes of ethics cannot then provide necessary normative direction for the profession. Therefore, we argue that prohibition of conflicts of interests of competing clients should be the universal value for enhancing public relations professionalism, as we cannot assume that one public relations agency, which by nature is client-driven, can serve multiple competing clients sincerely and professionally at the same time".

This study has its limitations, especially concerning the sample limited to the West. The challenge for further researches is to find out possible differences among associations and codes really so big that it is necessary to create new, universal ethic code for public relations. Negotiations for the re-examination of ethic codes and the concepts scholars have already begun to provide [6, 17].

APPENDIX

Table 6. Sources of used codes (continued on p.427).

Association Name	Full Name of Code	Source
PRVA	Code of Conduct of the Austrian Public Relations Association	https://prva.at/itrfile/_1_/d4d06c40110d731e9b73df17cddf9c00/20170323_Ehrenkodex%20des%20PRVA.pdf, accessed 19th September 2017
CPRA	Croatian Public Relations Association Code of Ethics	http://www.huoj.hr/files/File/Eticki_kodeks_HUOJ_final.pdf, accessed 19th September 2017

Table 6. Sources of used codes (continuation from p.426).

Association Name	Full Name of Code	Source
DRPR	The German Communication Code	http://drpr-online.de/wp-content/uploads/2015/11/German_Communication_Code.pdf, accessed 3rd March 2017
FERPI	Italian Public Relations Federation Code of Professional Conduct	http://www.ferpi.it/associazione/statuto-regolamento-e-codici/codici/codice-di-comportamento-professionale-della-ferpi, accessed 19th September 2017
Assorel	Professional Principles and Codes of Conduct for Public Relations in Italy	https://www.assorel.it/relazioni-pubbliche/assorel-rp-0002156.html, accessed 20th March 2017
PRCA	PRCA Professional Charter	https://www.prca.org.uk/sites/default/files/downloads/PRCA%20Code%20of %20Conduct%20-%20updated%20following%20review%20in%20September %202016.pdf, accessed 19th September 2017
CIPR	Chartered Institute of Public Relations Code of Conduct	https://www.cipr.co.uk/sites/default/files/Appendix%20A%20-%20Code %20of%20Conduct%20-%20Updated%20June%202012.pdf, accessed 19th September 2017
Dircom	Association of Communication Managers Code of Ethics	http://www.dircom.org/sobre-dircom/codigo-etico, accessed 21st March 2017
ADECEC	Association of Communication and Public Relations Consultancy Companies Code of Ethics	http://www.adecec.com/quienes_somos/codigo_etico.php, accessed 22nd March 2017
PRSA	PRSA Code of Ethics	https://www.prsa.org/ethics/code-of-ethics, accessed 19th September 2017
PR Council	The PR Council Code of Ethics and Principles	http://prcouncil.net/join/the-pr-council-code-of-ethics-and-principles, accessed 19th September 2017
GA	Global Protocol on Ethics in Public Relations	https://static1.squarespace.com/static/561d0274e4b0601b7c814ca9/t/56c202bcc2ea510748cb2171/1455555260837/GA_Global_Ethics_Protocol.pdf, accessed 19th September 2017
ICCO	The ICCO Stockholm Charter	https://iccopr.com/wp-content/uploads/2015/01/StockholmCharter.pdf, accessed 11th July 2017

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http://dx.doi.org/10.1177/1077699014538831.

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